Served on Parties and Delivered to U.S. EPA: October 15, 2004

STB ID #: 35117 **Comment Due Date: December 6, 2004**

Volume I
Chapters 1-14

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

STB Finance Docket No. 30186 (Sub–No. 3)

Tongue River Railroad Company, Inc. – Construction and Operation – Western Alignment

Tongue River III - Rosebud and Big Horn Counties, Montana

Lead Agency:

Surface Transportation Board
Section of Environmental Analysis
1925 K Street, NW
Washington, DC 20423-0001

Cooperating Agencies:

U.S. Army Corps of Engineers
U.S. Bureau of Land Management
Montana Department of Natural Resources and Conservation (lead agency for Montana state agencies)

Information Contacts:

Victoria Rutson, Chief
Kenneth Blodgett, Environmental Protection Specialist/Project Manager

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GLOSSARY

$\mu g/m^3$	microns per cubic meter
AAM	Annual Arithmetic Mean
AASHTO	American Association of State Highway and Transportation Officials
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council of Historic Preservation
ADHT	average daily highway traffic
ADTT	average daily train traffic
af	acre-feet
afy	acre-feet per year
APD	Application for Permit to Drill
APE	area of potential effects
AREMA	American Railway Engineering and Maintenance-of-Way Association
ARM	Administrative Rules of Montana
ARPA	Archaeological Resources Protection Act of 1979
AVF	Alluvial Valley Floor
BA	Biological Assessment
BACT	Best Available Control Technology
BIA	Bureau of Indian Affairs
BLM	U.S. Department of the Interior, Bureau of Land Management
BLP	Buoyant Line Program
BMA	Block Management Area
BMPs	best management practices
BNSF	Burlington Northern Santa Fe Railroad Company
Board	Surface Transportation Board
BTUs	British Thermal Units
CBM	Coal Bed Methane
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
dB	decibels
dBA	adjusted decibels
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act of 1973
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impacts
FRA	Federal Railroad Administration
FY	Fiscal Year
gpm	gallons per minute
HUD	U.S. Department of Housing and Urban Development

ICC	Interstate Commerce Commission
ICCTA	Interstate Commerce Commission Termination Act of 1995
ISC	Industrial Source Complex
LARRS	Livestock and Range Research Station
L_{dn}	day-night noise levels
MAAQS	Montana Ambient Air Quality Standards
MBEWG	Montana Bald Eagle Working Group
MCFH	Miles City Fish Hatchery
MDEQ	Montana Department of Environmental Quality
MDH	Montana Department of Highways
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MOA	Memorandum of Agreement
mph	miles per hour
MPDES	Montana Pollutant Discharge Elimination System
MT DNRC	Montana Department of Natural Resources and Conservation
MT	Montana
MT SHPO	Montana State Historic Preservation Office
MT DFWP	Montana Department of Fish, Wildlife, and Parks
MT NHP	Montana National Heritage Program
MT DSL	Montana Department of State Lands
MWQA	Montana Water Quality Act
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAPAP	National Acid Precipitation Assessment Program
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act of 1969
NETL	National Energy Technology Laboratory
NHPA	National Historic Preservation Act of 1996
NOI	Notice of Intent
NPRC	Northern Plains Resource Council, Inc.
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
PA	Programmatic Agreement
PM	particulate matter
POD	Plan of Development
PRB	Powder River Basin
PSD	prevention of significant deterioration
ROD	Record of Decision
ROW	Right-of-Way
RSPA	Research and Special Programs Administration
SCCC	Spring Creek Coal Company
SEA	Section of Environmental Analysis
SEE	Section of Energy and Environment
SEIS	Supplemental Environmental Impact Statement
SMCRA	Surface Mining Control and Reclamation Act
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide

Task Force	Multi-agency/Railroad Task Force
TCP	Traditional Cultural Property
TMDL	total maximum daily load (of sediments)
TRRC	Tongue River Railroad Company, Inc.
TRRC I	Tongue River I
TRRC II	Tongue River II
TRRC III	Tongue River III
TSS	total suspended solids
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UT	Utah
UTU	United Transportation Union-General Committee on Adjustment
VPD	vehicles per day
WY	Wyoming

EXECUTIVE SUMMARY

This Draft Supplemental to the EIS (Draft SEIS) discusses the potential environmental impacts associated with the application submitted by the Tongue River Railroad Company, Inc. (TRRC) to the Surface Transportation Board (Board) for authorization to construct and operate 17.3 miles of rail line known as the proposed Western Alignment, and also referred to as Tongue River III. The proposed Western Alignment would be located in Rosebud and Big Horn counties, MT. TRRC previously submitted two related applications which were considered and approved by the Board and its predecessor agency, the Interstate Commerce Commission (ICC), in 1986 and 1996, respectively. These applications, known as Tongue River I and Tongue River II, involved the construction and operation of rail lines in Custer, Big Horn, Powder River, and Rosebud counties, and are described in detail in Chapter 1, "Overview of Applications." The proposed Western Alignment is an alternative routing for the southernmost portion of the 41-mile Ashland to Decker, MT alignment approved in Tongue River II, known as the Four Mile Creek Alternative. The overall purpose of Tongue River I, Tongue River II, and Tongue River III is to provide for the transport of coal from mines in the Powder River Basin and Tongue River Valley to markets in the Midwestern and northeastern states.

The Board's Section of Environmental Analysis (SEA) has conducted a thorough and comprehensive analysis of all of the potential environmental impacts associated with construction and operation of the proposed Western Alignment, the results of which are contained in this Draft SEIS. As part of its analysis, SEA also compared potential impacts of the proposed Western Alignment to potential impacts of the previously approved Four Mile Creek Alternative. (See Chapter 1, "Overview of Applications," and Chapter 4, "Proposed Western Alignment.") Furthermore, in this Draft SEIS, SEA analyzed TRRC's proposed refinements to the alignment previously approved in Tongue River I and Tongue River II. (See Chapter 5, "Focused Review of Tongue River I and Tongue River II.") The SEIS has been prepared by SEA, in consultation with three cooperating agencies: the U.S. Army Corps of Engineers (Corps); the Department of the Interior, Bureau of Land Management (BLM); and the Montana Department of Natural Resources and Conservation (MT DNRC), acting as the lead agency for all Montana state agencies.

Based upon the information available to date regarding both the proposed Western Alignment and the Four Mile Creek Alternative, SEA preliminarily concludes that both routes are environmentally acceptable routes: they both could be operated safely, they both avoid the sensitive Tongue River Canyon, and the environmental impacts of either route, with appropriate mitigation measures, would not be significant. However, the proposed Western Alignment would offer certain operational efficiencies and concomitant environmental benefits because of its more favorable grade, e.g., reduced fuel consumption and reduced potential for accidents. SEA also preliminarily concludes that the proposed refinements to the alignments previously approved in Tongue River I and Tongue River II would not result in any new significant environmental impacts other than those previously assessed in the Tongue River I and Tongue River II proceedings.

As explained in Chapter 7, "Recommended Mitigation Measures," SEA developed environmental mitigation measures to address potential impacts identified in Tongue River III. In addition, SEA has also reviewed the mitigation measures previously imposed by the Board in Tongue River I and Tongue River II and has made refinements as appropriate to clarify intent, to

include time frames, and to designate responsible parties for the preparation of required environmental studies. In this Draft SEIS, SEA preliminarily recommends a comprehensive package of new, refined, and existing mitigation measures that would apply to the entire rail line in Tongue River I, Tongue River II, and Tongue River III. The 83 mitigation measures address potential impacts or concerns in nine environmental issue areas: land use, biological resources, soils and geology, hydrology and water quality, cultural resources, transportation and safety, air quality, noise and vibration, and socioeconomics. Four additional mitigation measures address the Miles City Fish Hatchery, one mitigation measure addresses the Fort Keogh Livestock and Range Research Station, and one mitigation measure addresses Spotted Eagle Lake.

SEA has ensured that this Draft SEIS, including preliminary environmental mitigation recommendations, has been served on those named on its service list. SEA has also issued the Draft SEIS to appropriate Federal, state, and local agencies, and will publish notice of availability of this document in the *Federal Register*. The public is invited to comment on all aspects of the Draft SEIS during a 45-day comment period. SEA will carefully consider all the comments received on the Draft SEIS, conduct any further environmental analysis that may be necessary, and will then prepare a Final SEIS. The Final SEIS will also be served on the parties to the proceeding, and a notice of availability will be published in the *Federal Register*. The Board will then consider the Draft and Final SEISs, any comments, and the entire record of the environmental review before issuing its final written decision in Tongue River III.

PRELIMINARY CONCLUSIONS

Based on all the information available to date regarding the proposed Western Alignment and the Four Mile Creek Alternative, SEA believes that both routes could be safely operated and would avoid the environmentally sensitive Tongue River Canyon. The environmental impacts of both routes are, with appropriate mitigation measures, generally comparable. At this point, SEA believes that the proposed Western Alignment would be environmentally preferable for the following reasons: (1) the proposed Western Alignment would require fewer at-grade public road crossings (four versus seven for the Four Mile Creek Alternative), (2) the proposed Western Alignment would have a flatter grade,[1] and hence a lower estimated train derailment rate (0.32 per year versus 0.55 per year for the Four Mile Creek Alternative), (3) the operation of the proposed Western Alignment, with its flatter grade, would require only 65 percent of the fuel required by the Four Mile Creek Alternative, (4) the total acreage required for the proposed railroad right-of-way[2] and the number of property owners affected would be less with the proposed Western Alignment, (5) the proposed Western Alignment would affect substantially less wetlands (1.69 acres for the proposed Western Alignment versus 6.09 acres for the Four Mile Creek Alternative), and (6) the proposed Western Alignment would affect fewer noise sensitive receptors (residences) during operation (none for the proposed Western Alignment versus five for the Four Mile Creek Alternative).

[1] The proposed Western Alignment would have a 0.93 percent maximum descending grade, while the Four Mile Creek Alternative would have a 2.31 percent maximum descending grade. Grades steeper than 1.0 percent require additional engines to haul loaded trains against the grade, and also present an increased safety risk through loss of control during descent.

[2] The right-of-way (ROW) that would be required for construction and operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative would extend 200 feet from each side of the proposed railroad's centerline.

The amount of earthwork (grading and cut and fill) is a potentially significant effect under either route. However, the proposed Western Alignment would require more earthwork than the Four Mile Creek Alternative.[3] Given this, the proposed Western Alignment has greater potential for increased impacts in the areas of soil erosion, sediment load to the Tongue River and its tributaries, dust during construction, and visual quality.

While the amount of earthwork associated with the proposed Western Alignment is greater than the Four Mile Creek Alternative, SEA believes that the mitigation measures SEA is recommending in this Draft SEIS would significantly reduce these potential impacts to the point where the proposed Western Alignment would be environmentally preferable.

Table 1-1 illustrates the environmental comparisons by topic area between the approved Four Mile Creek Alternative and the proposed Western Alignment.

Table 1-1 – Comparison of Key Environmental Issues

Topic	Proposed Western Alignment	Approved Four Mile Creek Alternative
Land Use		
Number of homes displaced	0	2
Total acreage required for ROW	672	765
Land owners affected	13	15
Biological Resources		
Number of non-perennial stream crossings	42	40
Estimated acreage of wetlands disturbed	1.69	6.09
Number of endangered species potentially affected	3	3
Soils and Geology		
Volume of earth moved (million cubic yards)	17.3	10.3
Volume of potential erosion (tons/year) during construction	18,300 - 28,700	14,600 - 23,800
Hydrology and Water Quality		
Number of river bridge crossings	1	1
Potential increase in sediment load (tons/year) in Tongue River	6,770 - 10,600	3,650 - 6,000
Cultural and Paleontological Resources		
Estimated number of prehistoric and historic cultural resources in ROW (subject to change based on pre-construction surveys).	9	6

[3] 17.3 million cubic yards versus 10.3 million cubic yards for the Four Mile Creek Alternative.

Topic	Proposed Western Alignment	Approved Four Mile Creek Alternative
Transportation and Safety		
Number of at-grade public road crossings	4	7
Estimated annual derailments	0.32	0.55
Air Quality (tons/mile/year)		
Construction period dust emissions	7.07	4.39
Operational emissions-combined total for $CO, NO_x, PM_{10}, SO_2, VOC$	16.85	25.84
Noise and Vibration		
Number of sensitive receptors adversely affected during construction	1	4
Number of sensitive receptors adversely affected during operation	0	5
Socioeconomics		
Environmental justice	N/A[a]	N/A[a]
Net change in regional employment (jobs) during operation	-7	+4
Energy		
Fuel use per train (gallons)	1,826	2,798

Note: [a] The Draft SEIS does not identify any disproportionately adverse environmental justice impacts. Please refer to Chapter 4, Section 4.3.9.4, for a complete discussion of environmental justice.

SEA further preliminarily concludes that, based on the analysis contained in this Draft SEIS, the refinements proposed by TRRC to the rail line approved in Tongue River I and Tongue River II located north of the proposed Western Alignment would not result in significant environmental impacts not previously considered in the EISs prepared in Tongue River I and Tongue River II. At the same time, SEA is preliminarily recommending that certain mitigation measures adopted in Tongue River I and Tongue River II be revised or otherwise updated where circumstances have changed significantly or to clarify and amplify some of the mitigation previously imposed, as explained in Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker," and Appendices J, "Updated Mitigation Measures in Tongue River I," and K, "Updated Mitigation Measures in Tongue River II."

In particular, SEA preliminarily recommends several new mitigation measures to reduce impacts associated with construction and operation of the proposed Western Alignment, and believes that some of these measures should be made applicable to the entire line, thus including the rail line approved in Tongue River I and Tongue River II. Specifically, SEA is recommending new mitigation measures for the following reasons:

- To minimize impacts associated with the 100-year flood plain.
- To further minimize impacts on aquatic resources, wetland habitat, and plant and animal species of special concern.
- To minimize impacts on the Miles City Fish Hatchery.

- To provide more detail regarding mitigation relating to the revegetation of disturbed soils.
- To address the impacts of saline/sodic soils and soil slumping.
- To minimize the impacts of blasting on the Tongue River Reservoir Dam.
- To provide more specificity regarding conditions for bridge and culvert construction.
- To further ensure train operation safety.
- To clarify the means by which oversight of mitigation implementation will be undertaken during construction.

Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker," provides a comprehensive compilation of the recommended mitigation measures for construction and operation of the entire rail line from Miles City to Decker. Chapter 7 includes both the new mitigation measures recommended by SEA and mitigation measures from Tongue River I and Tongue River II that SEA is recommending be revised or otherwise updated to reflect changed circumstance or provide clarity. SEA recommends that this comprehensive list of mitigation measures apply uniformly, unless otherwise specifically noted, to the entire rail line from Miles City to Decker via either the Four Mile Creek Alternative or the proposed Western Alignment.

1.0 OVERVIEW OF APPLICATIONS

1.1 SURFACE TRANSPORTATION BOARD

The Board is the lead agency in this proceeding, with exclusive and plenary[1] permitting authority under 49 U.S.C. 10901 regarding applications to construct and operate rail lines. The Board is an independent adjudicatory[2] body that is administratively housed within the U.S. Department of Transportation (USDOT). The Board is responsible for the economic regulation of interstate surface transportation—primarily railroad—within the United States. The Board's mission is to ensure that competitive, efficient, and safe transportation services are provided to meet the needs of shippers, receivers, and consumers. In all of its decisions, the Board is committed to advancing the national transportation policy goals established by Congress under 49 U.S.C. 10101.

1.1.1 Independent Third-party Contractor

In conducting its review, TRRC used an independent third-party contractor (Public Affairs Management of San Francisco, CA) to assist SEA with environmental analysis and the preparation of environmental documents, including this Draft SEIS. The Board's environmental rules and those of CEQ specifically permit the use of agency-approved, independent third-party contractors (49 CFR 1105.10[d] and 40 CFR 1506.5[c], respectively).

For this project, as in all Board proceedings where third-party contractors are retained, the independent third-party contractor's scope of work, approach, and activities are under SEA's sole supervision, direction, and control. The contractors, in effect, are an extension of SEA's staff. They work under SEA's direction to conduct independent environmental analysis, develop appropriate environmental methodologies, other technical support and documentation, and verify the environmental information provided by TRRC, consulting agencies, and all other interested parties.

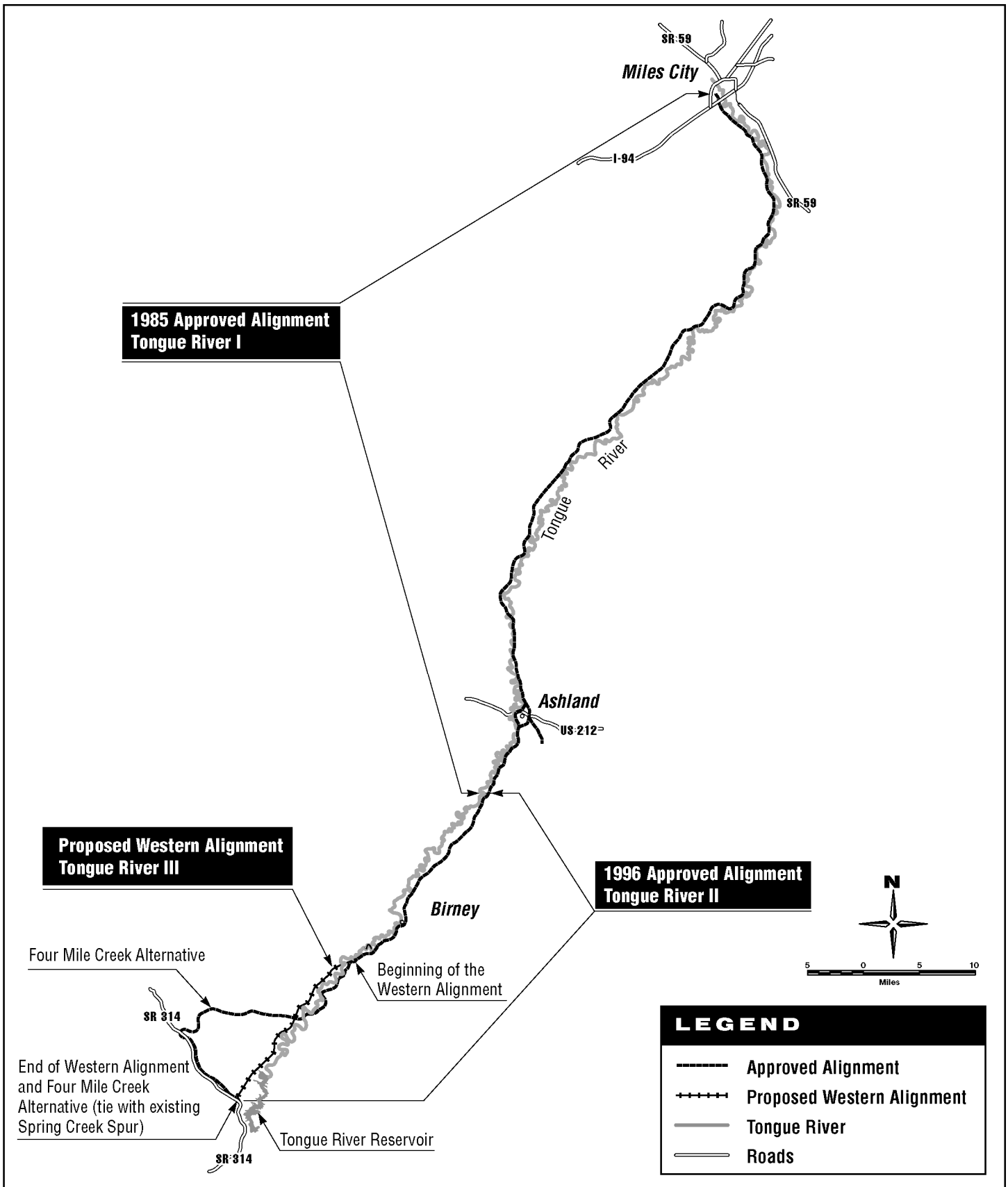
1.2 PROPOSED ACTION – TONGUE RIVER III, WESTERN ALIGNMENT

Finance Docket No. 30186 (Sub-No. 3)

On April 27, 1998, Tongue River Rail Company (TRRC) filed an application with the Surface Transportation Board (STB or Board) in Finance Docket No. 30186 (Sub-No. 3) seeking authority under United States Code, Chapter 49, Section 10901 (49 U.S.C. 10901) to construct and operate a 17.3-mile line of railroad in Rosebud and Big Horn counties, Montana (MT), known as the proposed Western Alignment (Tongue River III). Tongue River III is an alternative routing for the southernmost portion of the 41-mile Ashland-to-Decker, MT, rail line, known as the Four Mile Creek Alternative. The Four Mile Creek Alternative was approved by the Board in a decision served on November 8, 1996 in Tongue River II. Figure 1-1 depicts Tongue River III in relation to the alignment previously approved in Tongue River I and Tongue River II. The remaining portion of the line approved in Tongue River II would remain

[1] Plenary authority is absolute authority that is complete in every respect.

[2] An adjudicatory body is one that acts as a judge, and settles matters judicially.



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FIGURE 1-1

TONGUE RIVER RAILROAD COMPANY'S APPROVED LINE
FROM MILES CITY TO DECKER

unchanged. The proposed Western Alignment would generally follow a route that geographically lies between the two alignment alternatives considered in Tongue River II, and would be located on lands above the Tongue River Canyon. Moving south along the approved route from Ashland, the proposed Western Alignment would begin at a point approximately nine miles downstream from the confluence of Four Mile Creek and the Tongue River. It would then cross the Tongue River approximately 3,000 feet downstream of the existing Tongue River Road river crossing. After crossing the river, the proposed Western Alignment would parallel the existing Tongue River Road for four miles before separating from the road and climbing away from the valley floor. At Four Mile Creek, the proposed Western Alignment would cross the county road with a 100-foot-long bridge and would run approximately 320 feet west of the Hosford Diamond Cross Ranch headquarters. From Four Mile Creek, the proposed Western Alignment would continue to climb away from the Tongue River Valley, and proceed to connect with the existing Spring Creek rail spur. The proposed Western Alignment would avoid the environmentally sensitive Tongue River Canyon and would incorporate, at its steepest, a grade of 0.93 percent for a length of 1.8 miles.[3]

Public Convenience and Necessity

The TRRC rail line project, as a whole, has been previously considered by the agency in two separate proceedings known as Tongue River I and Tongue River II. In Tongue River I, TRRC's original application filed in 1983, TRRC sought approval from the Interstate Commerce Commission (ICC), the Board's predecessor agency, to construct and operate 89 miles of rail line between Miles City and two termini located near Ashland. In a decision served May 9, 1986, the ICC approved Tongue River I. TRRC filed another application in 1991 for Tongue River II, seeking approval to extend the line from Ashland to Decker. The Board approved Tongue River II, authorizing construction of 41 miles of rail line via the so-called Four Mile Creek Alternative, in a decision served in November 1996. Tongue River II is pending judicial review in Northern Plains Resource Council, Inc. v. STB, Nos. 97-70037 et al., (9th Cir. filed Jan. 7, 1997). The court proceeding is being held in abeyance pending the completion of Tongue River III.

In Tongue River I, the ICC found that present and future public convenience and necessity required or permitted the construction and operation of TRRC's proposed rail line, in accordance with former 49 U.S.C. 10901. In Tongue River II, the Board found that the proposed rail line construction was consistent with the public convenience and necessity, and was consistent with the more lenient licensing standards of 49 U.S.C. 10901, as revised by ICCTA. The ICC Termination Act of 1995 (ICCTA) Pub. L. No. 104-88, 109 Stat. 803 (1995), revised the Interstate Commerce Act, abolished the ICC, and, as pertinent here, transferred the ICC's regulatory functions to the Board. Both of these proceedings are administratively final.

TRRC's proposed changes in Tongue River III to its previously approved construction authorization in Tongue River II necessitate that the Board determine whether Tongue River III meets the criteria of 49 U.S.C. 10901. Accordingly, the Board's Section of Environmental Analysis (SEA) is reviewing the associated potential environmental impacts of Tongue River III in this Draft SEIS and, following the completion of its environmental review, the Board will

[3] The Four Mile Creek Alternative would incorporate, at its steepest, a grade of 2.31 percent. Grade refers to the slope that trains would have to climb or descend.

issue a decision on whether the proposed Western Alignment satisfies the criteria of 49 U.S.C. 10901, addressing both transportation and environmental issues in that decision.

Chronology of Important Dates – Tongue River III

12/22/97	TRRC submits a Notice of Intent (NOI) to file a new application for the Western Alignment.
02/09/98	TRRC requests waiver of the pre-filing notice required by the Board six months prior to the submittal of a project application.
02/13/98	SEA grants a waiver of six-month pre-filing notice pursuant to 49 CFR 1105.10(c)(1) on the basis that SEA has adequate information and familiarity with the case to allow the waiver.
04/27/98	TRRC files application for Western Alignment.
07/10/98	SEA publishes in the *Federal Register* a NOI to prepare a Supplement to the Final EIS (SEIS) prepared in Tongue River II, and asks for comments on the extent to which environmental analysis in Tongue River I and Tongue River II should be revisited due to significantly changed circumstances. (The NOI is included in Appendix A of this Draft SEIS.)
10/28/98	TRRC files a petition with the Board to remove a condition imposed in Tongue River II, which required complete construction of the entire line between Miles City and Decker within three years of the service date of that decision, i.e., by November 8, 1999.
02/03/99	SEA publishes final scope of the SEIS in the *Federal Register*.
03/30/99	Board grants TRRC's petition to remove the three-year time limit for construction of the entire line between Miles City and Decker.
03/02/00	TRRC requests that SEA suspend its environmental work on the SEIS.
12/19/02	TRRC informs the Board that it is now in a position to go forward with Tongue River III and requests SEA to recommence its environmental work.
01/17/03	TRRC files request with the Board to submit supplemental evidence to provide a limited update on the transportation aspects of the Tongue River III application.
03/11/03	Board specifies the updated evidence that will be required.
03/26/03	SEA serves an amended NOI to prepare a SEIS announcing that the environmental review of the Tongue River III application will go forward, requesting comments on the scope of the SEIS, and asking whether the public has any new information to include in the SEIS.
05/01/03	TRRC files its supplementary evidence on the transportation merits.
08/22/03	SEA publishes amended Final Scoping Notice in the *Federal Register*, addressing the comments received on the amended NOI.
10/15/04	SEA issues for public review and comment Draft SEIS and schedules public meeting.

The Board has issued various decisions subsequent to August 2003 that address matters which are not pertinent to the Tongue River III environmental analysis.

1.3 BACKGROUND

1.3.1 Tongue River I – Miles City to Ashland

Finance Docket No. 30186 (Sub-No. 1)

In its original application filed in 1983 in Finance Docket No. 30186, and referred to as Tongue River I, TRRC sought approval from the ICC, the Board's predecessor agency, to construct and operate 89 miles of railroad between Miles City and two termini located near Ashland. Figure 1-1 depicts the alignment approved by the ICC in Tongue River I.

In July 1983, the ICC's Section of Energy and Environment (SEE, predecessor to SEA) issued a Draft EIS in Tongue River I for public review and comment. In the Draft EIS, SEE analyzed the potential environmental effects of the "no-build" alternative, TRRC's Proposed Alignment, and the three alternative alignments: the Tongue River Road Alternative, the Moon Creek Alternative, and the Colstrip Route Alternative. These four alternative alignments are depicted in Figure 1-2.

SEE conducted extensive analysis in preparation of the Draft EIS. The Draft EIS for Tongue River I concluded that both TRRC's Proposed Alignment and the Colstrip Alternative would be environmentally acceptable. In reaching this conclusion, the Draft EIS found that the Colstrip Alternative would have quantitatively fewer environmental impacts because of its shorter length—47 miles versus approximately 89 miles for the other three alternatives. The Draft EIS also noted that the overall environmental impact of construction and operation of the rail line would not vary greatly between TRRC's Proposed Alignment, the Moon Creek Alternative, or the Tongue River Road Alternative. However, from an engineering and marketing standpoint, TRRC's Proposed Alignment would be preferred because it would require a grade against load[4] of only 0.2 percent versus 0.85 percent (Colstrip and Tongue River Road Alternatives), and 1 percent for the Moon Creek Alternative.

SEE also identified additional environmental factors that narrowed the range of acceptable environmental alternatives. The Moon Creek Alternative was rejected in part because of the need to construct a bridge over the Yellowstone River, which would result in impacts to aquatic life. The Tongue River Road Alternative was rejected in part because of its higher potential for grade crossing accidents and the loss of an estimated 17 acres of prime farmland that would occur with construction of this alternative.

Following the issuance of the Draft EIS, TRRC submitted plans for a revised location for its facility and maintenance yard at the northern terminus of the proposed rail line from Miles City to Ashland. Instead of connecting to an existing yard and tracks as originally proposed, TRRC proposed connecting to the existing BNSF tracks near a location known as Branum Lake and constructing a new yard at that location. Figure 1-3 depicts the original and revised locations for the facility and maintenance yard.

[4] Grade against load refers to the slope that loaded trains would have to climb.

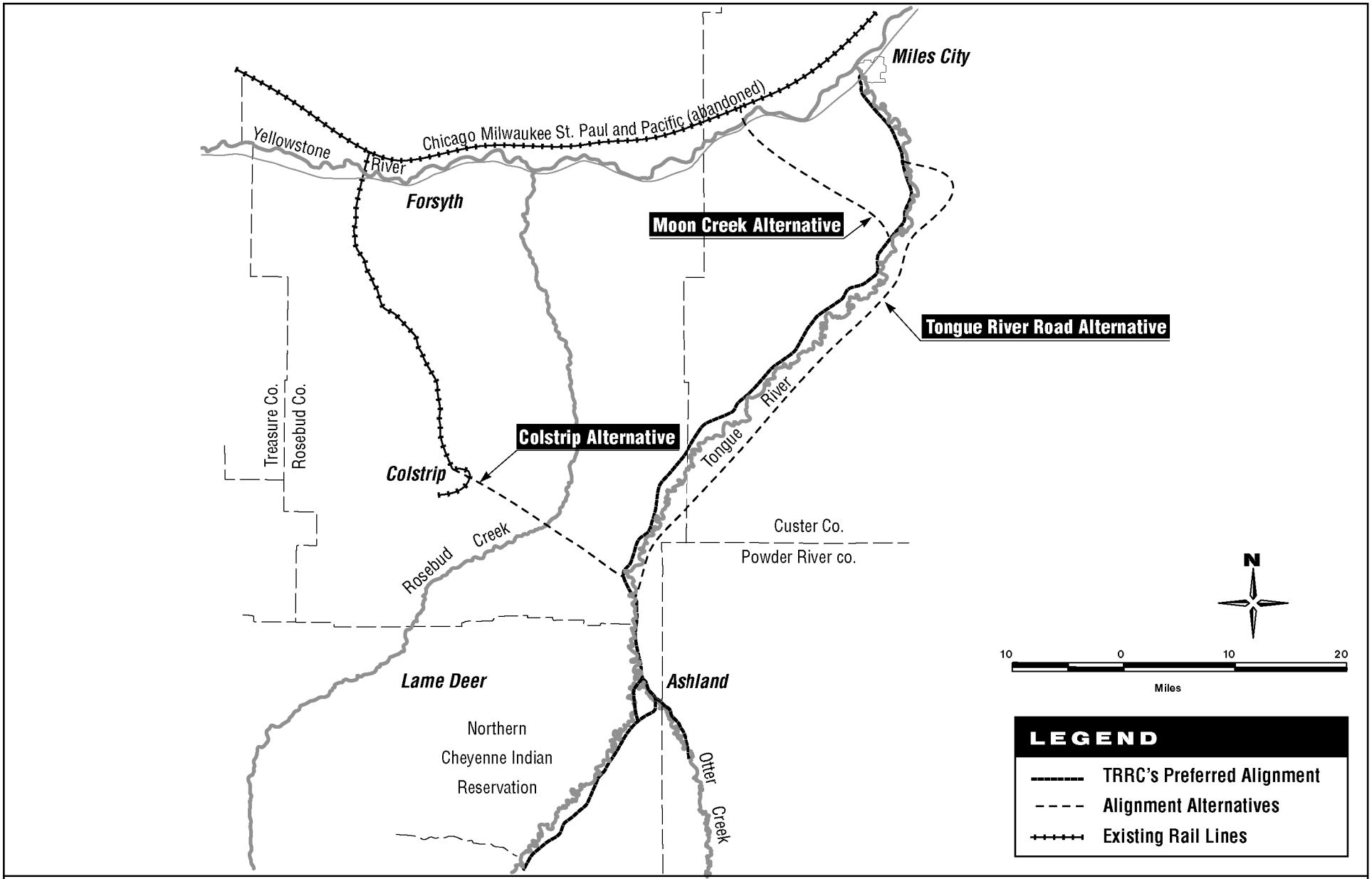
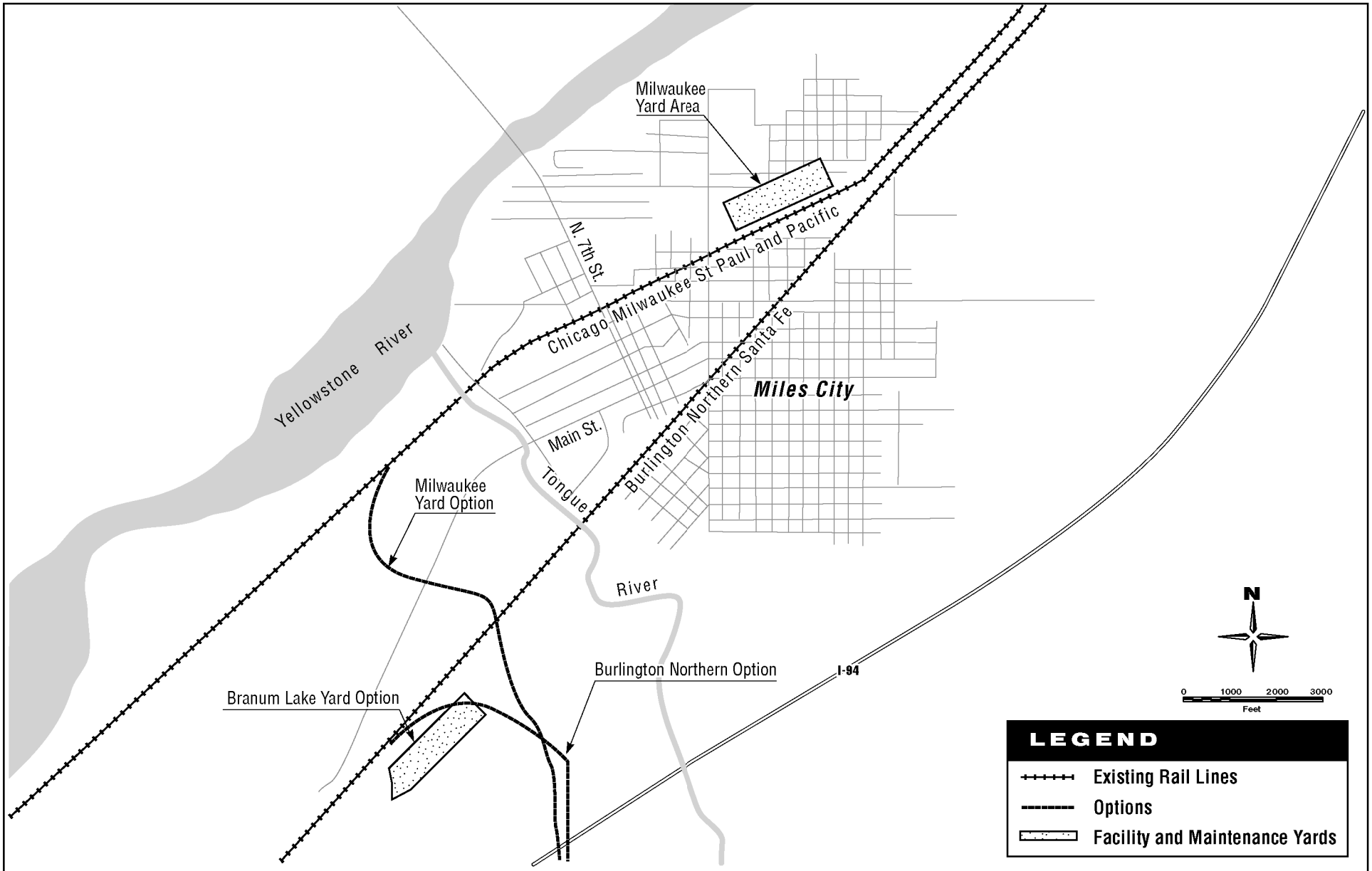


FIGURE 1-2

ALIGNMENT ALTERNATIVES CONSIDERED IN TONGUE RIVER I



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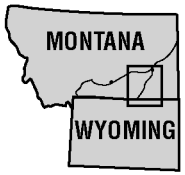


FIGURE 1-3

ALTERNATIVE LOCATION
FOR THE FACILITY AND MAINTENANCE YARDS

In response to TRRC's revised plans, SEE prepared a Supplement to the Draft EIS for Tongue River I and issued it for public review and comment in January 1984. The Supplement analyzed potential impacts related to the proposed new location of the facility and maintenance yard, finding that the revised location would not result in greater environmental impacts than the previously studied facility and yard location. The Final EIS, served in August 1985, included the revised Branum Lake location for the facility and yards, and concluded that both the Colstrip Alternative and the TRRC's Proposed Alignment would be environmentally acceptable.

The ICC approved Tongue River I via TRRC's Preferred Alignment in a final decision served May 9, 1986, and imposed extensive environmental mitigation. A chronology of relevant dates and decisions in Tongue River I is set forth later in this chapter.

Public and Agency Involvement

The environmental review of Tongue River I included many opportunities for public involvement. SEE served a "Notice of Intent (NOI) to Prepare an Environmental Impact Statement" to inform the public that an environmental document was being prepared. SEE also held public scoping meetings in Miles City on August 7, 1980, and in Ashland and Broadus on June 23, 1981. The public was given the opportunity to review and comment on the Draft EIS and the Supplement to the Draft EIS, and SEE held community meetings on the Supplement to the Draft EIS in January 1985 in Miles City.

Tongue River I also included opportunities for agency involvement. Seven agencies and one Indian tribe were granted cooperating agency status[5] in the environmental review process for Tongue River I: the U.S. Army Corps of Engineers (Corps); the U.S. Department of Agriculture (USDA), the U.S. Department of Transportation (USDOT), the Federal Railroad Administration (FRA), the Montana Department of State Lands (MT DSL), the Custer County Planning Board, the Powder River County Commissioners, and the Northern Cheyenne Tribe.

Chronology of Important Dates in Tongue River I

08/07/80	SEE holds public scoping meetings in Miles City.
08/16/80	SEE serves a "Notice of Intent (NOI) to Prepare an Environmental Impact Statement."
06/02/83	TRRC files an application seeking authority for construction and operation of a rail line between Miles City and Ashland.
07/15/83	SEE serves the Draft EIS for public review and comment.
01/19/84	SEE serves the Supplement to the Draft EIS for public review and comment.
08/23/85	SEE serves Final EIS.
09/04/85	Administrative Law Judge issues initial decision approving Tongue River I.
05/09/86	ICC issues final decision approving Tongue River I.

Tongue River I is administratively final, and no judicial review proceeding is pending. Judicial review was sought in the U.S. Court of Appeals for the Ninth Circuit, but the Ninth Circuit dismissed the appeal [Northern Plains Resource Council v.ICC, 817 F.2d 758 (9th Cir.), denied cert., 484 U.S. 976 (1987)].

[5] A cooperating agency is a Federal or state agency invited to participate in the preparation of the EIS in order to streamline subsequent permitting procedures and enhance the effectiveness and value of the NEPA analysis.

1.3.2 Tongue River II – Ashland to Decker

Finance Docket No. 30186 (Sub-No. 2)

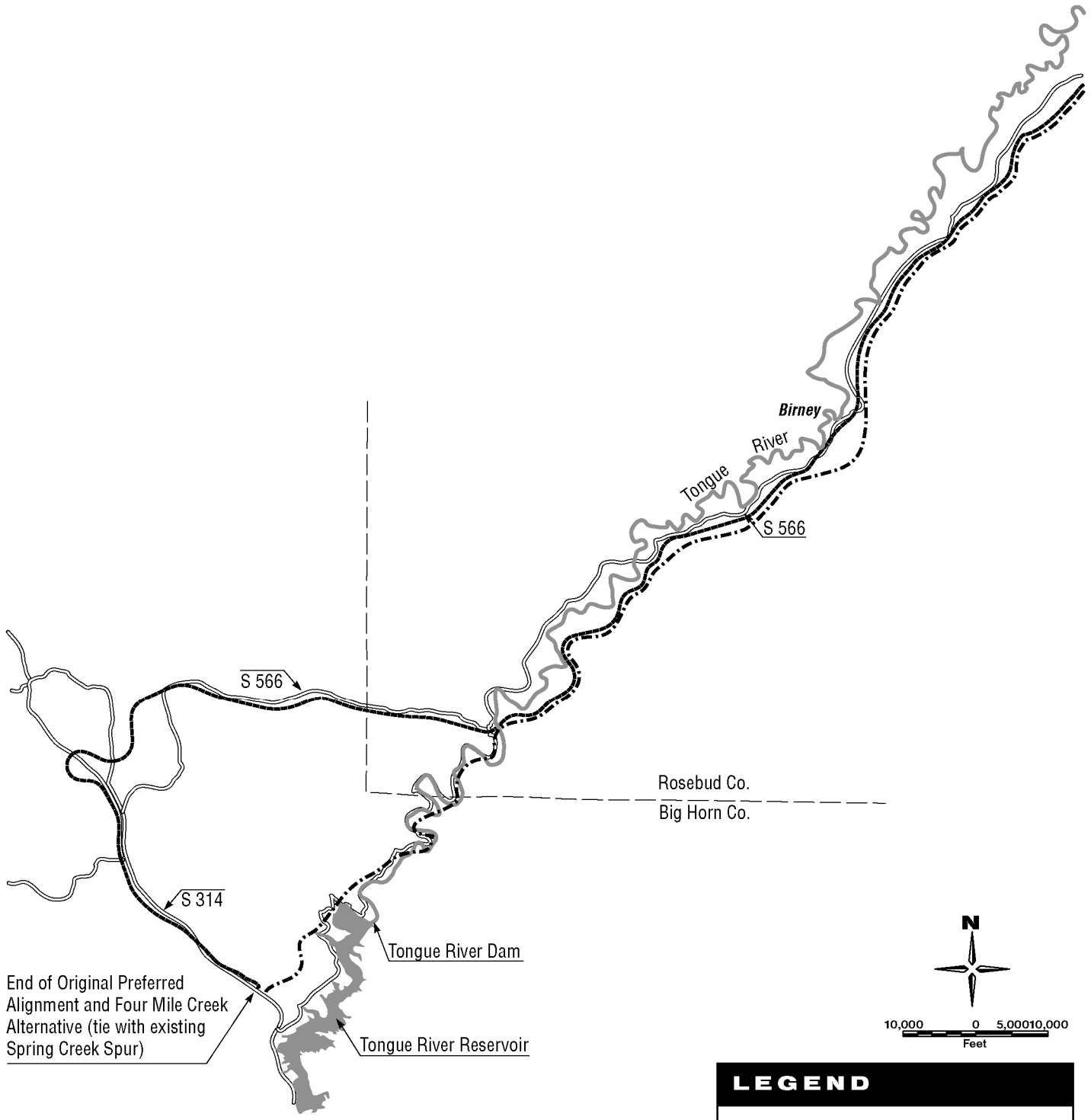
In Tongue River II (1989), TRRC sought ICC approval to extend the rail line approved in Tongue River I 41 miles from Ashland to Decker to connect with existing rail lines serving the Decker coal mines. TRRC proposed two alternative alignments for consideration: a Preferred Alignment and the Four Mile Creek Alternative. Figure 1-4 depicts the two alternative alignments.

TRRC's Preferred Alignment generally paralleled the Tongue River and connected with BNSF at the southern terminus via the Spring Creek Railroad Spur. The portion of TRRC's Preferred Alignment located between the Tongue River Reservoir Dam and the confluence of Four Mile Creek would require the construction of five bridges and one tunnel due to the narrowing of the Tongue River Valley and the meanders of the river itself. The Four Mile Creek Alternative would avoid this environmentally sensitive 10-mile section of the Tongue River, known as the Tongue River Canyon, by diverging from the Tongue River at the confluence of Four Mile Creek and extending southwest along Four Mile Creek before turning southeast and continuing to a juncture with the Spring Creek Railroad Spur. The Four Mile Creek Alternative would therefore eliminate the need for the construction of five bridges and a tunnel through the Tongue River Canyon, and would also avoid the Tongue River Reservoir State Recreation Area and the adjacent residential subdivision known as Cormorant Estates.

SEE prepared a Draft EIS for Tongue River II analyzing the proposed alignment, the Four Mile Creek Alternative, and the "no-build" alternative (i.e., no construction, which would mean the continued use of the existing BNSF line to access the Decker area mines) and served it for public review and comment on July 17, 1992. The Draft EIS concluded that, based upon the information and analyses conducted, the Four Mile Creek Alternative would be the environmentally preferable alignment, should the construction be approved.

SEE received numerous comments and information in response to the Draft EIS, including proposed changes to TRRC's Preferred Alignment to mitigate certain environmental concerns. In response to these comments and information, SEE conducted further investigations into the environmental concerns associated with both alternatives. Based upon this additional analysis, SEE issued for public review and comment a Supplement to the Draft EIS for Tongue River II on March 17, 1994. In the Supplement, SEE preliminarily concluded that the potential environmental impacts of the Four Mile Creek Alternative could not be effectively mitigated, and that the Four Mile Creek Alternative would have more adverse environmental consequences than TRRC's Preferred Alignment.

In response to the Supplement, additional comments were received regarding both alternatives. In particular, comments received from the U.S. Fish and Wildlife Service (USFWS), the Corps, and the Environmental Protection Agency (EPA), raised concerns about the environmental sensitivity of the Tongue River Canyon, the difficulty of mitigating potential environmental impacts in the Tongue River Canyon, the increased impacts to wetlands and waters of the United



INDEX OF MAP LOCATION



FIGURE 1-4

ALIGNMENT ALTERNATIVES
CONSIDERED IN TONGUE RIVER II

States[6] in the Canyon versus the Four Mile Creek Alternative, and the potential impacts to endangered species that would result from implementation of TRRC's Preferred Alternative. In response to these concerns, the Board's Section of Environmental Analysis (SEA)[7] conducted a Biological Assessment (BA) of TRRC's Preferred Alignment to address potential impacts to endangered species, and also consulted with the Corps and EPA regarding potential impacts to the Tongue River Canyon associated with TRRC's Preferred Alignment.

SEA served the Final EIS on April 11, 1996. SEA concluded in the Final EIS that the Four Mile Creek Alternative would indeed be the environmentally preferable construction option, stating that "Although TRRC's [Preferred Alignment] would be better from an engineering viewpoint because of the flatter grade, its advantages would be outweighed by the fact that TRRC's [Preferred Alignment] traverses the environmentally sensitive Tongue River Canyon and would require the construction of five bridges and a tunnel through the Canyon." [Tongue River II, FEIS, 1996, at page 11).

Following the issuance of the Final EIS, TRRC filed a petition on May 3, 1996, urging the Board to conclude that TRRC's Preferred Alignment (rather than the Four Mile Creek Alternative) would be the environmentally preferable construction choice. Nevertheless, based on the information contained in the Draft EIS, the Supplement to the Draft EIS, and the Final EIS, as well as the public comments on the EIS, consultations with appropriate agencies, and the materials provided by TRRC, the Board approved Tongue River II via the Four Mile Creek Alternative in a decision issued on November 8, 1996, and imposed extensive environmental mitigation measures recommended in the Final EIS for that route. The Board's decision to approve the Four Mile Creek Alternative rather than TRRC's Preferred Alignment was based in part on the fact that the Four Mile Creek Alternative, unlike the Preferred Alignment, would avoid the environmentally sensitive Tongue River Canyon. Furthermore, the Board rejected the "no-build" alternative and determined that the economic and transportation efficiencies of allowing TRRC to construct the Four Mile Creek Alternative outweighed the potential effects to the environment. Additionally, in its decision, the Board reopened Tongue River I for the limited purpose of requiring TRRC to complete construction of the entire line between Miles City and Decker within three years.

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[6] The term "waters of the United States" means "All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; All interstate waters including interstate wetlands; All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: Which are or could be used by interstate or foreign travelers for recreational or other purposes; or From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or Which are used or could be used for industrial purpose by industries in interstate commerce; All impoundments of waters otherwise defined as waters of the United States under the definition; Tributaries of waters identified in paragraphs (a)(1)-(4) of this section; The territorial seas; Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States." (U.S. Army Corps of Engineers Regulatory Program website: http://www.sac.usace.army.mil/permits/33cfr328.html)

[7] SEE has been renamed as the Section of Environmental Analysis (SEA).

The Northern Plains Resource Council, Inc. (NPRC), Native Action, and United Transportation Union-General Committee on Adjustment (UTU) filed timely petitions for review of Tongue River II in the U.S. Court of Appeals for the Ninth Circuit.[8] These petitions are being held in abeyance pending the conclusion of Tongue River III.

On July 15, 1997, TRRC filed a petition with the Board to reopen Tongue River II for the purpose of considering a new route, known as the "Western Alignment." The Board denied this request without prejudice in a decision served December 1, 1997, stating that TRRC could file a new application for authority to construct the proposed Western Alignment. TRRC filed the application on April 27, 1998, initiating the Tongue River III proceeding.

Public and Agency Involvement

The environmental review of Tongue River II included many opportunities for public involvement. SEE published a Notice of Intent (NOI) to prepare an environmental impact statement in the *Federal Register*, and SEE also held public scoping meetings in Montana on December 6 and 7, 1989. In addition to affording the standard public review and comment period for the Draft EIS and the Supplement to the Draft EIS, the ICC held oral hearings in Montana and Wyoming between August 18-21, 1992, to receive comments on the merits of TRRC's application, and to offer the public another opportunity to comment on environmental issues.

In terms of agency involvement, SEE granted cooperating agency status to the BLM in the preparation of the EIS in Tongue River II. SEE also consulted extensively with other public agencies such as the Corps regarding the preparation of wetland delineations; USFWS regarding Federally-listed species; Montana Department of Natural Resources Conservation (MT DNRC) regarding issues of concern to the State of Montana; and ACHP, MT SHPO, and the Northern Cheyenne Tribe regarding cultural resources and the preparation of a Programmatic Agreement (PA).

Chronology of Important Dates in Tongue River II

01/10/89	TRRC sends letter notifying ICC of its intent to file an application.
11/17/89	SEE publishes in *Federal Register* NOI to prepare EIS and to hold scoping meetings.
12/06-07/89	SEE holds EIS scoping meetings in Montana.
03/16/90	SEE publishes in *Federal Register* Final Scope of EIS.
06/28/91	TRRC files application.
07/17/92	SEE serves Draft EIS.
08/18-21/92	ICC holds oral hearings on merits of application in Montana and Wyoming with opportunity to comment on the Draft EIS.
12/06/93	SEE publishes in the *Federal Register* and serves on all parties a notice announcing intention to prepare a Supplement to the Draft EIS.
03/17/94	SEE serves the Supplement to the Draft EIS.
04/11/96	SEA serves the Final EIS.
11/08/96	The Board serves a final decision approving Tongue River II via Four Mile Creek Alternative, and imposes a three-year deadline for completion of the entire line.

[8] NPRC Inc. et al. vs. STB, No. 97-70037 (filed Jan. 7, 1997).

07/15/97	TRRC files petition to reopen presenting the Western Alignment instead of the Four Mile Creek Alternative.
12/01/97	The Board serves a decision denying TRRC's petition to reopen, but stating that TRRC could file a new application.
03/23/99	The Board removes previously imposed requirement that construction be completed within three years.

Actual construction of the lines approved in Tongue River I and Tongue River II has not begun. However, TRRC has informed the Board that it has conducted various preconstruction activities on both lines, including test borings to obtain more specific geotechnical information.

1.4 DECISION TO PREPARE A SUPPLEMENTAL EIS

Pursuant to the Board's regulations implementing the National Environmental Policy Act (NEPA) and related environmental laws, SEA is responsible for conducting the environmental review of the proposed Western Alignment on behalf of the Board.

The Council on Environmental Quality's (CEQ's) rules implementing NEPA advise Federal agencies to prepare supplements to an EIS where new information that is relevant to environmental concerns is presented after a Final EIS has been prepared,[9] as is the case here. The CEQ regulations at 40 CFR Part 1502.9(c) state that agencies:

(1) Shall prepare supplements to either draft or final EISs if:
  (i) The Agency makes substantial changes in the proposed action that are relevant to environmental concerns.
  (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.
(2) May also prepare supplements when the Agency determines that the purpose of the Act will be furthered by doing so.
(3) Shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists.
(4) Shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by CEQ.

Based on the CEQ rules at 40 CFR 1502.9, the Board's environmental regulations at 49 CFR Part 1105, and SEA's analysis of the information it had before it pertaining to the proposed Western Alignment, SEA determined that a Supplemental EIS (SEIS) in Finance Docket 30186 (Sub-No. 2) is the appropriate means of conducting environmental review of TRRC's application for the proposed Western Alignment in Tongue River III.

[9] See Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 373 (1990).

1.5 SCOPE OF THE SUPPLEMENTAL EIS

The action proposed to be taken is predicated on TRRC's proposed change to its previously approved construction authorized in Tongue River II. This necessitates SEA's review of potential environmental impacts associated with Tongue River III and a subsequent decision by the Board as to whether the proposed Western Alignment satisfies the criteria of 49 U.S.C. 10901. As stated earlier, where appropriate, SEA has relied on the thorough and comprehensive data in the EISs prepared for Tongue River I and Tongue River II and the extensive environmental mitigation imposed in these decisions, to avoid unnecessarily redoing analysis that continues to be accurate and complete. At the same time, SEA has undertaken a limited reexamination of the EISs in Tongue River I and Tongue River II, where appropriate due to changed circumstances or to accommodate the requests of the cooperating agencies, as discussed further below.

Although CEQ's rules implementing NEPA do not require public scoping for the preparation of supplements, SEA believed that it was appropriate in this case to request comments regarding the environmental scope of the Draft SEIS and potential environmental concerns and issues to be addressed.

On July 10, 1998, SEA published in the *Federal Register* and sent to all interested parties a NOI to prepare a Supplement to the Final EIS previously prepared in Tongue River II to consider the potential environmental impacts of the proposed Western Alignment in Tongue River III. The NOI sought public comments on the scope of the SEIS and specifically requested comments on whether the analysis of the SEIS should be limited to the proposed Western Alignment, and, if not, the extent to which refinement of the analysis conducted in Tongue River I and Tongue River II is warranted.

In response to the NOI, SEA received 34 comments from Federal, state, and local agencies, as well as TRRC, individual property owners, and community representatives, including the NPRC and Native Action. Appendix A contains a copy of the comments received in response to the NOI.

On February 3, 1999, after careful consideration of the comments on the NOI, SEA published in the *Federal Register* a Final Scope of the SEIS. The Final Scope indicated that the SEIS would address potential environmental impacts associated with the proposed Western Alignment; a limited analysis of certain portions of the EISs prepared in Tongue River I and Tongue River II; a discussion of cumulative impacts associated with construction of the entire line from Miles City to Decker in conjunction with other past, present, and reasonably foreseeable future development; and specific additional analyses that were requested by the three cooperating agencies to assist them in their review processes.

In addition, BLM and MT DNRC, two of the three cooperating agencies (See Section 1.6.1 for a complete discussion of the cooperating agencies for Tongue River III) held joint scoping meetings on February 17 and 18, 1999, in Miles City and Ashland, respectively, to solicit comments on the scope of the SEIS relating to potential environmental impacts to state and Federal lands. In response to these meetings, 56 comment letters were received by BLM and MT DNRC. Many of the same issues raised in response to the NOI were raised at these meetings and in the comment letters. Appendix B contains further detail regarding comments

received in these meetings. In the Final Scope, SEA stated that, to the extent possible, it would consider any new environmental issues raised at these meetings and would address these issues in the Draft SEIS.

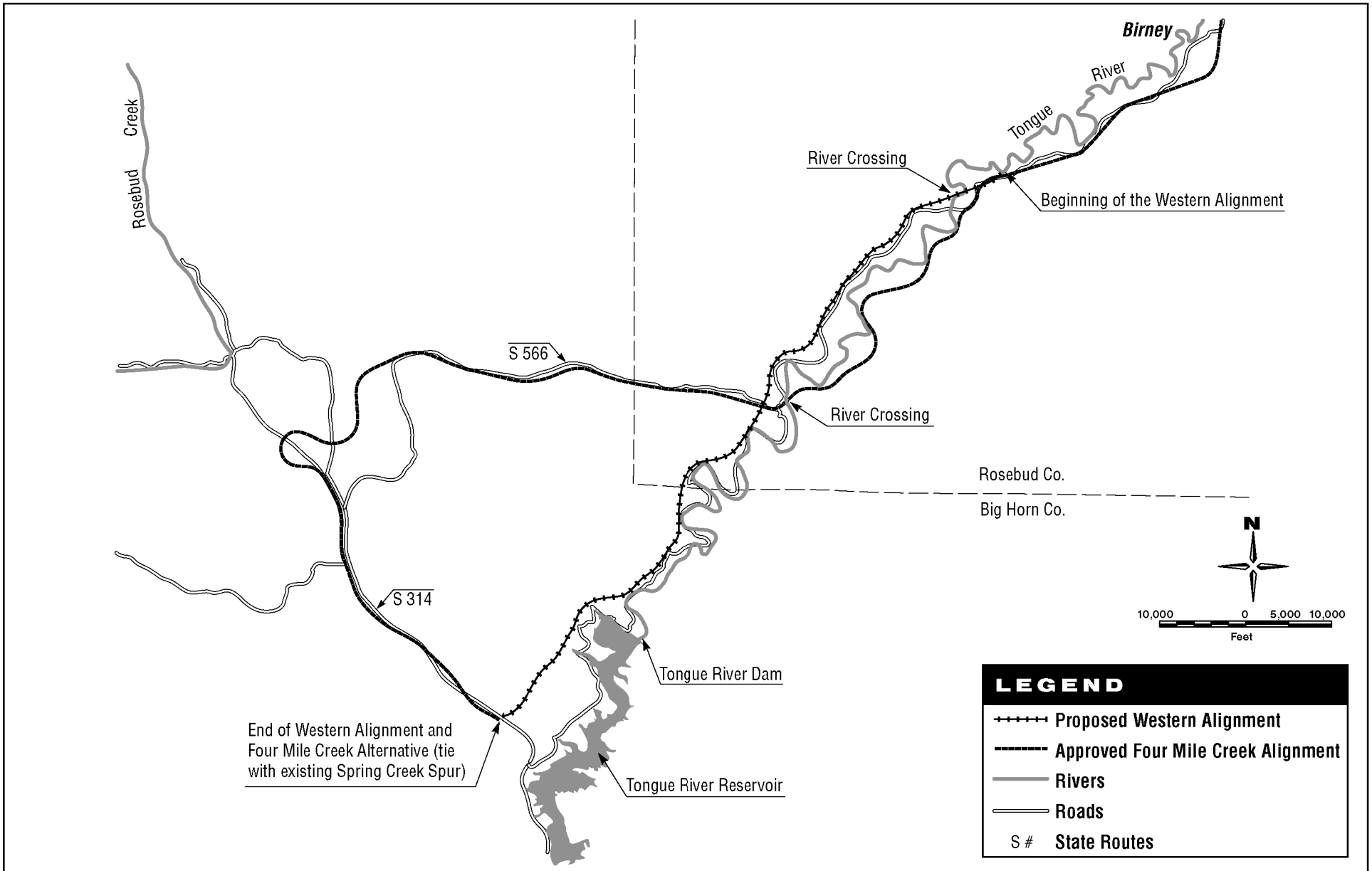
On March 2, 2000, before SEA completed its Draft SEIS, TRRC requested that SEA suspend its environmental work. Almost three years later, on December 19, 2002, TRRC advised SEA that it was in a position to move forward and asked SEA to resume its environmental review of Tongue River III. On March 25, 2003, SEA served an amended NOI that announced that the environmental review of the Tongue River III application would go forward. The amended NOI solicited comments from the public on the scope of the SEIS and asked whether the public had any new information to include in the SEIS. SEA received eight comments from Federal, state, and local agencies, individual property owners, and community representatives, such as the NPRC. Appendix A contains a copy of the comments received in response to the amended NOI. On August 22, 2003, SEA served an Amended Final Scope of the SEIS, which included additional analysis to address changes in regulations and/or circumstances that have occurred since March 2, 2000, when SEA suspended its environmental work.

1.5.1 Scope of Analysis for Tongue River III – Proposed Western Alignment

This Draft SEIS provides a detailed environmental analysis of the proposed 17.3-mile rail line known as the Western Alignment. Figure 1-5 depicts the proposed Western Alignment in relation to the approved Four Mile Creek Alternative. The Draft SEIS assesses environmental impacts associated with construction and operation of the proposed Western Alignment and recommends preliminary environmental mitigation measures in the following areas: transportation and safety, terrestrial and aquatic biological resources, land use, cultural and paleontological resources, hydrology and water quality, socioeconomics, environmental justice, soils and geology, air quality, aesthetics, noise and vibration, recreation, energy, and cumulative and indirect effects. The analysis also addresses impacts on Native Americans, including potential impacts to sites of religious or cultural importance.

The Draft SEIS also compares the effects of the proposed Western Alignment to the effects of the Four Mile Creek Alternative approved in Tongue River II. After careful consideration, SEA has concluded that no other "build" alternatives need to be studied at this time. The Board, in its decision in Tongue River II, rejected TRRC's Preferred Alignment through the Tongue River Valley because it would result in significant, unavoidable environmental impacts, and nothing in the new information made available to date suggests that that conclusion is no longer valid. The original "no-build" alternative in Tongue River II consisted of no new construction, which would result in the continued use of the existing BNSF Powder River Basin (PRB) rail line to serve the Decker area mines. However, the Board, in its 1996 decision in Tongue River II, rejected the "no-build" alternative and determined that the economic and transportation efficiencies of allowing TRRC to construct the Four Mile Creek Alternative outweighed the potential effects to the environment and authorized its construction.[10] Therefore, at this point there are two build alternatives being considered by the Board: the already approved Four Mile

[10] STB Finance Docket No. 30196 (Sub-No. 2), Tongue River Railroad Co. – Rail Construction and Operation - Ashland to Decker, Montana, (STB served November 8, 1996),(Tongue River II), page 23.



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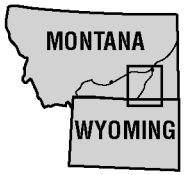


FIGURE 1-5

PROPOSED WESTERN ALIGNMENT &
APPROVED FOUR MILE CREEK ALTERNATIVE

Creek Alternative (approved in Tongue River II) and the proposed Western Alignment (being considered in Tongue River III). Even if the Board denies Tongue River III (the proposed Western Alignment), TRRC has already received approval from the Board in Tongue River I and Tongue River II to construct and operate the entire rail line from Miles City to Decker via the Four Mile Creek Alternative.

In preparing this Draft SEIS, SEA, to the extent appropriate, relied on the environmental analyses in Tongue River I and Tongue River II, which were thorough and comprehensive, and included extensive mitigation. Additionally, the Tongue River region has been studied extensively, not only by SEA in conducting the environmental analysis for Tongue River I and Tongue River II, but also by BLM and MT DNRC in the preparation of EISs for Powder River I, Montco Mine, CX Ranch, and the Tongue River Reservoir Dam reconstruction, as well as the analysis of coal-bed-methane-production wells.[11] Where appropriate, SEA has relied on these other environmental analyses.

1.5.2 Scope of Analysis for Tongue River I and Tongue River II

Comments received in response to the NOI and Amended NOI referred to changes being proposed by TRRC to the alignments previously approved in Tongue River I and Tongue River II and noted that these changes warranted extensive environmental re-analysis. TRRC submitted information in response to the 1998 NOI indicating that the alignment of Tongue River I and Tongue River II has been adjusted somewhat from that analyzed during the environmental review for these projects. In response to this information, SEA considered whether any of the changes from the previously approved alignments in Tongue River I and Tongue River II would result in significant environmental effects not previously assessed and therefore warranted consideration in the SEIS. SEA determined that the SEIS should include a new analysis of the material already considered in Tongue River I and Tongue River II in three circumstances:

1. Where environmental consequences[12] or requirements[13] have changed in a manner warranting the updating and augmenting of analysis for Tongue River I or Tongue River II.

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[11] See Powder River I, Regional EIS, Economic, Social, and Cultural Supplement, prepared by U.S. Department of the Interior, Bureau of Land Management, Miles City Field Office, September 1988; Montco Mine, Final Environmental Impact Statement, Montana Department of State Lands, July 1984; CX Ranch, Final Environmental Impact Statement, Montana Department of State Lands, Office of Surface Mining, U.S. Bureau of Land Management, February 1986; Tongue River Basin Project, MT DNRC, Northern Cheyenne Tribe, and the Bureau of Reclamation, March 1996; Statewide Oil and Gas EIS and Amendment of the Powder River and Billings Resource Management Plans, United States Department of the Interior, State of Montana January 2002.

[12] Changes in environmental consequences are defined as changes that have occurred in the physical character of the project area since the analyses for Tongue River I and Tongue River II were conducted. For example, there have been physical changes to the Miles City Fish Hatchery, which has expanded its operations since Tongue River I.

[13] Changes in environmental requirements are defined as changes in Federal, state, or local regulations and laws that pertain to environmental issues or resources. For example, there have been changes in the requirements related to Total Maximum Daily Load (TMDL) of sediments in the Tongue River and certain tributaries.

2. Where TRRC has made adjustments to the alignment previously considered in the Tongue River I and Tongue River II EISs that require additional environmental analysis because they might result in significant environmental impacts not addressed in those previous EISs.
3. Where further environmental analysis is appropriate to assist the cooperating agencies in their environmental review and planning processes, as specifically requested by those agencies.

Figure 1-6 depicts the proposed refinements to the alignments previously approved in Tongue River I and Tongue River II. Appendix H contains a complete discussion of changes in environmental regulations that have occurred since Tongue River I and Tongue River II. Chapter 5, "Focused Review of Tongue River I and Tongue River II," presents SEA's review of the proposed refinements in Tongue River I and Tongue River II. References to additional analyses conducted at the request of cooperating agencies are found throughout this SEIS.

The ICC Termination Act of 1995[14] (ICCTA) established the Board to assume certain regulatory activities that the ICC had previously administered. Under 49 U.S.C 10901, the Board has exclusive licensing authority for the construction and operation of rail lines. The statute provides that the Board shall authorize the construction and operation of a proposed new line "unless the Board finds that such activities are inconsistent with the public convenience and necessity." Under this permissive licensing standard, there is now a presumption that rail construction is to be approved.[15]

Since the early 20th century, it has been clear that the Interstate Commerce Act is among the most pervasive and comprehensive of Federal regulatory schemes,[16] and that state and local regulation of railroads has been largely preempted to protect interstate commerce.[17]

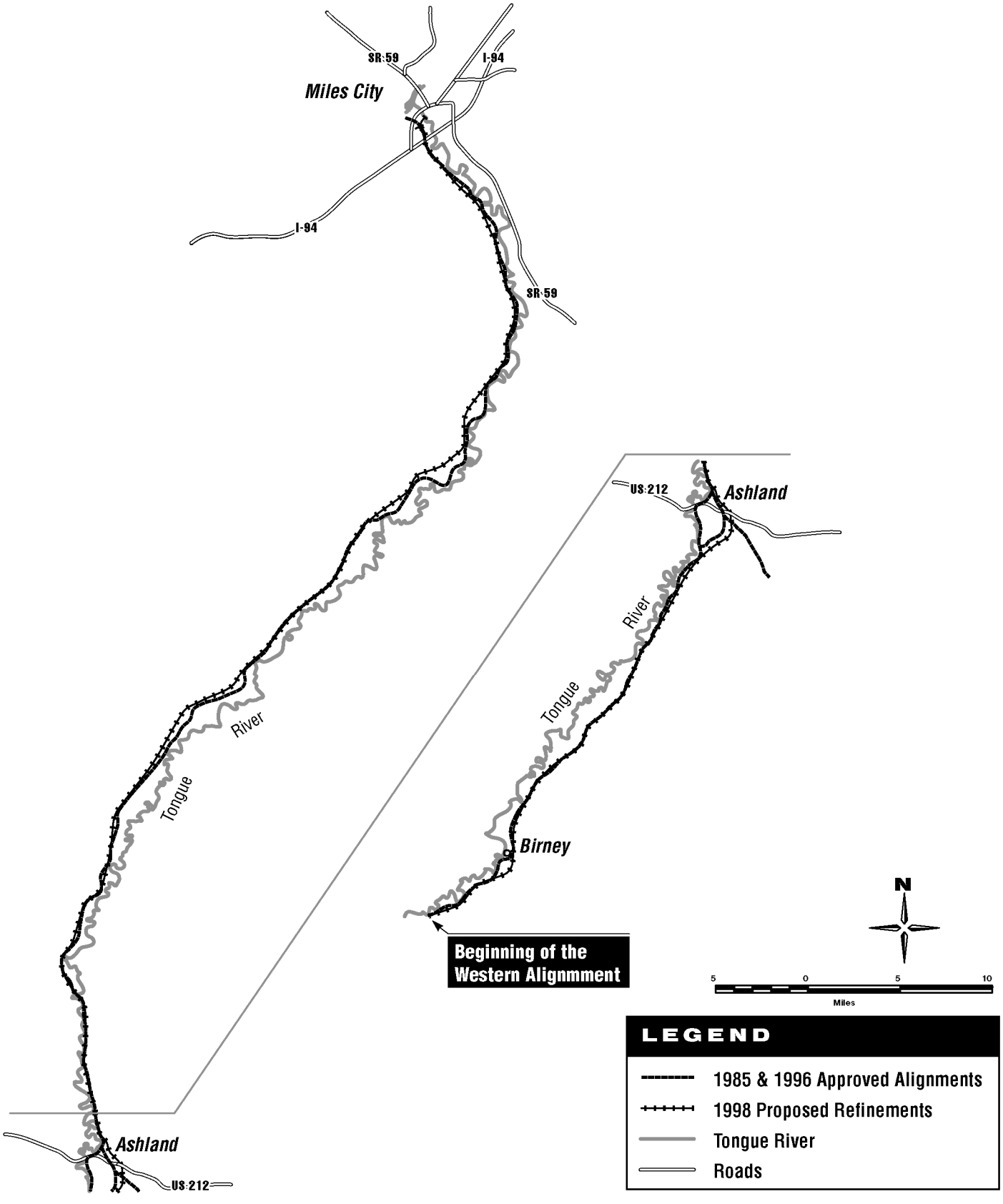
The exclusivity of Federal authority over railroads has been confirmed and strengthened in recent years, and in ICCTA, Congress enacted preemption provisions that give the Board exclusive jurisdiction over "transportation provided by rail carriers, including carriers' facilities." (See 49 U.S.C. 10501(b)). The same section states that "the remedies provided under this part with respect to regulation of rail transportation are exclusive and preempt the remedies provided under Federal or State law."

[14] Public Law No. 104-88, 109 Stat. 803 (1995).

[15] Mid States Coalition for Progress v. STB, 345 F. 3rd 520, 552 (8th Cir. 2003).

[16] Chicago & North Western Transp. Co. v. Kalo Brick + Tile Co., 4506.S.311, 318 (1981) (Kalo Brick).

[17] Auburn, 154 F. 3rd at 1029; Kalo Brick, 450 U.S. at B18-29; Transit Commission v. United States, 289 U.S. 121 (1933).



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FIGURE 1-6

PROPOSED REFINEMENTS TO THE ALIGNMENT
IN TONGUE RIVER I & TONGUE RIVER II

The courts have found that section 10501(b)'s broad scope extends to all Federal, state and local regulations to the extent their application would unduly restrict a railroad's operations or unreasonably interfere with interstate commerce, and that state and local permitting or pre-clearance requirements (including environmental requirements) by their nature tend to interfere with interstate commerce because of the ability to deny or unduly delay the carrier's right to conduct its operations and therefore are preempted.[18]

At the same time, the Board has also recognized that not all state and local regulations that affect railroads are preempted by ICCTA. In particular, the Board found that state and local regulations remain valid when they can be applied without interfering with the Federal law or the purposes of the Federal scheme, and that localities retain certain police powers to protect public health and safety. Moreover, state and local agencies play a significant role under many Federal environmental statutes and, in railroad construction cases, can raise their environmental concerns before the Board during the environmental review process. (See Auburn, 154 F. 3d at 1033.) Permits required by other Federal agencies pursuant to other Federal laws, including environmental laws, are also not preempted.

1.6 PARTICIPATING AGENCIES

1.6.1 Cooperating Agencies

This Draft SEIS has been developed in consultation with the three agencies that requested cooperating agency status: (1) the Corps, (2) BLM, and (3) MT DNRC, acting as lead agency for other Montana state agencies. These three agencies also have decision-making authority independent of the Board and are the three principal agencies from which TRRC must obtain separate approvals or permits. To help these agencies fulfill their regulatory responsibilities and functions, and to avoid duplicative environmental analysis, this Draft SEIS includes environmental review specifically requested by the cooperating agencies of certain issues that might not otherwise be considered by SEA. The inclusion of this information should facilitate and expedite the environmental review process. Based upon the information and analysis provided in the Draft and Final SEIS, the cooperating agencies should be able to issue any necessary permits without further proceedings. Furthermore, given the extremely broad preemption provisions of 49 U.S.C. 10501(b) of ICCTA, and precedents such as Auburn, the issuance of authority by the cooperating agencies presupposes that any conditions imposed by these agencies will not have the effect of interfering with the railroad operations authorized by the Board or interstate commerce.

1.6.1.1 U.S. Army Corps of Engineers

The Corps is located within the Department of Defense, under the Secretary of the Army. The Corps was established by the Rivers and Harbors Act of 1890 (superseded) and 1899, 33 U.S.C. 401, et seq. The Corps has authority over the navigable waters of the United States to insure and maintain the physical, biological, and chemical quality of our nation's water. It has permit requirements to prevent unauthorized obstruction or alteration of these waters, including

[18]E.g., City of Auburn v. STB, 154 F. 3d 1025 (9th Cir., 1998) (Auburn); Joint Petition for Dec. Order - Boston & Maine Corp. & Town of Ayer, Ma, STB Finance Docket No. 3397 (STB served May 1, 2001), 2001 STB LEXIS 435 (collecting cases).

construction, excavation, or deposition of materials in, over, or under such waters or any work that would affect the course, location, condition, or capacity of these waters.

Section 404 of the Clean Water Act (CWA), U.S.C. 1344, authorizes the Corps to regulate activity involving the discharge of dredged or fill material into jurisdictional wetlands or waters of the United States, as defined in 33 C.F.R. §328.3. The Corps has a role in TRRC's proposed rail line construction because the project would involve bridge construction across the Tongue River (one bridge would be constructed approximately 10 miles north of Ashland, and one would be constructed approximately seven miles south of Birney.) Both the bridge construction and rail line construction in drainages adjacent to the river would also result in fill in waters of the United States, and the latter construction would also cause disturbance of adjacent wetlands. TRRC would be required to obtain a permit from the Corps covering the entire rail line from Miles City to Decker before discharging material into wetlands or waters of the United States.

The Corps and EPA have jointly developed guidelines to evaluate impacts from discharges to wetlands and waters of the United States, as well as to determine compliance with Section 404 of the CWA. The guidelines require an analysis of alternatives to determine the "least environmentally damaging practicable alternative." Under the guidelines, "practicable" means available or capable of implementation, given considerations such as cost, existing technology, and logistics, in light of overall project purposes. Appendix D contains information related to Section 404 analysis for the entire rail line from Miles City to Decker, including an initial analysis of waters of the United States, a draft 404(b)(1) showing, and a Conceptual Habitat Mitigation Plan. By its participation in these proceedings as a cooperating agency, SEA believes the Corps will be in a position to make a Section 404 determination with the information provided to this agency.

1.6.1.2 Bureau of Land Management

BLM is organizationally housed under the U.S. Department of the Interior. BLM originated with the Land Ordinance of 1785 and the Northwest Ordinance of 1787, although it was formally established in 1946 when the Grazing Service was merged with the General Land Office. BLM is responsible for managing 262 million acres of Federal land, about one-eighth of the land in the United States, and about 300 million additional acres of subsurface mineral resources. BLM is also responsible for wildfire management and suppression on 388 million acres.

Most of the lands BLM manages are located in the western United States, including Alaska, and are dominated by extensive grasslands, forests, high mountains, arctic tundra, and deserts. BLM manages a wide variety of resources and land uses, including energy and minerals, timber, forage, wild horse and burro populations, fish and wildlife habitat, wilderness areas, archeological, paleontological, and historical sites, and other natural heritage values.

Portions of TRRC's rail line from Miles City to Decker approved in Tongue River I and Tongue River II will cross BLM-owned or managed lands. Under the Federal Land Policy and Management Act, 43 U.S.C. 1701, BLM would be required to approve a right-of-way (ROW) grant to TRRC so that the rail line can cross these lands. Figure 1-7 shows the land owned or managed by BLM that the rail line will cross. To assist BLM, and at BLM's request, TRRC conducted, and SEA independently reviewed and verified, an analysis of alternatives to the use of BLM land. This analysis is contained in Appendix E. SEA believes that as a result of the

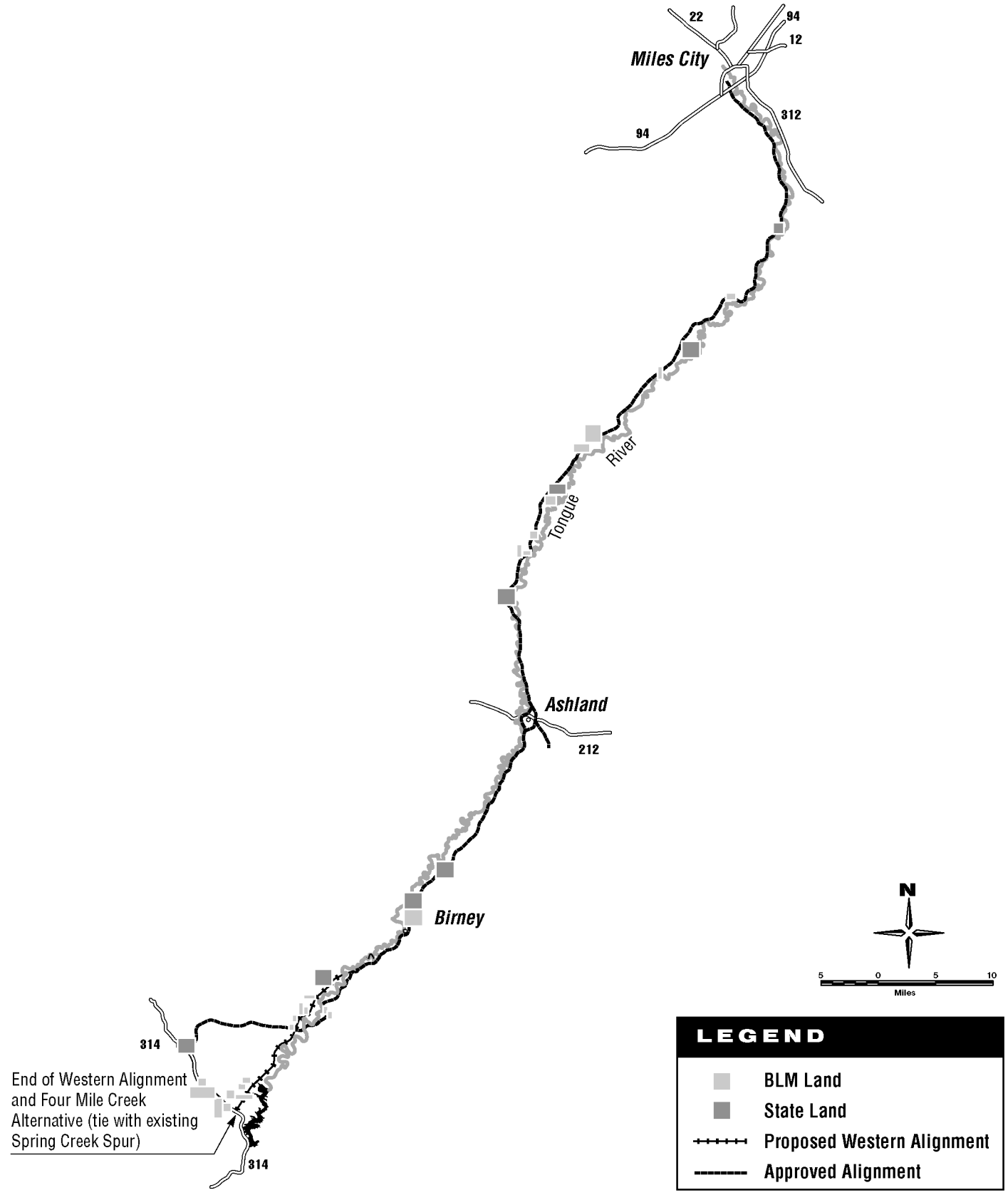


FIGURE 1-7

FEDERAL AND STATE OWNERSHIP OF LAND ALONG
THE RIGHT-OF-WAY IN TONGUE RIVER I THROUGH TONGUE RIVER III

analysis done in this Draft SEIS pertaining to BLM's ROW grant, BLM will have the information it needs to issue the ROW grant without further proceedings.

1.6.1.3 Montana Department of Natural Resources and Conservation

MT DNRC was established on July 1, 1995, as the result of a legislative reorganization of Montana's natural resource and environmental agencies. MT DNRC is responsible for sustaining and improving the benefits derived from Montana's water, soil, forest, and rangeland. To accomplish these goals, MT DNRC manages the State's trust land resources to produce revenues for the trust beneficiaries, protects Montana's natural resources from wildland fires through regulation and partnerships with Federal, state, and local agencies, and promotes conservation of oil and gas through regulation of exploration and production. MT DNRC also manages or assists in the management of several grant and loan programs, including the renewable resource, reclamation, and development program, the treasure state endowment, and the wastewater revolving fund programs.

For Tongue River III, MT DNRC is acting as lead agency for other Montana state agencies and to ensure the State's environmental concerns are addressed in a manner consistent with the Montana Environmental Policy Act (MEPA). Portions of the proposed rail line from Miles City to Decker would cross state lands, requiring that the State grant an easement to TRRC for the required ROW. Figure 1-7 shows the land owned by the State of Montana that the rail line will cross.

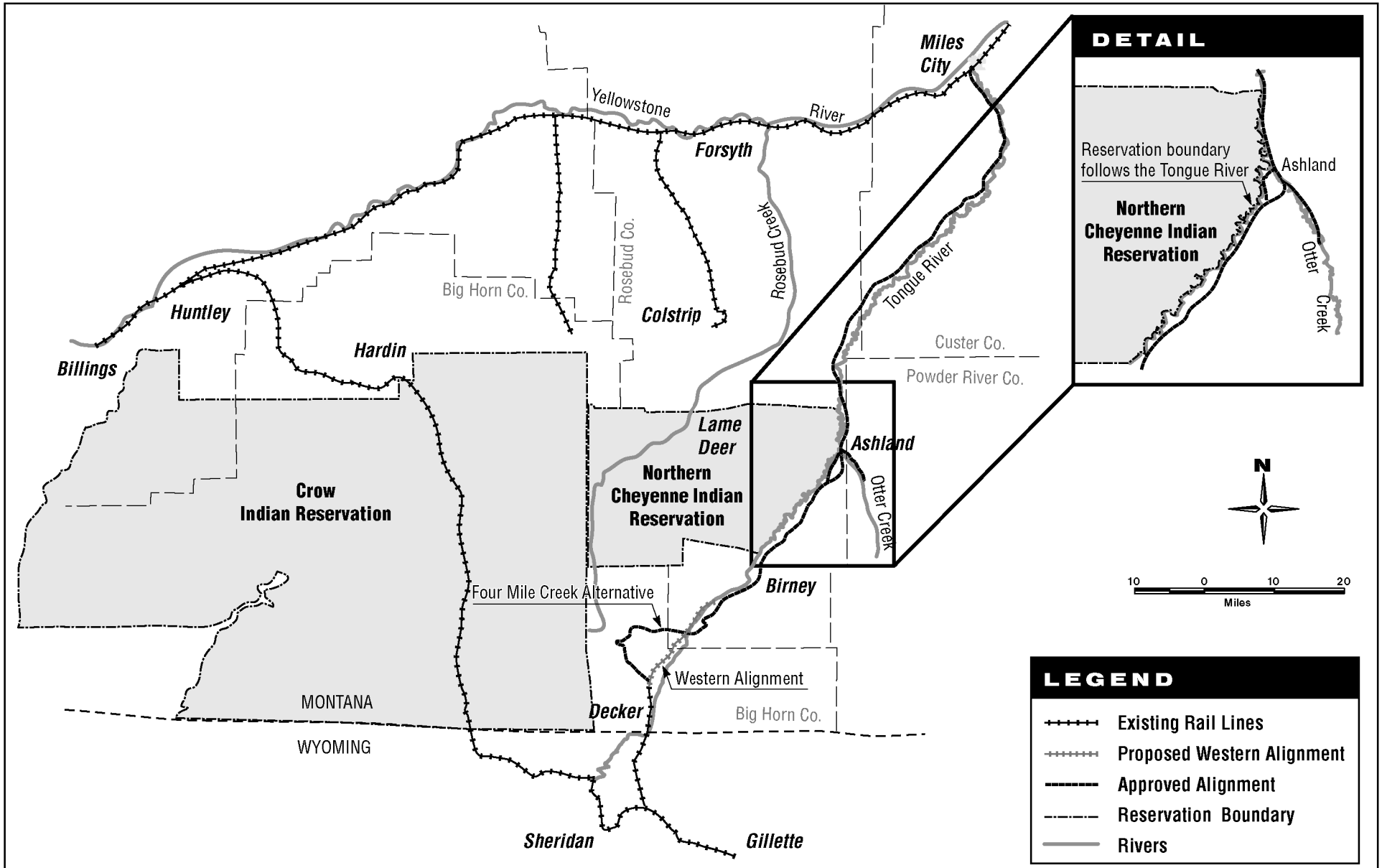
1.6.2 Other Agency Consultation

As part of this Draft SEIS' preparation, SEA consulted extensively with the cooperating agencies and various other agencies, including EPA, USFWS, Montana State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP). This consultation is discussed further in Chapter 3, "Overview of SEA's Analysis Conducted for This Draft SEIS."

1.6.3 Native American Consultation

The American Indian Religious Freedom Act (AIRFA), 42 U.S.C. 1996, requires Federal agencies to assess the impact of proposed projects on the right of Native Americans to exercise their traditional religions, including their access to sacred sites and to use and possession of sacred objects. Under AIRFA, Federal agencies are required to consider the policies embodied in that statute and seek to avoid unnecessary interference with Native American religious beliefs and practices. The Federal AIRFA policy operates separately from policies and procedures designed to evaluate historic Native American traditional sites pursuant to the National Historic Preservation Act (NHPA).

A portion of TRRC's approved rail line between Miles City and Decker is located in the vicinity of the Northern Cheyenne Reservation located in Rosebud and Big Horn counties. The Reservation is approximately 677 square miles in size with a population of approximately 5,600 individuals. As shown in Figure 1-8, the Tongue River generally forms the eastern boundary of the Reservation.



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FIGURE 1-8

LOCATION OF NATIVE AMERICAN RESERVATIONS
RELATIVE TO THE PROPOSED RAIL LINE

The proposed rail line from Miles City to Decker would not cross the Northern Cheyenne Reservation. Nevertheless, SEA conducted Native American consultation and evaluated potential impacts on the Native American communities in Tongue River I, Tongue River II, and again in Tongue River III, particularly involving the Northern Cheyenne. SEA's consultation and evaluation was designed to determine if the construction and operation of the rail line would result in any significant impacts on social, economic, or cultural resources, particularly traditional and sacred sites. SEA's outreach efforts included phone calls and letters directed to members of the Northern Cheyenne Tribe, Arapaho Business Council, Crow Tribal Council, Shoshone Business Council, Oglala Sioux Tribal Council, and Standing Rock Sioux Tribal Council.

The Northern Cheyenne Tribe participated in Tongue River I as a cooperating agency. In Tongue River II, SEE held a formal meeting with the Northern Cheyenne on February 5, 1990, and conducted separate communications with other Tribes (Crow, Arapaho, Miniconjou, and Oglala) in April 1990. The purpose of these consultations was to explain the project and to seek comments regarding the scope of the EIS.

SEA also consulted with Native American representatives in the development of a Programmatic Agreement (PA)[19] that addresses the protection of cultural resources that would be encountered during construction of the proposed rail line between Miles City and Decker. The Northern Cheyenne and the Crow, as concurring parties[20] to the PA, will be asked for their assistance in site identification, evaluation of objects encountered during the construction process, and consultation in the curation of objects. Also, as part of the PA process, SEA will seek the cooperation of the Northern Cheyenne and the Crow in the identification of sites of cultural significance to them along the proposed Western Alignment, if Tongue River III is approved and implemented, in order to ensure proper identification and treatment of cultural and paleontological resources during construction. (For further discussion of the PA, please refer to Chapter 4, Section 4.2.5.2, "Affected Environment – Cultural and Paleontologic Resources, Laws and Regulations," and to Appendix G, which includes the PA in its entirety.)

[19] A PA is an agreement executed under 36 CFR 800.14 in which the lead agency (here, the Board), ACHP, MT SHPO, and other parties agree on a process for considering historic properties with respect to an entire project. The PA prescribes a review process tailored to a particular program or project and stands in place of the normal review process under Section 106 of the NHPA.

In Tongue River II, SEA developed a PA. In Tongue River III, SEA has developed a new PA that will supersede the PA developed in Tongue River II and will apply to construction of the entire rail line (Tongue River I, Tongue River II, and Tongue River III) from Miles City to Decker.

[20] A concurring party participates in the development of the PA and signs the document to indicate acceptance with the terms contained therein. Concurring parties are also involved in the implementation of the PA, but in an advisory role unless otherwise specified in the terms of the Agreement.

1.7 PUBLIC REVIEW PROCESS

SEA has served this Draft SEIS, including preliminary mitigation recommendations, on all those on its service list and on appropriate Federal, state, and local agencies. SEA will publish notice of this document in the *Federal Register* and make it available on the Board's website. (The environmental documents for Tongue River I and Tongue River II are also available on the Board's website.) In addition, this document is available for review at the following locations:

Miles City Public Library	St. Labre Indian School
1 South 10th Street	1000 Tongue River Road
Miles City, MT 59301	Ashland, MT 59003

SEA encourages the public to participate in the environmental review of Tongue River III by commenting on the Draft SEIS during the 45-day comment period, which ends on December 6, 2004. When submitting comments on the Draft SEIS and the recommended environmental mitigation, please be as specific as possible and substantiate your concerns and recommendations. If you wish to submit written comments regarding this Draft SEIS, please send an **original and two copies** to the following address:

Surface Transportation Board
Case Control Unit
Washington, DC 20423
Attn: Kenneth Blodgett
STB Docket No. FD 30186 (Sub-No. 3)

Written comments may also be filed electronically on the Board's web site, www.stb.dot.gov, by clicking on the "E-FILING" LINK. Comments are due by December 6, 2004.

In addition to receiving written comments on the Draft SEIS, SEA will host public meetings on the Draft SEIS at the locations, times, and dates listed below. At each meeting, SEA will give a brief presentation and interested parties may submit written comments or make oral comments. Both public meetings will follow the same format and agenda. SEA will have a transcriber available at each meeting to ensure that oral comments are accurately captured.

Miles City:	Ashland:
Tuesday, November 16, 2004	Wednesday, November 17, 2004
7 - 9 p.m.	7 - 9 p.m.
Miles Community College	St. Labre Indian School
Room 106	Auditorium
2715 Dickenson	1000 Tongue River Road
Miles City, MT 59301	Ashland, MT 59003

SEA will carefully consider all the comments received on the Draft SEIS, will conduct further technical analysis as necessary, and will prepare a Final SEIS that will be served on the parties to the proceeding and made available on the Board's website. The Final SEIS will include appropriate environmental mitigation recommendations. A notice of the Final SEIS will also be published in the *Federal Register*.

The Board will then consider the Draft and Final SEISs, any comments, and other available environmental information in issuing its final written decision in Tongue River III. In its decision, the Board, in addition to considering the entire environmental record, will consider both economic and competitive transportation issues relevant to Tongue River III and will impose any conditions, including environmental conditions, it deems appropriate.

2.0 PURPOSE AND NEED

2.1 PURPOSE OF THE PROPOSED WESTERN ALIGNMENT

The purpose of TRRC's entire rail line from Miles City to Decker is to provide for the transport of coal from existing and future mines to markets in the midwestern and northeastern states. The CEQ regulations implementing NEPA require Federal permitting agencies to consider alternatives to the proposal as well as the "no-build" alternative. In this analysis, the Four Mile Creek Alternative represents both a "no action" alternative and a "build" alternative. It represents a "no action" alternative in relation to the Tongue River III analysis because it was already approved in Tongue River II. In addition, it provides a viable "build" alternative to the proposed Western Alignment.

Therefore, in Tongue River III, there are two "build" alternatives being considered by the Board: (1) the Four Mile Creek Alternative, TRRC's rail line previously approved in Tongue River II,[1] and (2) the Western Alignment, TRRC's proposed alternative rail line for a portion of the route approved in Tongue River II. At this point, based on the analysis contained in this Draft SEIS, SEA preliminarily concludes that both "build" alternatives would result in some environmental impacts. In addition, based on the analysis contained in this Draft SEIS, SEA preliminarily concludes that the proposed Western Alignment would have both operating efficiencies and concomitant environmental benefits when compared to the Four Mile Creek Alternative. Specific benefits of the Western Alignment include a more favorable grade, which would result in less fuel consumption, reduced air-pollution emissions,[2] and reduced safety risks associated with a possible loss of train control.

In proposing Tongue River III, TRRC stated that it seeks to reduce the environmental impacts, higher operating and maintenance costs, and safety concerns resulting from the steep grades and the associated potential for loss of train control associated with the Four Mile Creek Alternative. TRRC therefore is proposing the Western Alignment as an alternative routing to Tongue River II. In its application for the proposed Western Alignment, filed with the Board on April 27, 1998, TRRC submitted information to demonstrate that the proposed Western Alignment would have less of an overall environmental impact, and would be safer and more cost effective than the Four Mile Creek Alternative. TRRC submitted supplemental evidence in 2003 to update this information. Figure 2-1 depicts the existing rail network in the region, the rail lines approved in Tongue River I and Tongue River II, and the proposed Western Alignment.

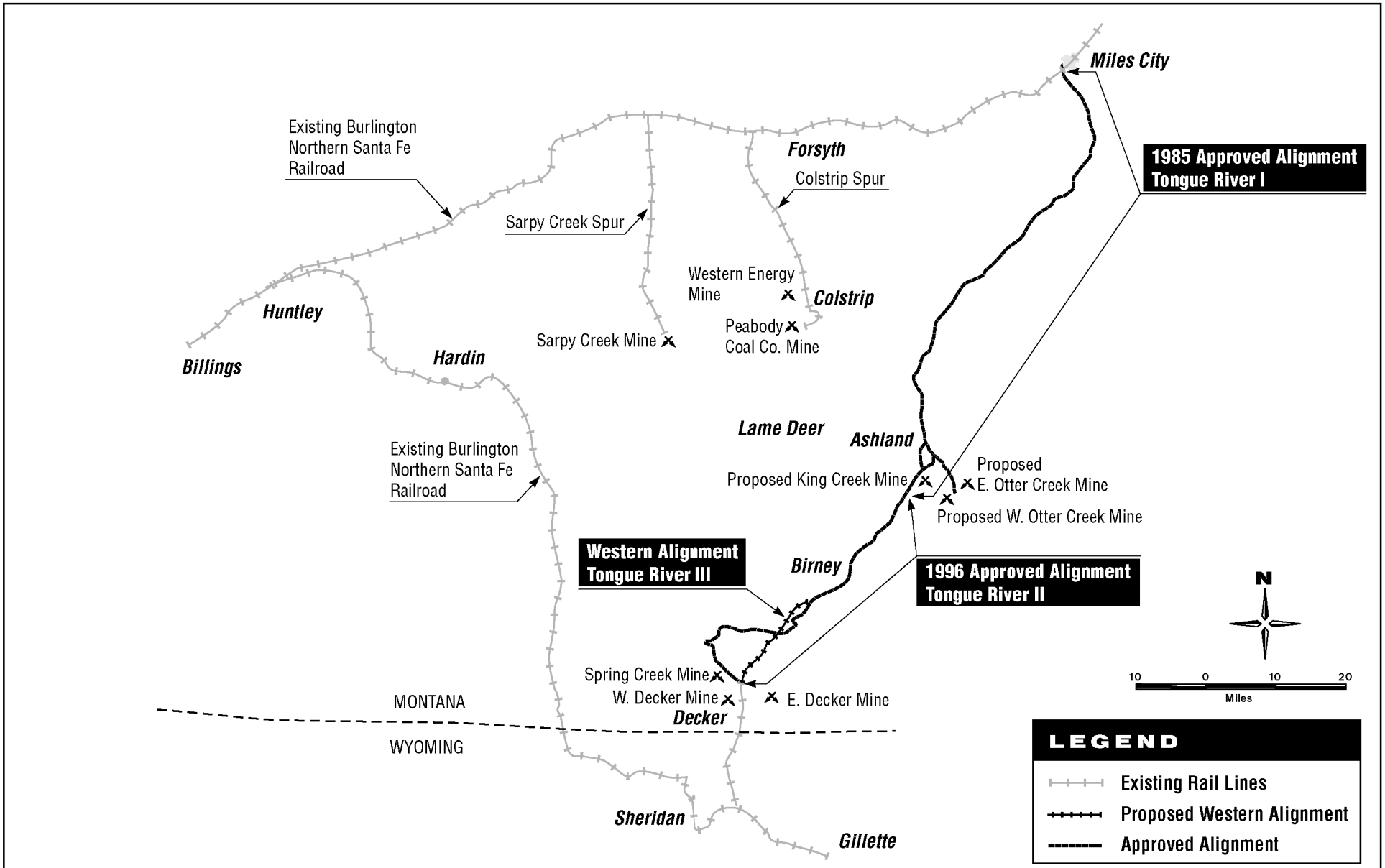
Economic and Operational Advantages of the Proposed Western Alignment

In support of its application for Tongue River III, TRRC submitted information on economic and operational advantages of the proposed Western Alignment. Table 2-1 summarizes TRRC's view of the economic and operational advantages of the proposed Western Alignment compared to the Four Mile Creek Alternative.

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[1] The Board in Tongue River II rejected TRRC's Preferred Alignment through the Tongue River Valley because it would result in significant, unavoidable environmental impacts.

[2] The combined tons/mile/year for CO, No_x, PM_{10}, SO_2, VOC for the proposed Western Alignment and the Four Mile Creek Alternative are 16.85 and 25.84 respectively.



INDEX OF MAP LOCATION

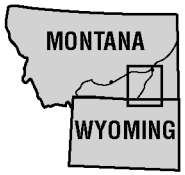


FIGURE 2-1

EXISTING AND PROPOSED
RAIL NETWORK AND MINES

Table 2-1 – Selected Construction and Operational Comparisons

	Proposed Western Alignment	Approved Four Mile Creek Alternative
Distance (Milepost 0.0 to end)	17.3 miles	29.4 miles
Climb for loaded trains[a]	64 feet	694 feet
Maximum climbing grades for loaded trains[a]	0.4 percent	1.53 percent
Maximum descending grades for loaded trains[b]	0.93 percent	2.31 percent
Number of public road crossings	4	7
Amount of right-of-way required	672 acres	765 acres
Construction costs	$108.9 million[b]	$95.17 million[c]

Notes: [a] TRRC 1998. Application filed with the Board in Finance Docket No. 30186 (Sub-No. 3).
[b] Supplemental Verified Statement of Dan Hadley, 2003.
[c] $84.3 million, estimated 1998 construction costs, adjusted for inflation (2004).

As shown in Table 2-1, the approved Four Mile Creek Alternative is 1.7 times longer than the proposed Western Alignment, and would result in an elevation climb for loaded trains that is more than ten times greater than the proposed Western Alignment. The previously approved Four Mile Creek Alternative would have maximum climbing grades that are nearly four times as steep for ascending loaded trains and maximum grades that are more than twice as steep for descending loaded trains, it would cross more public roads, and it would require 13.8 percent more land for the railroad right-of-way. Each of these variables translates into impacts on either construction or operational costs.

The construction costs for the proposed Western Alignment would be approximately 16 percent greater than those estimated for the Four Mile Creek Alternative. TRRC indicates, however, that these higher costs would be more than offset by the proposed Western Alignment's much lower operational costs. Furthermore, the steeper grades required on the Four Mile Creek Alternative would result in the need for more complicated operations to comply with safety requirements associated with train control, and would also result in higher long-term maintenance costs (TRRC 1998).

2.2 PURPOSE OF THE MILES CITY-TO-DECKER RAIL LINE

Future Coal Mining

TRRC states that the Miles City-to-Decker rail line would provide a more efficient means of transporting coal from existing mines in the region. Table 2-2 below provides updated estimates of annual coal tonnage in Montana and Wyoming that would be transported over the entire rail line from Miles City to Decker as well as that portion of the total yield that would be transported over the proposed Western Alignment specifically.

According to TRRC, the Clean Air Act of 1990 has created a strong market for low sulfur coal (i.e., compliance coal[3]) which can be burned in electric utility boilers without the need for costly flue-gas-desulfurization units. The Powder River Basin of Wyoming and Montana contains the great majority of the U.S. reserves of compliance coal. Table 2-2 shows that existing mines near Decker will yield less production as their reserves dwindle, but this can be offset by new mine development in the Ashland area. TRRC states that Wyoming and Decker-area coal mines also would use the proposed rail line from Miles City to Decker during the next two decades. While no permit applications currently exist for the CX Ranch Mine, the King Creek Mine, or the Otter Creek Mine, applications for such mines could be submitted in the future. The construction of either the Four Mile Creek Alternative or the proposed Western Alignment could increase the likelihood of these mines being developed.

Table 2-2 – Coal Tonnage Forecasts (Millions of Tons per Year)

Year	Origin			Total Carried by TRRC to Miles City	Total Carried over Proposed Western Alignment (Excludes Ashland Area Coal)
	Wyoming Coal [a]	Decker Area Coal [a]	Ashland Area Coal		
2009	16.6	15.3	0.3	32.2	31.9
2014	12.2	12.3	12.3	36.8	24.5
2019	12.2	12.3	12.3	36.8	24.5

Source: Supplemental Verified Statement of Mark T. Morey, 2003
Note: [a] Coal from this origin would move over the proposed Western Alignment.

The three existing compliance coal mines in the Decker area (East and West Decker and Spring Creek) currently transport their production to Midwestern utilities by way of the Burlington Northern and Santa Fe Railroad Company's (BNSF's) line through Sheridan, WY, and Hardin and Miles City, MT. (See Figure 2-1.) TRRC's proposed rail line from Miles City to Decker would allow this coal to be shipped directly to Miles City, thereby saving, according to TRRC, more than 320 miles on each round-trip to the Midwest. Applying the mileage reduction to the forecast tonnage yields sizeable reductions in fuel consumption, locomotive emissions, train turn-around times, maintenance and operation expenses, etc. The shorter route would have concomitant benefits on air quality due to reduced emissions from locomotive diesel engines. In addition to Decker area coal, BNSF currently transports some Wyoming coal over the circuitous Sheridan-to-Miles City route to these upper Midwestern markets. TRRC states that Wyoming coal would likely move over the proposed rail line from Miles City to Decker, as well. The quantity of Wyoming coal that would likely travel from Decker to Miles City on the proposed rail line in the next decade (2010-2020) is between 12 to 16 million tons per year (Mark T. Morey, Managing Director, Coal Group, Platts Research and Consulting, 2003).

Table 2-3 provides current and projected costs for medium and low sulfur coal originating in the Powder River/Green River region of Montana and Wyoming. These figures are based on data compiled by the Department of Energy's Energy Information Administration.

[3]Compliance coal refers to coal that has a low sulfur content and allows coal-burning power plants to meet Federal regulations without the need for additional and costly technology.

Table 2-3 – Cost Per Ton of Coal (Current and Projected) from Powder/Green River Region in Montana and Wyoming

Coal Type	2004 Price per Ton	2019 Price per Ton
Bituminous low-sulfur[a]	$26.05	$24.16
Sub-bituminous low-sulfur	$7.09	$7.29
Medium-sulfur sub-bituminous	$7.59	$7.40

Source: Energy Information Administration, May 2004.
Note: [a] Bituminous coal is rich in tarry hydrocarbons. Bitumen is any of various flammable mixtures of hydrocarbons and other substances.

Tax and Employment Benefits

TRRC believes that the proposed rail line from Miles City to Decker would yield direct tax benefits associated with its construction. The Montana Taxpayers Association (MTA) has estimated that there would be property tax benefits to state and local governments associated with the Tongue River Railroad. Such tax benefits would include (1998 figures, adjusted to 2004 dollars)

- New property tax revenue for the State of Montana.
- Annual university levy of $144,437.
- Annual school equalization levy of $2,286,074.
- Direct increases in property tax values in Big Horn, Rosebud, and Custer counties, resulting in millions of dollars of tax revenue annually in these counties.

In addition, TRRC estimates that construction of the proposed rail line from Miles City to Decker would create a peak demand for 530 workers with an estimated direct payroll of $28.9 million for the proposed Western Alignment and $25.4 million for the Four Mile Creek Alternative during the peak year of construction. Assuming TRRC would operate the railroad, an estimated 80 employees, including crew, maintenance staff, and administration, would be hired in the initial year of operation with an estimated annual payroll of $3.2 million (assumes an estimated annual average salary of $40,000). Assuming the same annual salary, 91 workers under the Four Mile Creek Alternative would result in an estimated annual payroll of $3.6 million. As described more fully in Chapter 3, it is possible that BNSF, rather than TRRC, would operate the rail line. Under BNSF operation, 87 workers would be employed under both the proposed Western Alignment and the Four Mile Creek Alternative. Assuming an annual average salary of $86,000, the annual estimated payroll would be $7.5 million. According to TRRC, either scenario would result in economic benefits including additional jobs and increased tax revenues from income and property taxes.

In summary, TRRC believes that the proposed Western Alignment would be a more cost-effective method of moving compliance coal to Midwestern utility markets than the already approved rail line from Miles City to Decker. With construction of the proposed Western Alignment, TRRC anticipates that the entire rail line from Miles City to Decker would be more operationally efficient. The previously approved rail line from Miles City to Ashland would allow for the development of new mines in the Ashland area, which would increase coal production in Montana. The development of this coal would help utilities comply with Clean Air Act requirements, create new job opportunities, and generate millions of dollars in additional tax revenues to state and local governments (TRRC 1998).

2.3 OPERATION AND MAINTENANCE

Two Possible Operating Scenarios

The "no action" alternative was examined in Tongue River I and Tongue River II and as a result, it is not discussed further in this section. TRRC suggests two possible scenarios associated with the operation of its proposed rail line from Miles City to Decker. Scenario One involves the negotiation of an operating agreement between TRRC and BNSF, whereby BNSF would operate over the proposed rail line from Miles City to Decker with its own crews and locomotives.[4] If such an operating agreement is not reached with BNSF, then under Scenario Two, TRRC would transport unit trains from the Decker area to Miles City using its own locomotives and crews.

The coal train length, weight, and frequency would be the same under both scenarios. Further, TRRC would likely provide track and ROW maintenance under both scenarios. In either case, the utility that purchases the coal would own and maintain the majority of the coal cars. Table 2-4 describes some of the operating variables, and assumes TRRC operation of the line under the two alternative routes.

Table 2-4 – Proposed Rail Line Operations Activities in Year 2009

Operational Variable	TRRC Owns/Operates Locomotives and Hires Crews	
	Proposed Western Alignment	Approved Four Mile Creek Alternative
Round-trip trains per day[a]	7	7
Train movement per day[b]	14	14
Number of locomotive engines	2	5
Number of crew[c]	50	62
Total number of employees[d]	99	110

Source: Supplemental Verified Statement of Robert H. Leilich, 2003.
Notes: Assumes TRRC operation across the proposed Western Alignment or approved Four Mile Creek Alternative.
[a] Assuming 31.9 million tons moving across the southernmost segment of the proposed rail line (Morey 2003).
[b] Each round-trip train equals two movements: one loaded outbound and one unloaded return.
[c] Number of crew operating over entire line.
[d] Total number of employees (administrative, crews, and maintenance) for entire line.

Under either operational scenario, each train would be comprised of approximately 113 coal cars. Each car would carry an estimated 117 tons of coal, for a total train load of approximately 13,200 net tons. Trains would operate every day of the year. Train frequency would be dependent on the amount of coal to be shipped. Under the proposed Western Alignment, the amount has been estimated at seven round-trip trains per day or 14 train movements per day in the year 2009. Because some Ashland tonnage is expected to be transported by 2009, there would be about eight round-trip trains per day from the Ashland area to Miles City. (See Chapter 6.4.3, "Coal Mine Development in the Ashland/Birney Area," for a discussion of anticipated coal mine development in the Ashland area.) Please refer to Table 2-2 for estimates

[4] As of October 2004, TRRC and BNSF representatives were discussing, but had not yet concluded, an operating agreement.

of annual coal tonnage in Montana and Wyoming that would be transported over the proposed Western Alignment as well as over the entire rail line from Miles City to Decker.

Under TRRC operation, TRRC would use its own crew of approximately 50 persons. There would be 49 additional persons employed by TRRC to perform administrative and maintenance functions, for a total of 99 persons. The additional helper locomotive and crew members required for operation over the Four Mile Creek Alternative would result in the need for about 11 additional crew members, for a total of approximately 110 persons.

According to a verified statement by Ronald McMahan, filed with TRRC as part of the Tongue River III application, most of the coal to be carried on the proposed rail line would serve markets in Minnesota, Wisconsin, Michigan, Washington, northern Illinois, and the Dakotas. Other possible destinations are Ohio, Pennsylvania, New York, and Canada.[5]

According to the regulations of the Federal Railroad Administration (FRA),[6] TRRC would be required to maintain the rail line to Class IV standards to operate safely at speeds of up to 50 mph. Long-term maintenance would be conducted according to the terms of any TRRC/BNSF agreement or contract.

Access to the ROW for the maintenance of the rail line would be confined to public grade crossings or private grade crossings where access agreements have been made with landowners. Access to the ROW for maintenance equipment would be provided along the railroad embankment. Maintenance primarily would be accomplished by high-rail equipment traveling along the rail line. Vegetation control along the track area would be accomplished by either mechanical means or herbicide use. Only those herbicides approved and licensed by the State of Montana would be used to control trackside vegetation.

TRRC contingency plans for emergencies, including derailments and natural disasters, would require TRRC to identify the location of heavy duty cranes and other rerailing equipment, and to provide an estimated time of equipment transport. TRRC states that it would also arrange other emergency procedures with BNSF and would make maps and access points known to state police, local fire departments, and other emergency response teams. Under the other operating scenario (BNSF operation), it would be necessary for BNSF to develop these plans and procedures.

[5] Verified Statement of Ronald McMahan, 1998.

[6] 49 CFR 213.

3.0 OVERVIEW OF SEA'S ANALYSIS CONDUCTED FOR THIS DRAFT SEIS

3.1 OVERVIEW

SEA's analysis conducted for this Draft SEIS is in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.); Council on Environmental Quality (CEQ) regulations implementing NEPA; the Board's environmental rules (49 CFR Part 1105); and other applicable environmental statues and regulations.

In this Draft SEIS, SEA analyzes the potential environmental impacts of the proposed Western Alignment and recommends mitigation measures where appropriate. In doing so, SEA also compares the potential environmental impacts of the proposed Western Alignment with those of the previously approved Four Mile Creek Alternative. The information and analysis contained in this Draft SEIS will be used to determine (1) if the proposed Western Alignment is environmentally acceptable, and (2) whether the proposed Western Alignment creates less environmental consequences compared to the Four Mile Creek Alternative.

SEA's analysis presented in this Draft SEIS relies on the following information and studies:

- The EISs prepared in Tongue River I and Tongue River II.
- TRRC's Environmental Report: Rail Construction and Operation-Western Alignment in Rosebud and Big Horn counties, MT.
- Public comments submitted in response to the Board's Notice of Intent (NOI), Amended NOI, and two scoping meetings held by BLM and MT DNRC.
- TRRC's reply to public comments submitted in response to the Board's NOI.
- SEA's consultation with the cooperating agencies and other Federal, state, and local agencies.
- Site visits conducted by SEA.
- Aerial surveys conducted by TRRC and SEA.
- Biological resource studies.
- Technical studies including:
    - An "Initial Analysis of Waters of the United States" (October 2003) (wetland delineation) of the entire rail line from Miles City to Decker via the proposed Western Alignment. (See Appendix D.)
    - A "Conceptual Habitat Mitigation and Monitoring Plan," (April 1999) which addresses mitigation for impacts to wetlands and waters of the United States along the entire rail line from Miles City to Decker. (See Appendix D.)
    - A Biological Assessment (BA) (September 2004), which analyzes impacts to threatened and endangered species resulting from the construction and operation of the entire rail line from Miles City to Decker. (See Appendix L.)
    - A Habitat Matrix, which identifies the types of wildlife habitats along the entire rail line from Miles City to Decker. (See Appendix L.)
    - Miles City Fish Hatchery (MCFH) studies (March 1999 and September 2003), which analyze the effects of construction and operation of the rail line on the operation of the MCFH.

- A "Flood Effects Analysis," (February 1999) which analyzes the change in the 100-year flood elevation of the Tongue River that would result from the proposed rail crossing of the Tongue River. (See Appendix F.)

TRRC provided an Environmental Report pertaining to the proposed Western Alignment, which included information that the previously analyzed alignments for Tongue River I and Tongue River II had been refined. In response, SEA conducted a focused review of the EISs prepared in Tongue River I and Tongue River II to determine if any of the planned changes from the previously considered alignments in Tongue River I and Tongue River II would result in potentially significant environmental impacts not previously analyzed.

Because the area through which the rail line (Tongue River I, Tongue River II, and the proposed Tongue River III) would be constructed is predominantly rural, SEA's analysis emphasizes impacts in the areas of biological resources (including potential impacts to threatened and endangered species), geology, water quality, and air quality. In addition, SEA's analysis addresses potential land use impacts to ranching operations in the Tongue River Valley and impacts to cultural resources, including resources of cultural significance to Native Americans.

SEA's approach to the analysis of the proposed Western Alignment and the focused review of the analyses prepared in Tongue River I and Tongue River II is described in more detail below.

3.2 ANALYSIS OF THE PROPOSED WESTERN ALIGNMENT

SEA conducted a thorough analysis of the entire Tongue River Valley area and potential environmental issues associated with a new rail line as part of the EIS and technical studies prepared in Tongue River II. The EIS and technical studies evaluated the potential environmental impacts of two alternative routes for the rail line from Ashland to Decker. These routes were the Four Mile Creek Alternative and TRRC's originally Preferred Alternative that followed the Tongue River Valley. As a result, the EIS and technical studies prepared in Tongue River II provide an extensive basis for environmental information on the area of the proposed Western Alignment. SEA used this information for Tongue River III to determine the potential environmental impacts associated with construction and operation of the proposed Western Alignment and to compare these potential impacts with the potential impacts resulting from construction of the previously approved Four Mile Creek Alternative.

As mentioned above, TRRC submitted an Environmental Report containing their analysis of the potential environmental impacts of the proposed Western Alignment and a comparison of the environmental impacts with those of the previously approved Four Mile Creek Alternative. SEA independently verified the information and analysis contained in the Environmental Report. Where SEA disagreed with or was unsure about the Environmental Report's analysis or conclusions, either SEA instructed TRRC to provide additional information or SEA conducted a separate analysis.

As part of its environmental analysis of the proposed Western Alignment, and to verify information and analyses submitted by TRRC, SEA conducted site visits in 1998, 1999, and 2003 to view the area surrounding the proposed Western Alignment and the Four Mile Creek Alternative. Because of the rural nature of the area, SEA conducted visual surveys from public roadways and from the air. Site visits were conducted at different times of the year to ensure a

complete understanding of the physical environment of the proposed Western Alignment and the surrounding area. In addition, SEA consulted with affected Federal and state agencies, including BLM, MT DNRC, and USFWS, to confirm and obtain additional information regarding the existing environmental characteristics along the routes of the proposed Western Alignment and the Four Mile Creek Alternative.

Information provided by TRRC on construction activities, the amount of grading, the areas to be disturbed by construction, and construction-period employment, was used by SEA to calculate potential construction-period environmental impacts such as noise levels, dust generation, soil erosion, water quality impacts, and socioeconomic effects. Operational characteristics provided by TRRC on the number of trains per day, number of locomotives, and maintenance activities, were used by SEA to calculate potential operational environmental impacts such as noise levels, grade crossing delay, safety, and the spread of noxious weeds. The results of SEA's analyses are presented by topic area in Chapters 4 and 5 of this Draft SEIS.

SEA also reanalyzed the potential environmental impacts of the Four Mile Creek Alternative where warranted, utilizing updated operational and construction information provided by TRRC to provide the most reliable comparison between the two routes. In addition, SEA conducted new studies, where appropriate, to assist in the analysis of potential environmental impacts and take into account changed circumstances. Many of these new studies were conducted at the specific request of the cooperating agencies. Where appropriate, these studies covered the entire rail line from Miles City to Decker. The new studies are described below by topic area and the results are reported in Chapter 4 and Chapter 5 of this Draft SEIS. In addition, copies of these studies are presented in the Appendices to this Draft SEIS.

3.2.1 New Studies and Analysis by Topic

Land Use. The State of Montana requested that a Flood Effects Analysis be completed to determine the effect of one bridge crossing proposed under the Western Alignment on flood flow levels in the Tongue River. The analysis utilizes the new Tongue River Reservoir Dam dimensions and several different water flow scenarios. The complete analysis is included in Appendix F.

Endangered Species. Because construction and operation of the rail line has the potential to affect threatened and endangered species, and at the request of the USFWS, SEA prepared, in Tongue River II, a Biological Assessment (BA)[1] that analyzed potential impacts to threatened and endangered species. In preparing this Draft SEIS, TRRC prepared a new BA to address the potential impacts of the proposed Western Alignment and to update information on the rest of the rail line (Tongue River I and Tongue River II) from Miles City to Decker. The BA, originally written in 1999 by TRRC and updated in September 2004 by SEA, was prepared in consultation with USFWS. The BA included aerial surveys to identify potential habitat areas along the entire rail line from Miles City to Decker. In addition, topographic maps, aerial photographs, and records from the State of Montana and USFWS were consulted to understand

[1] A BA is a study of the potential impacts to Federally listed threatened and endangered species that may inhabit the geographic area within which the project will take place. The BA is used to consult with the USFWS regarding impacts to Federally listed threatened and endangered species under Section 7 of the ESA.

current and historical locations of threatened and endangered species and their habitat in the Tongue River Valley. Field personnel from USFWS, BLM, and State of Montana were consulted regarding their personal knowledge of threatened and endangered species in the Tongue River Valley area. USFWS will complete a Biological Opinion based on the various consultations, which will be included in the Final EIS.

Wildlife Habitat. At the request of SEA, to provide information about the location and extent of general wildlife habitats, TRRC prepared, and SEA reviewed and verified, a Habitat Matrix. The matrix, which is contained in Appendix L, identifies the habitats potentially affected by the proposed Western Alignment as well as the entire line from Miles City to Decker. The Habitat Matrix, which was updated by SEA in 2004, provides information beyond that contained in the BA to allow SEA to determine the level of potential impact on more common species such as pronghorn antelope and deer. The Habitat Matrix was developed based on aerial surveys of the Tongue River Valley, topographic maps, aerial photographs, and information provided by the State of Montana and BLM.

Wetlands. Because the project could affect waters of the United States as defined by Section 404 of the Clean Water Act (CWA), and at the request of the Corps, TRRC prepared a "An Initial Analysis of Waters of the United States," in 1998 (updated 2004), a draft 404(b)(1) Showing Document in 1998 (updated 2004) and a Conceptual Habitat Mitigation and Monitoring Plan These studies address the proposed Western Alignment as well as the rest of the line from Miles City to Decker. These studies have been prepared in consultation with the Corps, which is in the process of reviewing the findings of these studies. These studies are contained in Appendix D.

Cultural Resources/Programmatic Agreement. As part of SEA's analysis of cultural and paleontological resources, SEA revised and updated the original Programmatic Agreement (PA) created in Tongue River II in consultation with the following signatory parties, many of whom were involved in development of the original PA:

- ACHP
- Corps
- BLM
- USDA
- MT SHPO
- TRRC
- MT DNRC
- Board

The Northern Cheyenne Indian Tribe and the Crow Tribal Councils have been invited to participate as concurring parties in the preparation and implementation of the updated draft PA. The proposed rail line would be located in the vicinity of the Northern Cheyenne Indian Reservation and the Crow Indian Reservation, although it would not cross either reservation. Other Indian tribes with historic ties to the Tongue River Valley, including the Arapaho, Oglala Sioux, Shoshone, and Standing Rock Sioux Tribal Councils have also been invited to participate in the PA process. The Northern Plains Resource Council (NPRC) has been invited to participate to represent the views of ranchers in the area.

The updated draft PA sets forth the requirements and procedures for the identification, evaluation, and protection of cultural resources that may be encountered during construction of the entire line from Miles City to Decker via either the approved Four Mile Creek Alternative or the proposed Western Alignment. The Northern Cheyenne and Crow tribes are expected to participate in the detailed surveys that will be conducted prior to construction, and other Indian tribes will be invited to participate in the development of Treatment Plans to protect cultural resources affected by construction of the rail line. The updated draft PA is contained in Appendix G.

Native American Consultation. In addition to preparing a new updated PA, SEA conducted additional consultations with the Native American community. SEA's consultation efforts to date have included the following actions:

- A meeting with members of the Northern Cheyenne Cultural Committee on May 19, 1999 to discuss Tongue River III and identify sites of cultural significance along the approved Four Mile Creek Alternative and the proposed Western Alignment.
- Submission of additional information requested by the Northern Cheyenne Cultural Committee, including maps and photos, to facilitate their identification of sites of cultural significance along the approved Four Mile Creek Alternative and the proposed Western Alignment.
- An invitation to Native American Tribes with historical ties to the Tongue River Valley to participate in the PA process. The Tribes include the NPRC, Arapaho, Oglala Sioux, Shoshone, and Standing Rock Sioux Tribal Councils.
- Follow-up phone calls to each Native American Tribe regarding their participation in the PA process.
- A proposal to coordinate a site visit with Northern Cheyenne elders to the proposed Western Alignment area to identify sites of cultural significance to the Tribe.

Cumulative Effects. SEA contacted Federal, state, and local agencies to identify past, present, and reasonably foreseeable projects that could contribute to cumulative effects as a way to update and augment the analysis of cumulative effects conducted in Tongue River I and Tongue River II, and to present a cohesive discussion for the entire rail line from Miles City to Decker via either the approved Four Mile Creek Alternative or the proposed Western Alignment. The following agencies were consulted in the preparation of the cumulative effects analysis:

- BLM
- MT DNRC
- USDA
- USFS (Custer National Forest)
- Office of the Governor of Montana
- Office of Montana U.S. Senator Conrad Burns
- Office of Montana U.S. Senator Max Baucus
- DOE

SEA preliminarily concludes that the cumulative environmental impacts resulting from the proposed Western Alignment, the proposed refinements to Tongue River I and Tongue River II, and the related actions identified in Chapter 6, would be similar to the cumulative impacts identified in the EISs prepared for Tongue River I and Tongue River II.

When compared to the approved Four Mile Creek Alternative, the proposed Western Alignment would not result in substantially different or more adverse cumulative effects. The proposed Western Alignment could result in slightly reduced air quality and aesthetic effects when compared to the approved Four Mile Creek Alternative because of the proposed Western Alignment's shorter distance (less air pollutant emissions) and less visibility from public roadways. However, as indicated above, neither alignment would result in significant cumulative effects in any of the topic areas studied by SEA.

3.3 FOCUSED REVIEW OF TONGUE RIVER I AND TONGUE RIVER II

In preparing this Draft SEIS, SEA conducted a focused re-examination of the already completed EISs and studies prepared in Tongue River I and Tongue River II. Based on comments to the NOIs, and in consultation with the cooperating agencies, SEA determined that additional analysis beyond the proposed Western Alignment is justified in these areas: (1) where environmental circumstances or requirements have changed in a manner warranting the updating and augmenting of analyses for Tongue River I and Tongue River II; (2) where there have been refinements to the alignment previously considered in the Tongue River I and Tongue River II; and (3) to assist agencies in expeditiously fulfilling their regulatory responsibilities and functions, as specifically requested by those agencies.

TRRC submitted information in response to the 1998 NOI indicating that the alignment of the railroad has been adjusted somewhat from the alignments analyzed in Tongue River I and Tongue River II. TRRC submitted aerial photographs and topographic maps that depict the alignments approved in Tongue River I and Tongue River II, and the proposed refinements. The maximum deviation from the previously approved route is approximately one mile. Figure 1-6 graphically depicts the alignment approved in Tongue River I and Tongue River II compared to the refinements proposed by TRRC. SEA determined that the scope of the Draft SEIS should be broadened to include a comparative analysis to determine if any of the proposed changes from the previously considered alignments in Tongue River I and Tongue River II would result in significant environmental impacts not previously considered. The results of this analysis are presented in Chapter 5 of this Draft SEIS.

3.3.1 Analysis of Tongue River I

To evaluate whether there have been any changes in environmental circumstances significant enough to warrant further analysis of Tongue River I since the EIS was prepared, SEA compared aerial photographs used in the 1985 Final EIS for Tongue River I with aerial photographs of the same area taken in November 1997. SEA conducted site visits in 1998, 1999, and 2003 to determine if there have been any additional changes in the physical environment since the 1997 aerial photographs were taken.

SEA also conducted a review of all pertinent Federal, state, and local environmental regulations and laws to determine if there have been any changes that would affect the conclusions presented in the EIS for Tongue River I. In conducting this review, SEA consulted web sites maintained by Federal and state resource agencies and consulted with the cooperating agencies, as well as EPA and USFWS. The results of SEA's review of environmental regulations are contained in Appendix H.

SEA's analysis of environmental circumstances and environmental regulations and laws determined that little has changed since the EIS was prepared for Tongue River I. As a result, SEA's analysis of Tongue River I focuses on a comparative analysis of the proposed refinements to the alignment previously considered in the Tongue River I EIS. In all locations where the proposed realignment would deviate from the alignment approved in Tongue River I, SEA determined if any additional environmental impacts would occur.

In some cases, aerial photographs and topographic maps were not sufficient to make a determination as to whether any potential new environmental impacts would occur as a result of the proposed refinement. In these cases, SEA required TRRC to submit additional information so that SEA could conduct appropriate additional analyses and verify TRRC's findings as to whether any additional impacts would occur. The results of SEA's additional analyses are presented in Chapter 5 of this Draft SEIS. The additional analyses of the new revised Tongue River I alignment conducted by SEA included

- Calculating the 65 dBA noise contour[2] for the changes proposed by TRRC and comparing it to the 65 dBA contour for the approved alignment in Tongue River I to identify any additional sensitive noise receptors that would be affected.

- Calculating the amount of cut and fill and land area disturbed for the proposed realignment and comparing this to the amount of cut and fill and land area disturbed for the approved alignment in Tongue River I. This analysis provided information regarding soil erosion, dust emissions, water quality impacts, and habitat affected.

SEA also conducted additional analyses at the specific request of the cooperating agencies (BLM, Corps, and MT DNRC) to provide information to allow them to expeditiously fulfill their regulatory responsibilities and issue any necessary permits without further proceedings. The additional analyses conducted at the request of the cooperating agencies included

- An Initial Analysis of Waters of the United States and Conceptual Habitat Mitigation and Monitoring Plan, prepared at the request of the Corps and in consultation with Corps staff. The analysis involved delineating wetlands and waters of the United States along Tongue River I as well as the rest of the rail line (Tongue River II and the proposed Western Alignment) from Miles City to Decker, including creek and river crossings. The analysis also involved the development of conceptual mitigation in the form of replacement of wetlands and waters of the United States that would be affected by construction of the rail line. The Initial Analysis of Waters of the United States and the Conceptual Habitat Mitigation and Monitoring Plan were prepared by TRRC and WESTECH Environmental Services respectively and verified by the Corps. The analysis is presented in Appendix D.

[2] Noise is commonly expressed in decibels (db). The "A-weighted" decibel scale (dBA) expresses noise levels within the range of human hearing. A noise contour establishes the maximum distance from an alignment's centerline that would experience a specified decibel reading. SEA sets forth a significance criteria of 65 dBA. Therefore, 65 dBA noise contour is the area within which operating trains would have significant noise impacts on sensitive noise receptors or result in noise levels of 65 dBA or greater.

- A BA, prepared at the request of, and in consultation with, the USFWS. The BA identifies threatened and endangered species and their habitat in the Tongue River Valley, the potential impacts of the construction and operation of Tongue River I, as well as the effect on the rest of the rail line (including Tongue River II and the proposed Western Alignment) from Miles City to Decker on those species and their habitat, and proposes mitigation measures to reduce the environmental impacts. The BA was prepared by SEA.

- A new PA, developed by SEA in consultation with the Northern Cheyenne, Crow Indian Tribes, NPRC, MT SHPO, ACHP, BLM, MT DNRC, the Corps, USDA, and TRRC, that requires additional cultural surveys and the development of Treatment Plans prior to beginning construction of any portion of the rail line. The PA applies to the entire rail line from Miles City to Decker.

- An additional analysis of the water quality of Otter Creek and the upper and lower Tongue River conducted by TRRC and reviewed and verified by SEA, in response to a request by the MT DNRC and comments from the Northern Cheyenne and NPRC. Although Otter Creek was not included on the state's 2002 303 (d) Impaired Waters Database, the upper and lower Tongue River (including the Tongue River Reservoir) were listed. The results of this analysis are presented in Chapters 4 and 5 of this Draft SEIS.

- An analysis conducted by TRRC at the request of the BLM evaluating of effects of construction and operation of the entire rail line on BLM property in the areas of wildlife habitat; vegetation; riparian/wetlands; livestock grazing; soil, water, and air; cultural resources; recreation; socioeconomic effects; access; wilderness; and environmental justice. This evaluation is presented in Appendix E.

- Additional analysis of potential environmental justice impacts from the construction and operation of the Four Mile Creek Alternative approved in Tongue River II and the proposed Western Alignment at issue in Tongue River III, conducted by SEA in response to comments from the Northern Cheyenne and NPRC. In particular, this analysis focused on impacts to Native Americans, including the Northern Cheyenne, and is presented in Chapter 4 of this Draft SEIS.

- Studies of the effects of construction and running of the rail line on the operation of the MCFH, conducted by TRRC at the request of MT DNRC, and reviewed and verified by SEA. These studies analyzed vibration impacts, geotechnical concerns, and the effects of coal and dust emissions on the operation of the MCFH. (See Appendix F.) MT DNRC and TRRC are in the process of negotiating the terms of an easement agreement for the rail line to cross the MCFH property.

The Executive Summary provides a summary of SEA's conclusions regarding the analysis in this Draft SEIS.

3.3.2 Analysis of Tongue River II

To determine whether there have been any changes in environmental circumstances along the northern 11.6-mile portion of Tongue River II, SEA examined aerial photographs taken in 1992 (used in the 1996 Final EIS for Tongue River II) and compared them to aerial photographs taken in November 1997. In addition, SEA conducted site visits in 1998, 1999, and 2003 to determine if any additional changes in the physical environment had occurred since the 1997 aerial photographs were taken.

SEA conducted a review of all pertinent Federal, state, and local environmental regulations and laws to determine if there had been any changes that would affect the conclusions presented in the EIS for Tongue River II. In conducting this review, SEA consulted web sites maintained by Federal and state resource agencies and consulted with the cooperating agencies, as well as EPA and USFWS. The results of SEA's review of environmental regulations are contained in Appendix H.

SEA's analysis of environmental circumstances and environmental regulations and laws determined that little has changed since the EIS was prepared for Tongue River II. As a result, SEA largely readopts the EIS in Tongue River II. SEA's analysis of Tongue River II in this Draft SEIS focuses on a comparative analysis of the refinements being proposed by TRRC to the alignment analyzed in the Tongue River II EIS.

SEA's analysis of TRRC's proposed refinements involved review of aerial photographs and topographic maps provided by TRRC that were enhanced to show the alignment approved in Tongue River II as well as the refinements in that alignment proposed by TRRC. The maximum deviation between these refinements and the alignment approved in Tongue River II is approximately one mile. In locations where the proposed realignment would deviate from the alignment approved in Tongue River II, SEA compared the potential impacts of the change in the alignment to determine if any additional environmental impacts would occur.

In some cases, aerial photographs and topographic maps were not sufficient to make a determination as to whether any potential new environmental impacts would occur as a result of the proposed realignment. In these cases, SEA required TRRC to submit additional information so that SEA could conduct appropriate additional analysis to determine whether any additional impacts were likely. The results of SEA's additional analyses are presented in Chapter 5 of this Draft SEIS. The additional analyses of the revised Tongue River II alignment conducted by SEA include all those conducted for Tongue River I, as identified in Section 3.3.1.

4.0 PROPOSED WESTERN ALIGNMENT

4.1 INTRODUCTION

This portion of the Draft SEIS is divided into two main sections. In Section 4.2, SEA describes the environment affected by the proposed construction and operation of TRRC's 17.3-mile line known as the Western Alignment, or Tongue River III. In Section 4.3, SEA assesses the potential environmental impacts associated with the construction and operation of the proposed Western Alignment. The line that is the subject of this application is an alternative routing for the southernmost portion of the 41-mile Ashland to Decker, Montana, rail line that was approved by the Board on November 8, 1996, in Finance Docket No. 30186 (Sub-No. 2), referred to as Tongue River II. In Tongue River II, the Board approved construction and operation of the Ashland to Decker rail line via the Four Mile Creek Alternative. (See Chapter 1 for a complete description of the project's background and history.) SEA's analysis documents the existing physical conditions within the area of the proposed Western Alignment rail line and assesses the impacts of constructing and operating the proposed Western Alignment, as compared to the impacts of construction and operation of the previously approved Four Mile Creek Alternative. Where appropriate and feasible, SEA recommends mitigation measures to reduce or avoid significant impacts that would be associated with the proposed Western Alignment.

This document is a Supplement to the EIS that was prepared for Tongue River II. SEA's analysis of the proposed Western Alignment incorporates and builds on the information contained in that EIS, updating the information where necessary to provide an accurate comparison of the environmental impacts associated with both the proposed Western Alignment and the approved Four Mile Creek Alternative. SEA is required by NEPA to analyze reasonable, feasible alternatives, as well as the No Action Alternative. In the context of this SEIS, the No Action Alternative is the Board not approving the proposed Western Alignment. In that case, TRRC could still build the Four Mile Creek Alternative. Therefore, for purposes of this analysis, the Four Mile Creek Alternative is considered the No Action Alternative.

SEA's analysis of the proposed Western Alignment addresses the following topics: land use; terrestrial and aquatic biological resources; soils and geology; hydrology and water quality; cultural resources; transportation and safety; air quality; noise and vibration; socioeconomic effects and environmental justice; recreation; aesthetics; and energy.

Areas of Environmental Concern and Wild and Scenic Rivers are elements of the human environment subject to requirements specified in statute, regulation, or executive order and are normally discussed in environmental documents. However, these topics are not included in this Draft EIS as they do not occur within or adjacent to the project area and would not be affected by the project.

4.2 AFFECTED ENVIRONMENT

Section 4.2 describes the existing physical conditions within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative. Because both areas are predominantly rural and undeveloped, in most cases the information presented in this section is applicable to both the proposed Western Alignment and the approved Four Mile Creek Alternative, unless otherwise stated. The following descriptions of the affected environment are

based on information contained in Tongue River II. Where appropriate, SEA has updated the descriptions of the affected environment to reflect current conditions. These updates are based on site visits to the area conducted in1998 and 2003, aerial surveys of the area, aerial photography, topographic maps, the Environmental Report provided by TRRC with its April 1998 application, supplemental information provided by TRRC in response to SEA's requests, and other published information such as census data and previously conducted biological and cultural resource studies. Chapter 3, "Overview of SEA's Analysis Conducted for This Draft SEIS," provides a complete description of SEA's analysis. In addition to describing the physical characteristics of the area, a discussion of local, state, and Federal regulations that could pertain to each area of analysis is included where appropriate.

4.2.1 Affected Environment – Land Use

This section presents SEA's examination of the existing land uses within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative.

The proposed Western Alignment and the approved Four Mile Creek Alternative are located in southeastern Montana, near the Tongue River and Tongue River Valley. The area is rural and mostly undeveloped, characterized by hills and rolling terrain. In general, the Four Mile Creek Alternative follows a steeper route along Four Mile Creek.

The project area is sparsely populated. There are no urban centers or communities along either the proposed Western Alignment or the Four Mile Creek Alternative. The majority of land in the area is privately owned. A substantial portion of the private properties are large ranch holdings. Other landowners in this area include the Federal government (under the jurisdiction of BLM) and the State of Montana.

More than 90 percent of the land in counties through which the proposed Western Alignment and the approved Four Mile Creek Alternative would travel (Rosebud and Big Horn counties) is used for agricultural purposes. Approximately 90 percent of the agricultural land in the Tongue River Valley is used for cattle grazing, seven percent is non-irrigated cropland (nonprime farmland), and three percent is irrigated cropland (prime farmland) (MT DNRC Agricultural and Grazing Bureau 2003).[1] Soils qualifying as prime farmland must have a developed irrigation system and a dependable supply of quality water. As a result, the only soils that received a prime farmland rating are located in the flatter areas along the Tongue River. These soils are used mainly for irrigated alfalfa, hay, or corn.

Less than ten percent of the land in Rosebud and Big Horn counties is used for industrial purposes. Industrial development in the form of mining and electric power generating plants is the primary industrial land use (MT DNRC 2003). In the Colstrip area of Rosebud County, the Big Sky and Rosebud mines produced 13.7 million tons of coal in 2002. Power plants at Colstrip, which are operated by the Pennsylvania Power and Light Company, have a peak generating capacity of 2,236 megawatts (David Anderson, Director, Small Business

[1] Prime farmland, as defined by the U.S. Department of Agriculture (USDA), has soils that are best suited to feed, forage, fiber, and oilseed crops. Such soils have properties that favor the sustained production of high yields of crops and produce the highest yields with minimal expenditure of energy and economic resources.

Development Center, Colstrip, MT, September 2003). The Spring Creek Mine produced 9.6 million tons of coal in 2002. The East Decker and West Decker mines produced 1.2 million tons and 8.2 million tons of coal respectively. The primary industrial land use in Big Horn County is coal production. In 1996, the two Decker mines produced nearly 11 million tons of coal, while the Spring Creek Mine produced another nine million tons (Jim Mockler, Executive Director, Montana Coal Council, 2003). The coal produced from these mines is transported via rail to power plants in the Midwest.

In addition to agriculture and industrial uses, land in the Tongue River Valley and around the Tongue River Reservoir is enjoyed for its natural beauty and recreational offerings. (See Section 4.2.10, "Affected Environment – Recreation," for a description of recreational resources in the vicinity of both the proposed Western Alignment and the approved Four Mile Creek Alternative.) Recreational hunting is a popular activity in the region. There are eight Block Management Areas (BMAs) located along the Tongue River between Ashland and Miles City providing access to a total of 127,000 acres of land for free public hunting, including approximately 40 miles of river frontage. A BMA is either a privately or publicly owned land area that is managed by the MT DFWP, private landowners, or public land management agencies to provide free public hunting access. There are also the Hirsch conservation easements that provide 11,000 acres of hunting access, and two fishing access points: one located at the Twelve Mile Dam south of Miles City and one just below the Tongue River Dam. Potential impacts caused by the railroad would be temporary loss, during construction, of access to portions of the conservation easements and BMAs. The railroad would not impact access to the fishing sites, and hunting access would be almost fully restored during the operational phase of the project.

4.2.2 Affected Environment – Biological Resources

This section presents SEA's examination and comparison of the existing biological resources in the area of the proposed Western Alignment and the approved Four Mile Creek Alternative.

Because much of the proposed Western Alignment and approved Four Mile Creek Alternative would traverse private property not near public roads, access to the rail line was severely limited and ground-based surveys were not possible. To address this situation and provide the most accurate data possible, SEA conducted numerous studies based on aerial photography and aerial surveys to obtain the most current information for the proposed rail line corridor. Specific activities undertaken in support of the preparation of this SEIS include the following:

- Bald eagle: Helicopter surveys were conducted to document bald eagle wintering and nesting patterns.
- Black-footed ferret: Helicopter surveys were conducted to document the location of black-tailed prairie dog colonies, which is the critical habitat for black-footed ferrets.
- Vegetation: Helicopter surveys and ground-level surveys, where accessible, were conducted to verify vegetation types.
- Wetlands: Aerial photography and current maps from the National Wetland Inventory were used to identify potential wetland locations.
- Wildlife species: SEA consulted with U.S. Fish and Wildlife Service (USFWS) and the State of Montana to obtain current information on the presence of species and habitats.

4.2.2.1 Vegetation

The vegetation found in the area of both the proposed Western Alignment and approved Four Mile Creek Alternative is typical of the northern Great Plains. Adapted to extremes of winter cold and summer drought, the plant species form mixed prairie and shortgrass prairie vegetation communities. The principal grass species are midgrasses (such as wheatgrasses and needlegrasses) with some shortgrasses (such as grama and buffalo-grass). Species typical of both the Rocky Mountain flora and the Great Basin flora are also represented.

The types of vegetation vary with the topography. Upland areas and high terraces contain shrubland and grassland species interspersed with coniferous forest. Drainages and bottomlands contain deciduous trees and shrubs. Tongue River Valley vegetation has been influenced by grazing and other agricultural uses. General rangeland types of vegetation are classified as mixed grass prairie. Climate, topography, soils, and the type of forage available dictate the rangeland's carrying capacity.[2] The ten general habitat types located in the area of both the proposed Western Alignment and the approved Four Mile Creek Alternative and the dominant vegetation species within each are shown in Table 4-1.

Table 4-1 – General Habitat Types and Dominant Species in the Area of the Proposed Western Alignment and the Approved Four Mile Creek Alternative

Habitat	Dominant Species
Big Sagebrush/Grassland[a]	Big sagebrush, western wheatgrass, bluebunch needlegrass, needle-and-thread, green needlegrass
Silver Sagebrush/Grassland[b]	Silver sagebrush, western wheatgrass, green needlegrass
Greasewood/Grassland[c]	Greasewood, western wheatgrass
Skunkbrush Sumac/Grassland[d]	Skunkbrush sumac, grasses
Deciduous Tree/Shrub[e]	Plains cottonwood
Pine/Juniper	Ponderosa pine, Rocky Mountain juniper
Prairie[f]	Western wheatgrass, bluebunch needlegrass, needle-and-thread, green needlegrass, and others
Breaks[g]	Grasses, shrubs, trees, typical of other types
Agricultural[h]	Crops and pasture species
Aquatic	Cattail, bulrushes, wet-site sedges, horsetails, rushes

Sources: BLM 1996, 2003; MT NHP 2003.
Notes: [a] The most common vegetation type in the area is big sagebrush/grassland.
[b] The silver sagebrush/grassland type is commonly associated with drainage bottoms and river terraces.
[c] The greasewood/grassland type occurs on localized sites on the Tongue River floodplain and on upland sites where saline soils exist.
[d] The skunkbrush sumac/grassland type occurs on steep slopes with thin, coarse soils, often in proximity to the coniferous type.

[2] Carrying capacity is usually defined as the maximum population of a given species that can be supported indefinitely in a defined habitat without permanently impairing the productivity of that habitat. ("Die Off" website, http://dieoff.org/page110.htm, accessed on 12/2/03.)

[e] The deciduous tree/shrub type occurs on the Tongue River bottomlands, side drainages, and near seeps, where high moisture levels prevail throughout the growing season.
[f] The prairie vegetation type is comprised of grassland plant communities, which occur primarily on slopes, terraces, and sidehills.
[g] The breaks type is found on steep, highly eroded slopes, and is variable in vegetation composition.
[h] The agricultural type of vegetation includes dry and irrigated croplands, haylands, and tame pastures.

Relative percentages for habitat types were determined by delineating habitat polygons on aerial images and field-verifying these polygons. Within the 200-foot ROW, aquatic habitat consists of less than 1 percent of acreage affected; the breaks habitat consists of approximately 16 percent of acreage affected; deciduous tree/shrub habitat consists of approximately 1 percent of acreage affected; pine/ juniper habitat consists of approximately 6 percent of acreage; prairie /shrub habitat consists of approximately 47 percent of acreage affected; prairie consists of approximately 25 percent of acreage affected; and agricultural/disturbed sites/pasture habitat consists of approximately 5 percent of acreage (urban /developed habitat is also less than 1 percent of acreage affected). Of the prairie/shrub habitat, silver sagebrush/grassland comprised approximately 65 percent of the prairie/shrub habitat; big sagebrush/grassland comprised approximately 7 percent of the prairie/shrub habitat; greasewood/grassland comprised approximately 2 percent of the prairie/shrub habitat; and approximately 25 percent was undetermined.

Federal Species of Concern. Surveys did not identify any Federally listed threatened or endangered plant species in the area along the ROW of either the proposed Western Alignment or the approved Four Mile Creek Alternative. There are three Federally listed threatened or endangered plant species in Montana: water howellia (*howellia auqatilis*), spalding's campion (*silene spaldingii*), and ute ladies' tresses (*spiranthes diluvialis*). None of these species are likely to occur in the project area (MT NHP 2003).

State Species of Concern. No threatened or endangered plant species, as listed on the Montana Natural Heritage Program (MT NHP 2003), have been identified within the project area of the proposed Western Alignment or the approved Four Mile Creek Alternative. However, according to the MT NHP (2003), there are 18 threatened or endangered species for which potential habitat occurs within the project area of either the proposed Western Alignment or the Four Mile Creek Alternative and for which there are occurrence records in the general area. These species, which occur either on the Bureau of Land Management (BLM) Watch List or are Montana State Species of Concern, or both, are listed in Table 4-2.

Table 4-2 – State Sensitive Plant Species Potentially Present Within the Project Area of Either the Proposed Western Alignment or the Approved Four Mile Creek Alternative ROW

Common Name	Scientific Name	Status	Habitat
Lead Plant	*Amorpha canescens*	MSOC	Dry, well-drained prairie.
Narrowleaf Milkweed	*Asclepias stenophylla*	BLM-W, MSOC	Sandy soils of prairies and open pine woodland.
Barr's Milkvetch	*Astragalus barrii*	BLM-W, MSOC	Occurs on sparsely vegetated knobs and buttes, usually with dry, fine-textured, often calcareous soils.

Common Name	Scientific Name	Status	Habitat
Pregnant Sedge	*Carex gravida* var. *gravida*	BLM-W, MSOC	Widespread in moist prairie and woodlands in the eastern U.S., but known to exist in eastern Montana, where most localities are in green ash ravines and wooded draws.
Western Centaury	*Centaurium exaltatum*	MSOC	Moist alkaline soil around ponds and streams on the plains. Reported from Big Horn County, but location not specified.
Schweinitz' Flatsedge	*Cyperus schweinitzii*	BLM-W, MSOC	Sparsely vegetated sand dunes on the plains.
Nine-anther Dalea	*Dalea enneandra*	BLM-W, MSOC	Gravelly grasslands slopes on the plains.
Scribner's Panic Grass	*Dichanthelium oligosanthes* var. *scribnerianum*	BLM-W, MSOC	Two small colonies recently documented in Powder River County occupied Ponderosa pine/Oregon grape habitat.
Joe-pye Weed	*Eupatorium maculatum* var. *bruneri*	BLM-W, MSOC	Moist meadows, springs, margins of spring-fed streams, and swamp thickets in the valleys and on the plains.
Nuttall Desert-parsley	*Lomatium nuttallii*	BLM-W, MSOC	Open, rocky mid and lower slopes on sandstone, siltstone, or clayey shale, in open pine woodlands from about 3,400 to 7,200 feet elevation.
Bractless Mentzelia	*Mentzelia nuda*	BLM-W, MSOC	Sandy or gravelly soil of open hills and roadsides on the plains.
Large Flowered Beardtongue	*Penstemon grandiflorus*	MSOC	Sandy soil of valleys on the plains.
Plains Phlox	*Phlox andicola*	BLM-W, MSOC	Known mainly from sandy soils in grasslands and Ponderosa pine woodland, often associated with sparsely vegetated erosional blowouts and loose sand below sandstone outcrops.
Woolly Twinpod	*Physaria didymocarpa varlanata*	MSOC	Sandy, often calcareous soil of open grassland or shrubland slopes in the plains.
Slender-branched Popcorn-flower	*Plagiobothrys leptocladus*	BLM-W, MSOC	Drying mud on the shores of ponds in the plains and foothill zones.
Persistent-sepal Yellow-cress	*Rorippa calycina*	BLM-W, MSOC	Sparsely vegetated, moist sandy to muddy banks of streams, stock ponds, and manmade reservoirs near the high-water line. Topographic features and water levels appear to be more important than geologic substrates in determining where this species grows.
Longleaf Dropseed	*Sporobolus asper*	BLM-W, MSOC	Open forests and grasslands on the plains.
Nannyberry	*Viburnum lentago*	MSOC	Openings in riparian forests on the plains.

Sources: BLM 1996, 2003; MT NHP 2003.
Notes: MSOC=Montana State Species of Concern; BLM-W=Bureau of Land Management Watch List.

Other Vegetation. Noxious Weeds. Ranchers have expressed concern about the introduction and propagation of noxious weeds along the ROW resulting from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative. In addition to being a fire hazard, weeds can also reduce crop production.

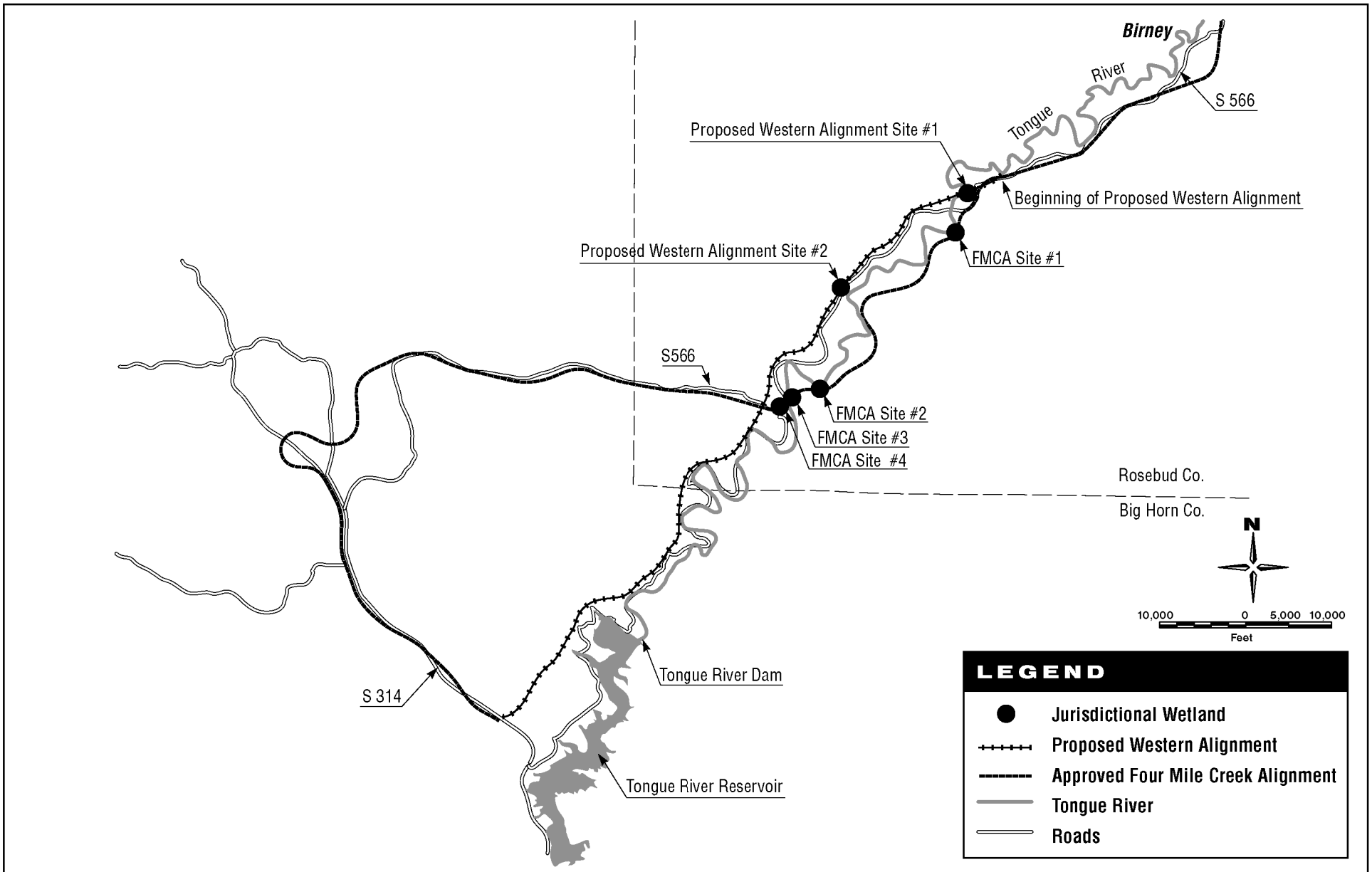
Wetlands. Some of the open water of the Tongue River and its perennial tributaries, ephemeral streams, intermittent streams, and ponds contain wetland areas (see Figure 4-1). Appendix D provides estimates of the amount of wetlands that exists within the analysis corridor for each alignment and the functions and values of those wetlands. These estimates are a qualitative assessment based on aerial surveys of the project area. Wetland areas have not yet been confirmed through quantitative methods due to the inability to access the corridor.

4.2.2.2 Wildlife

The areas around the proposed Western Alignment and the approved Four Mile Creek Alternative include side drainages and a small amount of bottomlands of the Tongue River, which provide year-round habitat for numerous wildlife species. Diverse wildlife populations utilize a wide range of habitats along the Tongue River. Since the mid-1970s, detailed wildlife baseline and monitoring studies have been conducted for existing and proposed coal mines north and south of both the proposed Western Alignment and the approved Four Mile Creek Alternative (East and West Decker mines, Spring Creek Coal Mine, and CX Ranch Mine). Some of these studies are still in progress. Those studies that have been completed are referenced in Chapter 13.

Habitat requirements for wildlife species in the project area are met by combinations of topography, vegetation types, and specific wildlife habitat features (springs, seeps, snags, cliffs, etc.). Wildlife habitat types correspond to the vegetative types described in Table 4-1. SEA assessed wildlife resources by utilizing wildlife data from the area and preparing a habitat matrix. (See Appendix L.) Species of special concern and wildlife species most commonly observed in the area are described below.

Federal Species of Concern. USFWS administers the Federal Endangered Species Act of 1973 (ESA). The ESA requires that USFWS monitor the status of species and list species as threatened or endangered if their numbers are low or declining rapidly and the species' existence may be imperiled. If a Federally funded project may result in harm or harassment of the species, the lead agency for the project is required to consult with USFWS to determine which species may be affected. The lead agency then prepares a Biological Assessment (BA). The BA is a document which identifies the species' occurrence in the project area and how the project may affect the species. USFWS, after review of the BA, then determines if the project is likely to affect any listed species and, if so, issues a Biological Opinion including mitigation measures intended to minimize or avoid impacts.



INDEX OF MAP LOCATION

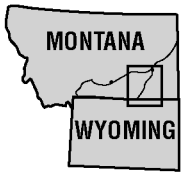


FIGURE 4-1

POSSIBLE 404 JURISDICTIONAL (WETLAND) LOCATIONS

In 1996, USFWS amended its definition of candidate species to include only those species for which USFWS has sufficient information on biological status to propose listing under the ESA (USFWS, Letter to SEA, January 19, 1999).[3]

In Tongue River III, SEA prepared a new BA to address the areas affected by the entire line from Miles City to Decker, including the proposed Western Alignment, as well as the approved Four Mile Creek Alternative. (See Appendix L.) The BA addresses the six Federal species currently listed or proposed for listing by USFWS for the region encompassing the proposed rail line from Miles City to Decker via the proposed Western Alignment as well as the approved Four Mile Creek Alternative: black-footed ferret, whooping crane, interior least tern, bald eagle, mountain plover, and pallid sturgeon. Discussions of these species and their habitats are provided below.

Black-footed Ferret (*Mustela nigripes*). Critical habitat of the Federally listed endangered black-footed ferret is considered to be prairie dog colonies and complexes (Biggins et al. 1985). Despite the existence of black-tailed prairie dog colonies, no black-footed ferrets are known to occur in the Tongue River Valley or near the vicinity of the proposed rail line from Miles City to Decker.

Whooping Crane (*Grus americana*). The whooping crane was listed as endangered by USFWS in 1970. To date, there are no documented occurrences of the whooping crane within the entire Tongue River Railroad ROW, including the proposed Western Alignment and the approved Four Mile Creek Alternative. If whooping cranes utilize the Tongue River, it is infrequently at most (Carlson 2003b). Transient whooping cranes have historically been reported throughout eastern Montana (MT NHP 2003b). Review of the principal and breeding areas described in the Whooping Crane Recovery Plan, which is a nationwide plan administered by USFWS, indicates that any whooping cranes found within the Tongue River Railroad area are transient migrants traveling from the wintering grounds in the Arkansas National Wildlife Refuge in Texas to breeding grounds in Canada (USFWS 1994). For the past 20 years, all observations of this species in Montana have been in the northeast corner of the state (MT NHP 2003b), a long distance from the Miles City-to-Decker reach of the entire Tongue River Railroad, along either the proposed Western Alignment or the approved Four Mile Creek Alternative.

Interior Least Tern (*Sterna antillarum*). To date, there are no documented occurrences of the interior least tern, which is federally listed as endangered. The closest documented occurrence of this species to the Tongue River Railroad ROW was approximately 9 miles away on the Yellowstone River, downstream of the Tongue River confluence (Carlson 2003a, Montana Bird Distribution Database 2001, MT NHP 2003). The interior least tern has historically bred along the Mississippi, Red, and Rio Grande river systems and rivers of central Texas. This migratory species has extended its breeding range from Texas to Montana and from eastern Colorado and

[3] Biological status categories are defined by USFWS. An "endangered species" is any species that is in danger of extinction throughout all or a significant portion of its range. A "threatened species" is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. "Candidate species" are those species for which USFWS has sufficient information on biological status and threats to propose to list them as threatened or endangered. USFWS encourages their consideration in environmental planning and partnerships. Species "proposed to be listed as threatened or endangered" are species whose status is under review by USFWS to determine whether they warrant listing. These species are usually included in BAs.

New Mexico to southern Indiana (USFWS 1990). In Montana, breeding interior least terns have been recorded both on the Yellowstone River and on the Missouri River between Fort Peck Reservoir and North Dakota (USFWS 1990).

Bald Eagle (*Haliaeetus leucocephalus*). Since the late 1970s, the bald eagle has substantially increased its nesting distribution and numbers. As a consequence, in 1995, USFWS downlisted the bald eagle from endangered to threatened.

Bald eagles occur along the Tongue River as migrants and winter residents. They forage primarily on fish, waterfowl, and carrion. During migration, as many as 50 bald eagles have been counted along the Tongue River from Miles City to the upper end of the Tongue River Reservoir (Farmer 1992), and it was estimated that 10 to 15 bald eagles winter along the river below the dam (USFWS 1992). Currently, there could be as many as 60 wintering bald eagles along the Tongue River (Hazelwood, personal communication, 2003). In February 2004, an aerial survey was conducted for bald eagles nesting and/or wintering (BLM 2002b) along the entire proposed Tongue River Railroad, including the proposed Western Alignment and the approved Four Mile Creek Alternative. If construction is delayed for a longer period than planned (three years), then additional surveys may be needed.

The BA produced as part of this Draft SEIS (see Appendix L) discusses the historical use of the area by eagles, protocol for minimizing disturbances to nesting bald eagles, and the potential for bald eagles to occur in the project area.

Two nests, Nest 03 and Nest 04, where bald eagle activity has been observed, have been identified in the project area. (See Figure 4-2.) Nest 03 is located approximately 3,700 feet (0.7 miles) east of the proposed Western Alignment centerline and is considered active. In comparison, Nest 03 is several miles from the approved Four Mile Creek Alignment ROW.

Nest 04 was found in 1992 and is located about 4,750 feet (0.8 miles) from the Tongue River I alignment. The nest was surveyed in 1992 through 2002, and it was found to be active each year. In 2000, Nest 04 Alternate was discovered in the same location as Nest 04 and was determined to be active. It was inactive in 2001 but active again in 2002 (DuBois, personal communication, 2003). The exact location of the Nest 04 Alternate has not been determined, and for the purpose of the BA, Nest 04 and Nest 04 Alternate are considered to be in the same active territory. In 2003, there was no production data, but incubation was observed on this nest; therefore, it was considered active in 2003 (MT DFWP 2003a).

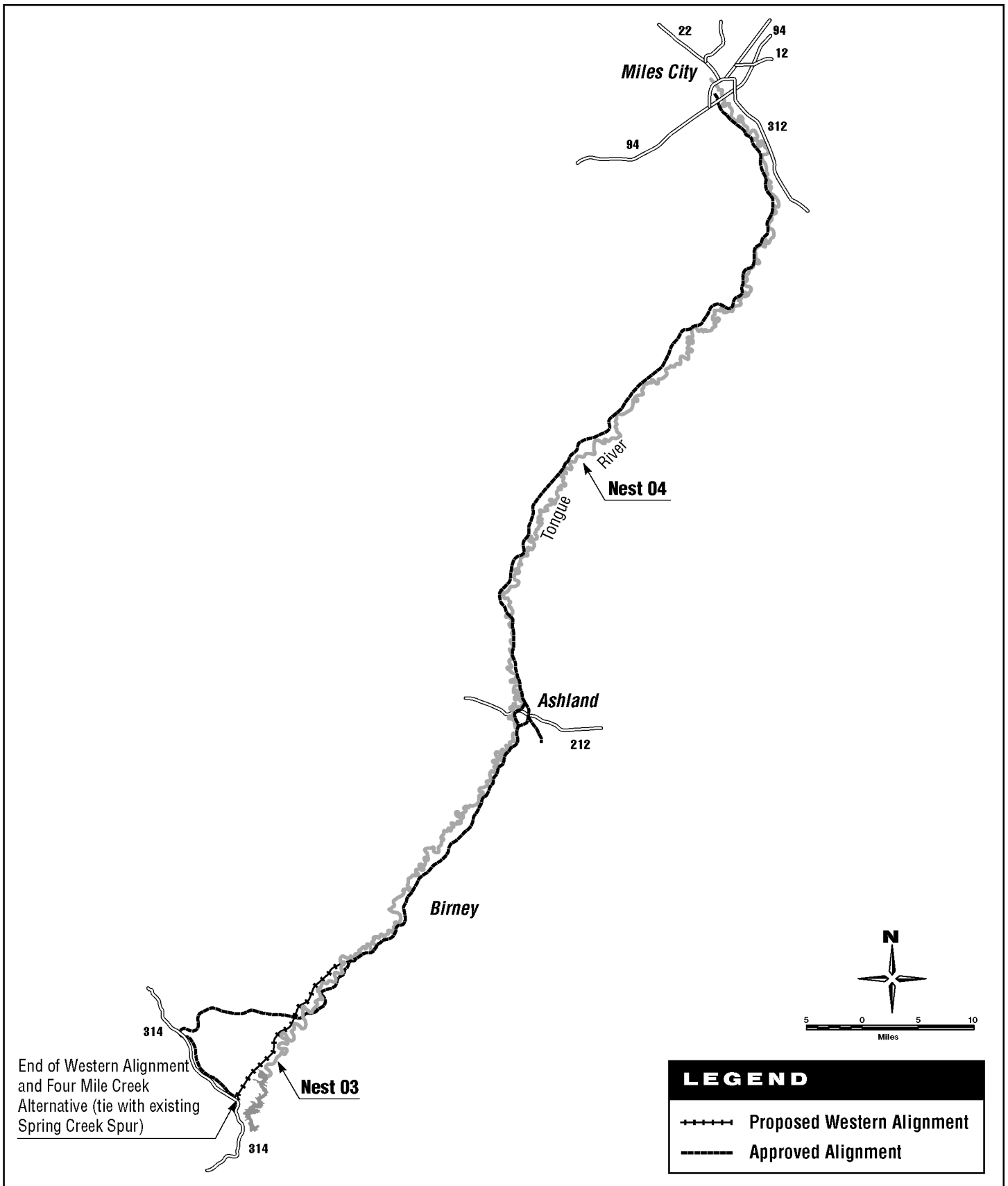


FIGURE 4-2

BALD EAGLE NESTS 03 AND 04 LOCATIONS

Mountain Plover (*Charadrius montanus*). USFWS proposed to list the mountain plover as a threatened species in 1999 but withdrew the proposal in 2003. Although it is no longer a proposed species, the mountain plover is discussed here at the request of USFWS.

There are no records of nesting mountain plovers in the vicinity of either alignment of the rail line (Dennis Flath, Nongame Coordinator, MT DFWP, personal communication, July 24, 1998). A search of the biological database for an area within 6 to 10 miles of the proposed Western Alignment yielded no records of this species (MT NHP 1999). There was an unconfirmed record of the mountain plover from the mid-1970s about 15-20 miles west of the Tongue River Reservoir (WESTECH 1982). USFWS (1999) reported that breeding mountain plovers have been confirmed in Big Horn County, but they have not been recorded in Custer, Rosebud, or Powder River counties. The closest documented observation to the Tongue River Railroad was in 1995, where several observations were reported as breeding but no specific data was reported. This observation was approximately 75 miles west of Miles City (MTNHP 2003).

There were no observations of mountain plover presence during the black-tailed prairie dog colony survey.

Critical habitat for mountain plovers in Montana is prairie dog colonies (USFWS 1999) and shortgrass prairie near playas (Lou Hanebury, biologist, USFWS, personal communication, March 3, 1999). Since there are generally no playas in the vicinity of the proposed Western Alignment (WESTECH 1999), for the purposes of the BA, critical mountain plover habitat is considered to be black-tailed prairie dog colonies. No black-tailed prairie dogs colonies are located within the Four Mile Creek alignment and 12 black-tailed prairie dog colonies were found along the proposed Western Alignment in a spring 2004 field survey (the survey is discussed in greater detail below).

Pallid Sturgeon (*Scaphirhynchus albus*). The pallid sturgeon, listed as endangered in 1994, requires large, turbid, free-flowing rivers with rocky or sandy streambeds. Historically, the pallid sturgeon was present at the mouth of the Tongue River and in the nearby Yellowstone River. Currently, however, there are no known occurrences of the pallid sturgeon in the upstream portion of the Tongue River in the vicinity of the approved Four Mile Creek Alternative and proposed Western Alignment (Hanebury, personal communication, 2003a).

State Species of Concern. Several animal species that are on MT NHP's Species of Concern List (MT NHP 2003a) could exist within the area of the proposed Western Alignment or the approved Four Mile Creek Alternative. Species on the list have been evaluated and ranked on the basis of their statewide status. Several factors are considered when assigning ranks including the number, size, and distribution of known populations, habitat sensitivity and other factors. The State of Montana rankings range from S1 (highest concern) to S5 (lowest concern). Descriptions of each ranking are presented in Table 4-3.

Table 4-3 – State Rankings of Species of Concern

Rank	Description	Ranked Species In or Near the Project Area
S1	Critically imperiled because of extreme rarity or because of some factor(s) of its biology making it especially vulnerable to extinction.	• Northern leopard frog • Spotted bat • Pallid bat
S2	Imperiled because of rarity or because of other factor(s) demonstrably making it very vulnerable to extinction throughout its range.	• Milk snake • Cassin's kingbird • Townsend's big-eared bat • Meadow jumping mouse • Sauger
S3	Either very rare and local throughout its range, or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors(s).	• Great Plains toad • Plains spadefoot toad • Tiger salamander • Northern leopard frog • Snapping turtle • Spiny softshell turtle • Sagebrush lizard • Greater short-horned lizard • Western hognose snake • American white pelican • Northern goshawk • Black-backed woodpecker • Black-tailed prairie dog • Baird's sparrow • Dwarf shrew • Merriam's shrew
S4	Apparently secure, though it may be quite rare in parts of its range, especially at the periphery.	N/A
S5	Demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery.	N/A

Source: MT NHP, January 2003.

Many state species of concern located in the vicinity of the approved Four Mile Creek Alternative or the proposed Western Alignment are also listed as species of concern by BLM. These include the snapping turtle, spiny softshell turtle, Northern goshawk, Baird's sparrow, Merriam's shrew, spotted bat, Townsend's big-eared bat, pallid bat, black-tailed prairie dog, and meadow jumping mouse. Descriptions of species on the MT NHP Species of Concern List, and their rankings and habitats, are provided below.

Spotted Bat (*Euderma maculatum*), S1. The spotted bat is found foraging in many habitat types, especially arid pine forests and marshlands. Open habitat is preferred due to the low frequency of the echolocation range, which is used to target large insects. The bat roosts during the day in small cracks in cliffs and stony outcrops.

Pallid Bat (*Antrozous pallidus*), S1. The pallid bat is usually found in rocky areas near water and is also found over open, sparsely vegetated grasslands. It prefers to forage in open areas. It roosts during the day in warm, horizontal openings; at night it roosts in the open near foliage, and during hibernation it roosts in caves and cracks in rocks.

Milk Snake (*Lampropeltis triangulum*), S2. The milk snake occurs in breaks with rock outcrops, grassland, and open pine and juniper stands. These snakes are nocturnal and are rarely found.

Cassin's Kingbird (*Tyrannus vociferans*), S2. The Cassin's kingbird occurs in a variety of habitats from riparian areas to open woodlands. It requires tall trees for nesting and usually seeks out pines, cottonwoods, or sycamores.

Townsend's Big-eared Bat (*Corynorhinus townsendii*), S2. The Townsend's big-eared bat is found in a variety of habitats ranging from coniferous forests and woodlands to deciduous riparian woodlands and shrublands. During the winter it hibernates in caves or mines. It is very sensitive to light and movement and is usually observed at night.

Meadow Jumping Mouse (*Zapus princeps*), S2. The meadow jumping mouse, generally a nocturnal mammal, is found in various habitats with herbaceous cover. It prefers moist grassland and avoids heavily wooded areas. Greater numbers of meadow jumping mice are found in grassy fields with thick vegetation bordering streams, ponds, or marshes. It begins to hibernate between late September and early October and reemerges in mid to late spring.

Sauger (*Stizostedion canadense*), S2. The sauger prefers large, turbid slow moving rivers, and large, cool shallow lakes. A carnivorous fish, the sauger feeds on smaller fish (usually those found close to the bottom) and crustaceans. Younger fish live on aquatic insects like midgeflies and mayflies. The sauger reproduces in the spring, depositing and fertilizing its eggs in shallow water throughout May and June.

Black-tailed Prairie Dog (*Cynomys ludovicianus*), S3. The black-tailed prairie dog is known to occur in the vicinity of the proposed Western Alignment and approved Four Mile Creek Alternative This species is found in grasslands and shrub-grasslands (MT NHP 2003a). The black-tailed prairie dog occupies areas of concentrated livestock grazing or disturbed soil sites, particularly fairly level sites. This species is important in the prairie ecosystem because several other species, including burrowing owls, mountain plover, and black-footed ferrets, depend on prairie dog towns for successful breeding.

In spring 2004, an aerial survey was conducted to delineate potential black-tailed prairie dog active colonies along the proposed Tongue River Railroad (approximately 0.5-mile buffer) (Entrix, Inc. 2004a). On this survey, 12 active colonies were found. The extent of the active black-tailed prairie dog colonies were also approximately delineated (for colonies large enough to circle with the aircraft) during the aerial survey utilizing a GPS on the small aircraft. Acreage is approximate due to the aircraft's limitation in circling the boundary of the colonies. Some colonies may have actually been complexes, rather than individual colonies. The acreage of the prairie dog colonies ranged from approximately 35 to 850 acres. Of all of the colonies, four colonies were greater than 80 acres. The spring aerial survey found six colonies that would be traversed by the proposed Tongue River Railroad, totaling approximately 87 acres affected, none of which are located within the approved Four Mile Creek Alternative alignment or the proposed Western Alignment.

Additional information on past surveys and findings for the black-tailed prairie dog is provided in the BA. (See Appendix L.)

Northern Leopard Frog (*Rana pipiens*), S3. While populations of leopard frogs have declined in western and central Montana, they are abundant in southeastern Montana (Reichel and Flath 1995). Leopard frogs are associated with riparian habitats and prairies near open water. They are found in permanent slow-moving water and may also be located in moist meadows and grassy woodlands. Northern leopard frogs located west of the Continental Divide are ranked S1. As the proposed Western Alignment and the approved Four Mile Alternative are located east of the Continental Divide, northern leopard frogs will be considered S3 in this document.

Great Plains Toad (*Bufo cognatus*), S3. The Great Plains toad is found in grasslands, semiarid shrublands, open floodplains, agricultural areas, and stream valleys with soft soils. It is found in burrows and under rocks and wood during inactive periods and in shallow burrows during the day in summer months when it is active. This species enters water only to breed. It breeds in temporary ponds created by rainfall.

Plains Spadefoot Toad (*Spea bombifrons*), S3. The plains spadefoot toad is usually found in areas with soft sandy or gravelly soils (Stebbins 1996) near permanent or temporary bodies of water, although little specific habitat information is available (MT NHP 2003). For much of the year, this species lives largely inactive in burrows of its own construction or occupies rodent burrows, and it enters water only to breed. Adults have been reported in temporary pools as well as water tanks and badland seep ponds. Tadpoles and young toads have also been observed in stock ponds and small ephemeral reservoirs, usually in sagebrush-grassland habitats.

Tiger Salamander (*Ambystoma tigrinum*), S3. The tiger salamander is found in terrestrial areas with loose soils available for burrowing and nearby aquatic habitat for breeding. It is commonly associated with prairie and agricultural areas, and may be located in wooded draws and pine forests. It breeds in ponds or reservoirs and may also be found in springs and intermittent streams.

Snapping Turtle (*Chelydra serpentina*), S3. The snapping turtle is associated with permanent lakes, ponds, riverine, and riparian areas. It prefers aquatic areas with soft mud or sand bottom and an abundance of aquatic vegetation or debris. While it does move overland, it does so only occasionally to forage, as needed.

Spiny Softshell Turtle (*Apalone spinifera*), S3. The spiny softshell turtle is a riverine species and is often located on large rivers in southeastern Montana, such as the Tongue River. It is known to inhabit slow-moving water near mudflats, sandbars, and sloughs. It does not move overland from one water body to another. Spiny softshell turtles can be found basking and nesting on mudflats, sandbars, and sandy banks.

Sagebrush Lizard (*Sceloporus graciosus*), S3. The sagebrush lizard is found in a number of habitats, including sagebrush areas, open pine forest, grassland, scrub-shrub lands, rocky outcrops, and breaks. Females lay eggs in loose or sandy soil in early summer and young hatch in late summer.

Greater Short-horned Lizard (*Phrynosoma hernandesi*), S3. The greater short-horned lizard is found in areas of sparse vegetation. It prefers loose or sandy soils. This lizard is active during the day with peak activity in mid-late morning.

Western Hognose Snake (*Heterodon nasicus)*, S3. The western hognose snake occurs in arid areas, grasslands, shrublands, and floodplains with gravelly or sandy soils. This snake is most active during daylight hours.

American White Pelican (*Pelecanus erythrorhynchos*), S3. The American white pelican is a migratory bird that travels extensively. Breeding colonies are found within the state of Montana. It uses a variety of aquatic habitat types for foraging. It is found on rivers, streams, lakes, ponds, and marshes. Its breeding habitat is restricted to flat, barren, earthen islands. Nesting colonies are usually in areas unobstructed by vertical structures.

Northern Goshawk (*Accipiter gentilis*), S3. The Northern goshawk is primarily a forest dweller and prefers to nest in coniferous, deciduous, or mixed forests with a high density of large, old trees and high canopy closure. It is also well adapted to hunt in open areas (Squire and Reynolds 1997). Possible Northern goshawk habitat exists along the ROW for the proposed Western Alignment and the approved Four Mile Creek Alternative. Potential pine forest habitat for the Northern goshawk may exist in the central portion of the proposed Western Alignment. In the area of the proposed Western Alignment that extends approximately 10 miles north of the reservoir, there is a mix of pine/juniper and grassland habitats that may support the Northern goshawk. However, mapping of known Northern goshawk areas of occurrence indicates that the nearest territories are approximately 5 to 10 miles away from the Tongue River (D. Sasse, MT NHP, personal communication, 2003).

Black-backed Woodpecker (*Picoides arcticus*), S3. In Montana, the black-backed woodpecker is found in early successional burned forests of mixed conifer, lodgepole pine, Douglas-fir, and spruce-fir (MT NHP 2003). This species depends heavily on the larvae of wood-boring beetles and ants (Ehrlich et al. 1988). The black-backed woodpecker is primarily confined to the northwest portion of the state, but several unconfirmed breeding records also exist for a small area in southeastern Montana (Custer National Forest) (MBD 2003).

Baird's Sparrow (*Ammodramus bairdii*), S3. The Baird's sparrow has been in a long-term decline in population, mostly because of the conversion of native grassland to cropland. It prefers grasslands that are lightly grazed or not grazed. Shrub cover greater than 25 percent can reduce habitat suitability. The Baird's sparrow arrives at breeding grounds in late April to early May. Nesting is from late May to August.

Dwarf Shrew (*Sorex nanus*) and Merriam's Shrew (*Sorex merriami*), S3. These shrew species are most abundant in riparian areas and less abundant in sagebrush-grass habitat types in southeastern Montana. They prefer areas of greater litter cover and seek out moister areas.

Other Wildlife. The following section provides descriptions of the most common wildlife species that exist in the general area of the proposed Western Alignment and the approved Four Mile Creek Alternative.

Mule Deer (*Odocoileus hemionus*). Mule deer are the most common big game animal in the project area. Mule deer herds have been described as essentially nonmigratory, utilizing different habitats in the same general area throughout the year (USDA/USFWS 1978; Olson-Elliott and Associates 1980; WESTECH 1982 through 1989). Seasonal distribution of mule deer in wildlife habitats along the Tongue River varies little, with the exception of late summer and

early fall. During most of the year, mule deer use the habitats associated with the uplands, which provide shelter and escape cover in the forms of Ponderosa pine and juniper. Also, the uplands offer abundant forage of shrubby coulees (deep gulches or ravines), seeps, and grasslands. South- and southwest-facing slopes, which melt or blow free of snow quickly, provide adequate wintering areas. Haystacks left by farmers in agricultural areas along the river bottom also provide winter forage. During the heat of summer months, when upland vegetation becomes desiccated, mule deer numbers are greatest in the lower coulees, where they seek cover during the days and where they feed in moist areas or irrigated haylands during the night.

White-tailed Deer (*Odocoileus virginianus*). White-tailed deer studies were conducted near the Tongue River Basin between the communities of Ashland and Birney from 1981 to 1989. These studies identified population counts and preferred habitat. Preferred habitat was largely defined by the existence of adequate vegetative cover. In general, white-tailed deer were concentrated along the Tongue River but ranged into the adjacent coniferous woodlands from Dry Creek to the northern boundary of the study area (Farmer 1989).

The number of deer observed along the Tongue River was much lower where riparian vegetation (primarily willow) thins upstream of the Canyon Creek–Tongue River confluence. This lack of dense cover apparently restricts deer use of river bottoms upstream of this confluence.

Pronghorn Antelope (*Antilocapra americana*). Near the Tongue River, pronghorn antelope are found in greatest numbers on benchlands south of Four Mile Creek, including Post Creek, Leaf Rock Creek, Monument Creek, and Spring Creek. They are reported to winter in the area and migrate seasonally, with some animals moving between the Tanner Creek area and the Spring Creek area (Phillips 1979). The location of these creeks can be seen on Figure 2 of the BA. (See Appendix L.) Other records have been made of Decker area animals moving 70 miles or more, primarily to or from winter ranges. Pronghorn antelope occasionally use the area along the river bottom when they cross the Tongue River downstream of the reservoir during winter months.

Other Mammals. Many species of small mammals have been trapped or observed in the area of the proposed Western Alignment and the approved Four Mile Creek Alternative. Fifteen species of small mammals were trapped during wildlife surveys that were conducted in the Montco wildlife study area, which is located in Rosebud County between the communities of Ashland and Birney, slightly northeast of the proposed Western Alignment. Species captured were the deer mouse, white-footed mouse, harvest mouse, prairie vole, meadow vole, sagebrush vole, kangaroo rat, house mouse, olive-backed pocket mouse, meadow jumping mouse, thirteen-lined ground squirrel, least chipmunk, masked shrew, bushy-tailed wood rat, and cottontail rabbit (MT-GAP 1998).

Upland Game Birds. Based on preliminary aerial photo interpretation and mapping of upland habitats, approximately 1,852 acres of upland game bird habitat occurs within the entire railroad's 200-foot ROW. Of that total, approximately 288 acres would fall within the proposed Western Alignment and 352 acres within the approved Four Mile Creek Alternative.

The sharp-tailed grouse and sage grouse, both native to southeastern Montana, inhabit a broad range of grassland and shrub plant communities. Mapping of sage grouse distribution indicates high population counts in the Tongue River project area near Otter Creek, Ashland, and south along the river to Birney, according to the Montana Department of Fish, Wildlife and Parks sage

grouse habitat database. A high-count area was also mapped at the southernmost five miles of the proposed Western Alignment and the approved Four Mile Creek Alternative. Year-round-use areas were mapped for the project area. Nesting and early brood-rearing habitat areas were found within the year-round use areas. Table 4-4 shows the number of acres of potential habitat that is located within the railroad ROW for the proposed Western Alignment and the approved Four Mile Creek Alternative. Year-round nesting areas are found along the Tongue River north of Ashland and at the southern extent of the proposed Western Alignment (MT DFWP 2001).

Table 4-4 – Acreage of Potential Sage Grouse Habitat within Railroad ROW

Project Area (200-foot ROW)	Year-Round Area (Acres)	Nesting/Rearing Area (Acres)
Proposed Western Alignment	83	49
Four Mile Creek Alternative	66	52

Source: MT DFWP 2001.
Note: Based on preliminary habitat mapping.

Four sage grouse leks were identified between 2000 and 2002 within one mile of the proposed rail line's ROW. Leks are communal grounds that the sharp-tailed grouse and sage grouse use for courtship, breeding, and wintering. Grouse leks are found in elevated areas with low, sparse vegetation to allow good visibility and unrestricted movement. They are sometimes associated with disturbed sites. Lek locations are stable from year to year. Two sites observed in 2002 were considered active at that time. They are located near Miles City (at the northern extent of the Tongue River I area) and approximately 20 miles north of Ashland (also in the Tongue River I area). A lek of unknown activity is also located approximately 20 miles north of Ashland, west of the ROW. An inactive lek was observed in 2000 approximately ten miles south of Ashland (BLM 2003), near the northern end of the Tongue River II area, and well north of the proposed Western Alignment.

Ring-necked pheasant, gray (Hungarian) partridge, and Merriam's turkey have been introduced to the area and occur in huntable populations. All three species breed in the area.

Waterfowl. Seventeen species of waterfowl have been recorded in the area of the proposed Western Alignment and the approved Four Mile Creek Alternative (Olson-Elliott & Associates 1980a; Olson-Elliott 1980b; Farmer 1982-1986). The species include Canada goose, mallard, gadwall, pintail, green-winged teal, blue-winged teal, American widgeon, northern shoveler, wood duck, redhead, ring-necked duck, lesser scaup, common goldeneye, bufflehead, ruddy duck, hooded merganser, and common merganser.

During the 11 years of wildlife studies (1978-1989) that were conducted along the Tongue River area by WESTECH, waterfowl that were not commonly seen (observed three or fewer years of the 11 studied) include ring-necked duck, lesser scaup, common goldeneye, bufflehead, ruddy duck, and hooded merganser.

The species that are considered common to the project area (observed four or more years of the 11 studied) include Canada goose, mallard, gadwall, pintail, green-winged teal, blue-winged teal, American widgeon, northern shoveler, wood duck, redhead, and common merganser.

Waterfowl use the river and reservoir area for wintering, nesting, and brood rearing. It is also possible that waterfowl use the area for feeding and resting during migration.

Raptors. Twenty-three species of raptors have been observed in the Tongue River area (Olson-Elliott 1980; WESTECH 1982-1989). The species include turkey vulture, Northern goshawk, sharp-shinned hawk, Cooper's hawk, red-tailed hawk, Swainson's hawk, rough-legged hawk, ferruginous hawk, golden eagle, bald eagle, northern harrier, osprey, gyrfalcon, prairie falcon, peregrine falcon, merlin, American kestrel, screen owl, saw-whet owl, great-horned owl, burrowing owl, long-eared owl, and short-eared owl. The Tongue River area provides good nesting habitats for many of these species.

Reptiles and Amphibians. Thirteen reptile and six amphibian species are reported as occurring within the vicinity of the project area, according to Maxell et al. (2003), Hendricks and Reichel (1996), and Thompson (1982).

Table 4-5 lists all of the reptiles and amphibians and their habitats known to occur within the ROW for both the proposed Western Alignment and the approved Four Mile Creek Alternative.

Table 4-5 – Reptiles and Amphibians Known to Occur Within the ROW for the Proposed Western Alignment and the Approved Four Mile Creek Alternative and Their Known Habitats

	Pine Forest	Tree/ Shrub	Scrub/ Brushland	Grassland/ Agriculture	Breaks	Aquatic
Reptiles						
Snapping Turtle (*Chelydra serpentina*)[a]						X
Painted Turtle (*Chrysemys picta*)						X
Spiny Softshell Turtle (*Apalone spinifera*)[a]						X
Sagebrush Lizard (*Sceloporus graciosus*)[b]	X		X	X	X	
Greater Short-horned Lizard (*Phrynosoma hernandesi*)[b]	X		X	X	X	
Western Hognose Snake (*Heterodon nasicus*)[b]			X	X		
Racer Snake (*Coluber constrictor*)	X		X	X		
Gopher Snake (*Pituophis catenifer*)	X	X	X	X	X	
Common Garter Snake (*Thamnophis sirtalis*)	X	X	X	X		X
Western Terrestrial Garter Snake (*Thamnophis elegans*)	X	X	X	X		X

	Pine Forest	Tree/ Shrub	Scrub/ Brushland	Grassland/ Agriculture	Breaks	Aquatic
Plains Garter Snake (*Thamnophis radix*)	X	X	X	X		X
Western Prairie Rattlesnake (*Crotalus viridis*)	X	X	X	X	X	
Milk Snake (*Lampropeltis triangulum*)[c]	X			X	X	
Amphibians						
Tiger Salamander (*Ambystoma tigrinum*)[b]		X	X	X		X
Plains Spadefoot Toad (*Spea bombifrons*)				X		X
Woodhouse Toad (*Bufo woodhousii*)	X	X	X	X		X
Great Plains Toad (*Bufo cognatus*)[b]				X		X
Boreal Chorus Frog (*Pseudacris maculata*)	X	X	X	X		X
Northern Leopard Frog (*Rana pipiens*)[d]				X		X

Sources: Montana Gap Analysis 1998; Maxell et al. 2003.
Notes: [a] Species of Concern – State of Montana (Global G5/Local S3); BLM designated species of concern.
[b] Species of Concern – State of Montana (Global G5/Local S3).
[c] Species of Concern – State of Montana (Global G5/Local S2-S3).
[d] Species of Concern – State of Montana (Global G5/Local S3); USFWS designated species of concern.

Most reptile and amphibian species are found in nearly all habitats in the area; however, three species prefer grassland and agricultural fields: milk snake, plains spadefoot toad, and northern leopard frog.

Fishery Resources. The Tongue River Reservoir supports a cool water fishery that is primarily self-sustaining. Research has found that fish populations, with the exception of northern pike, are healthy and reproducing (Elser et al. 1977). Fish populations currently found in the reservoir include black and white crappie, largemouth and smallmouth bass, walleye, sauger, and northern pike.

Spawning habitat for northern pike in the Tongue River Reservoir is limited. Pike prefer shallow, weedy bays and marshes for spawning, and these areas are rare in the reservoir. However, MT DFWP now stocks northern pike in the reservoir. The other game fish (walleye, sauger, crappie, and bass) spawn in areas dispersed around the reservoir.

A census of anglers conducted for 2001 found that anglers expended 29,423 angler days of fishing pressure on the reservoir (MT DFWP 2003). An angler day is any part of the day spent

fishing. Regardless of whether an individual fishes for a few minutes or several hours, it is counted as an angler day.

Elser et al. (1977) divided the Tongue River downstream from the Tongue River Reservoir Dam into five zones, based on habitat and species composition. These zones are defined in Table 4-6, and shown in Figure 4-3. Each zone has unique fishery characteristics. The distribution of fish along the river is influenced by irrigation structures, which also define the boundaries of several zones. Table 4-7 lists the species of fish found in each zone and in the Tongue River Reservoir.

Table 4-6 – Fishery Zones in the Tongue River

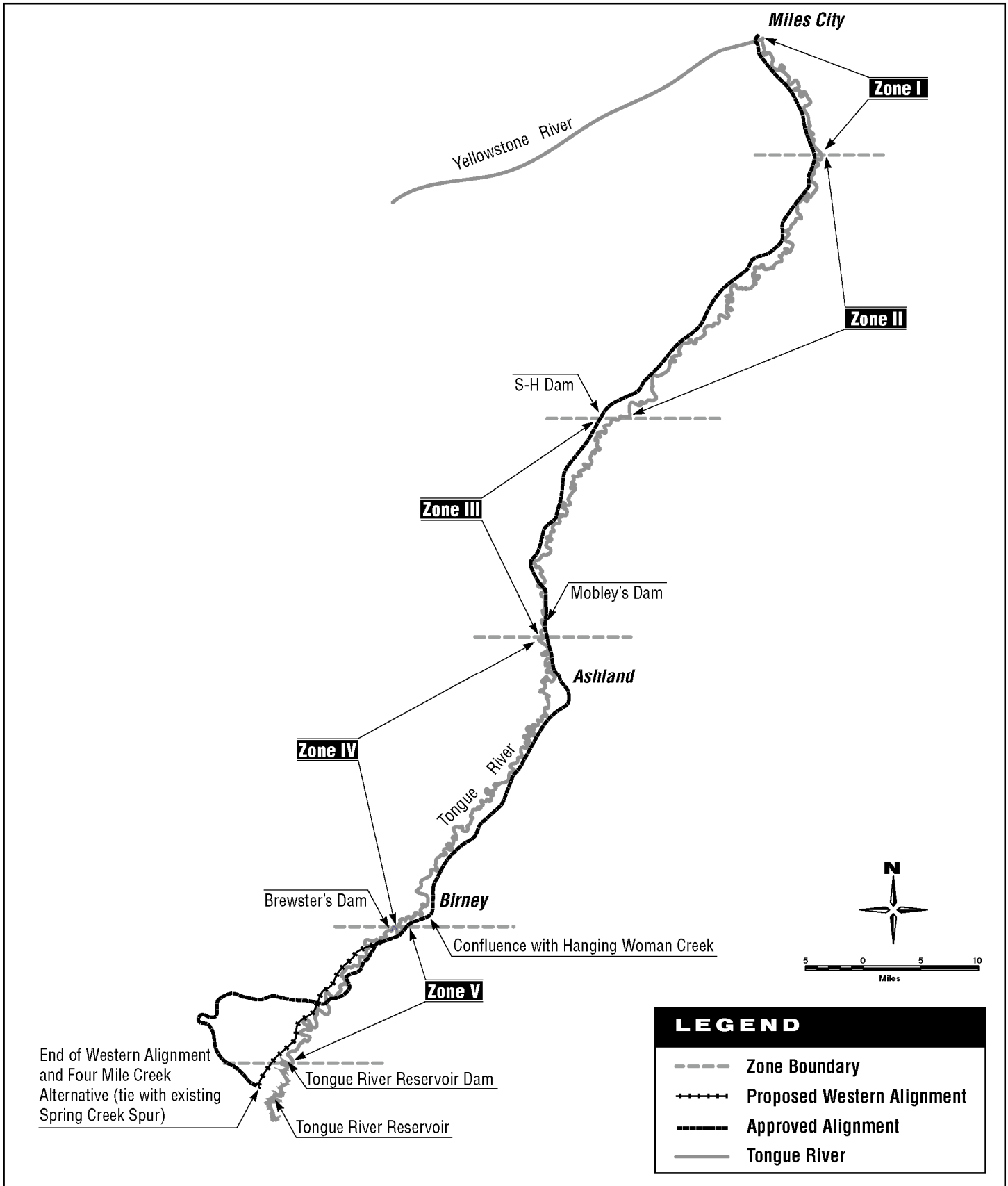
Stream Reach	Upper Boundary	Lower Boundary
Zone V	Tongue River Reservoir Dam	Brewster's Dam
Zone IV	Confluence with Hanging Woman Creek	Mobley's Dam
Zone III	Mobley's Dam	S-H Dam
Zone II	S-H Dam	Pumpkin Creek
Zone I	Pumpkin Creek	mouth

Note: Adapted from Elser et al. 1977.

The proposed Western Alignment and the approved Four Mile Creek Alternative are located within Zone V, which extends northward from the Tongue River Reservoir Dam to a point near Birney, north of the proposed Western Alignment. In Zone V, the deepwater withdrawal system of the Tongue River Reservoir Dam releases cool hypolimnetic waters to the Tongue River. Directly downstream of the Tongue River Reservoir Dam, the river supports a trout fishery. MT DFWP annually stocks the Tongue River below the dam with hatchery-raised rainbow trout. There is a small amount of overwinter survival of these fish. In this section of the river, there is also a very small brown trout population, which is not supplemented by stocking. The water gradually warms as it moves downstream from the Tongue River Reservoir Dam into a more typical prairie stream system.

Holton and Johnson (1996) mapped the distribution of 44 fish species that occur in the Tongue River Basin, expanding upon the list of 34 species reported by Elser et al. (1977). Twenty-two species are considered to be game or sport fish (Holton 1991), only seven of which are native to the Tongue River (Holton and Johnson 1996). The remaining 22 species are non-game fish, three of which (common carp, goldfish, and golden shiner) are non-native. Thus the Tongue River appears to support an assemblage of 26 native and 18 non-native fish. Three to four additional species have been recorded in the Yellowstone River near the mouth of the Tongue River and could extend into the lower Tongue River, which includes the area of the proposed Western Alignment and approved Four Mile Creek Alternative.

Of the 44 species in the Tongue River Basin, 37 species are present in Fishery Zone V, which encompasses the portion of the Tongue River affected by the proposed Western Alignment and the approved Four Mile Creek Alternative (Elser et al. 1977; Holton and Johnson 1996). Of these 37 species, 19 are game or sport fish (only four are native), while the remaining 18 species are non-game (16 are native). Therefore, Fishery Zone V appears to support an assemblage of 20 native and 17 non-native fish.



INDEX OF MAP LOCATION



FIGURE 4-3

FISHERY ZONES

Table 4-7 – Tongue River Reservoir and Tongue River Fishes

	Game/ Sport	Native Species	Tongue River Reservoir	Tongue River Zones				
				V	IV	III	II	I
Brown Trout	X			X	X			
Mountain Whitefish	X	X		X				
Northern Pike	X		X	X	X	X	X	X
Yellow Perch	X		X	X	X	X	X	X
Black Crappie	X		X	X	X	X	X	X
Yellow Bullhead	X		X	X	X	X	X	X
Rainbow Trout	X		X	X	X	X	X	X
Rock Bass	X		X	X	X	X	X	X
Mountain Sucker		X		X	X	X	X	X
Pumpkinseed	X		X	X	X	X	X	X
Smallmouth Bass	X		X	X	X	X	X	X
White Crappie	X		X	X	X	X	X	X
River Carpsucker		X		X	X	X	X	X
Common Carp			X	X	X	X	X	X
Stonecat		X	X	X	X	X	X	X
Shorthead Redhorse		X	X	X	X	X	X	X
White Sucker		X	X	X	X	X	X	X
Longnose Sucker		X	X	X	X	X	X	X
Longnose Dace		X	X	X	X	X	X	X
Black Bullhead	X		X	X	X	X	X	X
Green Sunfish	X		X	X	X	X	X	X
Channel Catfish	X	X	X	X	X	X	X	X
Sauger	X	X	X	X	X	X	X	X
Flathead Chub		X	X	X	X	X	X	X
Goldeye	X	X	X	X	X	X	X	X
Burbot	X	X					X	X
Walleye	X		X	X	X	X	X	X
Paddlefish	X	X						X
Shovelnose Sturgeon	X	X						X
Blue Sucker		X						X

	Game/ Sport	Native Species	Tongue River Reservoir	Tongue River Zones				
				V	IV	III	II	I
Sturgeon Chub		X						X
Golden Shiner			X					
Goldfish			X	X	X			
Bluegill	X			X	X			
Smallmouth Buffalo		X						X
Lake Chub		X	X	X	X	X	X	X
Creek Chub		X	X	X	X	X	X	X
Flathead Minnow		X	X	X	X	X	X	X
Brassy Minnow		X	X	X	X	X	X	X
Western Silvery Minnow		X	X	X	X	X	X	X
Plains Minnow		X	X	X	X	X	X	X
Emerald Shiner		X	X	X	X	X	X	X
Sand Shiner		X	X	X	X	X	X	X
Largemouth Bass	X		X	X	X	X	X	X
Total Number of Species	**22**	**26**	**33**	**37**	**36**	**33**	**34**	**39**

Notes: Adapted from Elser et al. 1977; Holton and Johnson 1996.
Common names of fishes correspond to those presented by Holton and Johnson (1996).
See Table 4-6 for the definition of zones.

Macroinvertebrate Fauna. Macroinvertebrate animals lack a backbone but are large enough to be seen without magnification. 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 Reservoir Dam. The influence of the colder water decreases downstream and the faunal changes downstream are more gradual as a result. The turbidity of the lower portion of the Tongue River affects the relative abundance of certain species, with the most tolerant forms becoming dominant (Gore 1976).

Periphyton. Periphyton are microscopic plants and animals that are firmly attached to solid surfaces under water such as rocks, logs, pilings, and other structures. Green algae *Cladophora* is abundant in the Tongue River during autumn, while diatom species are prevalent in the spring. *Cladophora* is considered an indicator of good water quality, and its presence or absence can be used as a bio-indicator (Terrell and Perfetti 1989). Bluegreen species *Nostoc* are the dominant periphyton in the lower reaches of the Tongue River where turbidity is high. Community analysis suggests that the Tongue River is indicative of low to moderately enriched hardwater environments, with comparable low algae productivity (Gore 1976).

4.2.3 Affected Environment – Soils and Geology

The proposed Tongue River Railroad Alignment and alternatives ("Alignment") are located in the Tongue River Valley area in southeastern Montana. The Alignment route starts at a point near Decker with a terminus at Miles City to the north, a distance of about 80 miles. The Tongue River flows northward and discharges to the Yellowstone River at Miles City. For the most part, the Tongue River meanders throughout a relatively flat valley that is generally about one mile wide. Many tributary creeks enter the Tongue River Valley from the east and west.

For the most part, the Alignment is located within the Tongue River Valley and on the adjacent bluffs. The valley is underlain by two alluvial units that overlie sedimentary bedrock units as follows:

Alluvial Units

Alluvium.[4] The alluvium in the valley consists of light-gray and light-brown gravel, sand, silt and clay deposited in stream and river channels and on their flood plains. These unconsolidated deposits are poorly to well stratified and may be as much as 50 feet thick in the flood plains at the north end near the Yellowstone River, and generally less than 15 feet thick to the south near Birney.

Alluvial terrace deposits. Older terrace deposits are present along the sides of the Tongue River Valley and as isolated deposits on bluff tops adjacent to the valley. The terrace deposits are larger in extent and more prevalent to the north where the valley widens as it approaches the Yellowstone River near Miles City. The terrace deposits consist of light-gray to light-brown gravel, sand, silt, and clay, occurring as remnants at elevations from a few feet to as much as 260 feet above the Tongue River and its tributaries. Clasts are generally well rounded to sub-angular and comprised of sandstone, clinker, quartzite and chert derived from the underlying Fort Union Formation. Thickness ranges from about 10 to as much as 50 feet. The terrace deposits near Miles City include slope wash colluvium and small alluvial fans at the junction of the Tongue River and tributary streams.

Sedimentary Bedrock Units

Clinker. This unit consists of hard sandstone, siltstone, and shale of the Fort Union Formation, the result of baking by natural burning of underlying coal beds, resulting into a collapsed, open-fractured surface. The deposit is characteristically red, pink, orange, black, and yellow. Locally, the baked rock melted and fused to form buchite, a black and glassy rock. Clinker is more extensive in the southern part of the Alignment, especially near Ashland where it borders both sides of the Tongue River Valley. Reported thickness ranges from 10 to 500 feet.

Fort Union Formation. The principal bedrock unit in the Tongue River Alignment area is the Fort Union Formation, an extensive sedimentary deposit that covers many parts of Montana,

[4] Sediment deposited by flowing water, as in a riverbed, flood plain, or delta. Source: http://dictionary.reference.com/search?q=alluvium.

Wyoming, North Dakota, and South Dakota.[5] It consists of weakly consolidated sediments deposited in a shallow marine to fresh water environment during the late Cretaceous and early Tertiary. In the Tongue River area, the Formation consists of three members; the upper Tongue River Member which is prevalent in the south part of the Alignment; the middle Lebo Member which is present in the central part of the Alignment; and the lower Tullock Member that is present in the north part of the Alignment.

The Fort Union Formation in the Alignment area is near-horizontally bedded with little or no indication of bending or curving except for a gentle basin depression, possibly the result of basin consolidation. About 70 miles east of Miles City, there is a pronounced anticline, or upward curve in the rock that resembles an arch; the Cedar Creek anticline extends into southeast South Dakota. The fold warped but did not displace the Fort Union Formation sediments, and probably formed during vertical displacement along an ancient fault in the underlying pre-Paleozoic basement rocks.

Several northeast-southwest trending normal faults are present in the Tongue River area south of the Alignment. None extend into or cross the Alignment.

Seismically active faults are not known to cross the proposed Alignment. The closest seismically active zone is the Intermountain Seismic Belt located in west-central Montana and extends along the Idaho-Wyoming border, through Utah, and into southern Nevada.

Most of the commercial grade coal is found in the Tongue River Member. Although coal beds are present in the Lebo and Tullock Members, they are usually too thin to be mined economically. In general, the biggest coal production in the area comes from thick (12 to 37 feet) coal seams in the Decker area near the Montana-Wyoming border where bituminous coal is mined by open-pit methods. The Tongue River Member only underlies the Alignment south of Brandenberg. Although coal seams are present in the Tongue River Member, our research did not reveal the presence of specific coal bed occurrences underlying the Alignment.

Coal-bed methane gas fields are presently exploited by wells in several major coal producing areas in the United States including the Powder River Basin in Wyoming. Although the Powder River Basin extends into southeastern Montana, exploration for coal-bed methane resources have not been as extensive as in Wyoming. Based on the relatively limited impact on surface conditions, it is unlikely that construction of a rail line would significantly affect existing or potential coal-bed methane production.

Tongue River Member. This unit consists of yellow, orange, or tan, fine-grained sandstone with thinner interbeds of yellowish brown, orange, or tan siltstone; light-blue or brown mudstone, clay, and coal beds. The sandstone is massive and cross-bedded, and the clay is non-expansive (low swelling). The Tongue River Member contains the most important minable coal beds in the Fort Union Formation. Local coal mines include those at the Spring Creek, West Decker, and

[5] A formation is a rock unit that is distinctive enough in appearance that a geologic mapper can tell it apart from the surrounding rock layers. Formations can be divided into smaller units called members. Source: Utah Geological Survey: http://geology.utah.gov/surveynotes/gladasked/gladformation.htm

East Decker Mines. The Tongue River Member is present in the south part of the Alignment from about Brandenberg into Wyoming. It is up to 700 feet thick in the Birney area.

Lebo Shale Member**.** This unit consists of dark-gray to olive-gray shale with lenses of yellow, very fine to fine-grained sandstone, siltstone, claystone, and some thin coal beds. The Lebo Member is present in the central part of the Alignment from about Brandenberg to the intersection with Cow Creek. Thickness in the central area of the Alignment is about 95 to 200 feet.

Tullock Member. This unit consists of light-yellow brown very fine to medium grained sandstone with interbeds of gray sandy and carbonaceous shale, mudstone, occasional thin and discontinuous coal beds, and locally brownish-gray well-indurated argillaceous limestone. The base of the Tullock Member contains the first lignite bed above the dinosaur-bone bearing beds of the Cretaceous Hell Creek Formation. The top of the Tullock Member consists of a resistant bed of calcareous sandstone or siltstone. The Tullock Member is present in the northern part of the Alignment from about Cow Creek to Miles City and beyond. The thickness of the Tullock Member in the Miles City area is about 150 feet.

4.2.4 Affected Environment – Hydrology and Water Quality

This section presents SEA's examination of hydrology and water quality in the area of the proposed Western Alignment and the approved Four Mile Creek Alternative, and includes hydrological analysis of the Tongue River and tributaries. Also included is an evaluation of the effects on surface water quality and water flow during and after construction of drainage crossings. Water resources in this area include the Tongue River and its tributaries, the Tongue River Reservoir, and groundwater.

4.2.4.1 The Tongue River Reservoir Dam and Reservoir

The Tongue River Reservoir Dam and reservoir are located approximately ten miles downstream (north) of the Montana-Wyoming state line. The reservoir is about 12 miles long and one mile wide, with an average depth of 20 feet. The multipurpose reservoir and dam provide water for irrigation, recreation opportunities, and flood protection. The dam was constructed between 1937 and 1940 and was administered by the Montana Water Conservation Board until 1972. At that time, management responsibilities were passed to MT DNRC. A 1978 flood approached the 100-year flood level with a peak inflow of approximately 17,000 cubic feet per second (cfs). The flow caused $1 million in erosion damage around the existing concrete spillway and threatened to breach the dam. The U.S. Army Corps of Engineers (Corps) classified the dam as unsafe in 1980 due to its inadequate spillway capacity and the potential for loss of life during failure (MT DNRC et al. 1996).

MT DNRC completed a rehabilitation of the dam in July 1999, in response to the flood damage. The dam now includes a 61,200-cfs over-the-top, stair-step emergency spillway, a 38,800-cfs labyrinth weir primary spillway, a new primary outlet tunnel, and an upgraded auxiliary outlet tunnel. The new two-spillway system has the capacity to pass a flow of 100,000 cfs and withstand a 159,200-cfs top-of-dam flood. The new primary spillway allowed the height of the reservoir to be raised by four feet and its capacity to be increased from 67,000 to 79,071 acre-feet. An additional 400 acres has been submerged, bringing the total impounded area to 3,612 acres.

Flows in the Tongue River average 446 cfs above the dam, 437 cfs just below the dam, and 409 cfs at Miles City. The average annual discharge of the Tongue River above the dam is 322,800 acre-feet per year (afy), below the dam is 316,000 afy, and at Miles City, is 296,000 afy (Mel White, USGS, 2002). Flows at Miles City are less than dam releases during the May-to-September period, when approximately 15,000 basin acres are irrigated. Flows from October to April are greater at Miles City than dam releases, as a result of inflow from tributaries and the absence of irrigation withdrawals (MT DNRC et al. 2003).

The Northern Cheyenne-Montana Water Rights Compact, signed in 1991, requires Montana to deliver up to 20,000 afy of storage and exchange water to the Northern Cheyenne Tribe. This water is in addition to the Tribe's existing water purchase contract of 7,500 afy.

4.2.4.2 Water Quality in the Tongue River

The Tongue River is one of four major interstate tributaries of the Yellowstone River. Its headwaters originate in the Big Horn Mountains of Wyoming and flow in a northeasterly direction for approximately 300 miles to its confluence with the Yellowstone River at Miles City. The total drainage area is approximately 5,379 square miles.

Within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative, the major tributaries of the Tongue River are Hanging Woman, Otter, and Pumpkin creeks. Many non-perennial streams (i.e., intermittent and ephemeral streams), fed mainly by precipitation runoff and snowmelt, also drain into the Tongue River. The three major tributaries flow throughout the year but may flow intermittently in certain reaches during the dry season or during dry years.

The Montana Department of Environmental Quality (MDEQ) evaluated the Tongue River and its major Montana tributaries under Section 303(d) of the Clean Water Act. The purposes of the 303(d) evaluation are to identify impaired water bodies that do not meet water quality standards, and to implement cleanup processes to protect water quality and consumers. While the identification procedure is a dynamic one, MDEQ has identified approximately 800 such bodies of water in what is commonly referred to as the "303(d) List." MDEQ proposes development of water quality total maximum daily load (TMDL) plans, which would include best management practices (BMPs) for each water body on the 303(d) List that is impaired due to nonpoint-source pollution. Generally, TMDLs can be either numeric criteria or desired ecological results. Increased sediment loading to the Tongue River or its tributaries during construction and long-term operation of the railroad could be issues of concern if TMDL criteria are exceeded. The Tongue River and the Tongue River Reservoir are on the 2002 303(d) List because the quality of their water does not fully support the identified beneficial uses for aquatic life support, agriculture, and warm and cold water fisheries.

The cause of impairment of the Tongue River Reservoir has been identified by MDEQ as "Algal Growth/Chlorophyll a." This condition results from nutrient enrichment, and MDEQ has identified the source as "Domestic Wastewater Lagoons and Agriculture."

About 20 miles of the Tongue River, between the diversion dam just upstream from its junction with Pumpkin Creek (Twelve Mile Dam) and its junction with the Yellowstone River, are also listed as impaired due to "Hydromodification, Dam Construction, and Flow Regulation/ Modification." According to the TMDL Status Report for the Tongue River (MDEQ, March 14,

2003), the target date for completion of all necessary TMDLs for the Tongue River Planning Area is the spring of 2004. Table 4-8 presents the surface water quality data provided in the Tongue River Basin EIS (MT DNRC et al. 1996).

Table 4-8 – Comparison of Surface Water Quality of the Tongue River Reservoir, and the Tongue River Above and Below the Reservoir, to Surface Water Quality Criteria

Water Quality Parameter	Upstream of Tongue River Reservoir Dam	Tongue River Reservoir	Tongue River at Birney Day School (approx. 10 miles north of Birney)	National Secondary Drinking Water Standards[a]	Montana Bureau of Mines and Geology Standards[b]
Sulfate (mg/L)	156	180	205	250	250 (drinking water) 1,500 (livestock)
TDS (mg/L)[c]	410	440	490	500	500 (drinking water) 5,000 (livestock)
SC at 25 degrees Celsius. (µmho/cm)[d]	659	691	665	N/A	1,000 (drinking water)

Source: MT DNRC et al. 1996, unless otherwise noted.
Notes: [a] EPA 2003.
[b] Montana Bureau of Mines and Geology, undated.
[c] total dissolved solids (TDS), measured in milligrams per liter (mg/L).
[d] SC=specific conductance. µmho = a unit of measure for specific conductance used to estimate the gross concentration of TDS in water. This provides an indication of the content of the water, so that its quality for intended use can be determined.

In contrast to its prairie-origin tributaries, the Tongue River has good surface water quality due to its mountain snowpack source. The Tongue River Reservoir Dam also contributes to the high water quality of the Tongue River below the dam because it releases clear water rather than the sediment-laden flow that characterizes prairie streams. Water quality rapidly decreases downstream from the Reservoir, where the Tongue River receives flow from prairie tributaries and return flow from irrigation.

The U.S. Geological Survey (USGS) collected suspended sediment data at two stations on the Tongue River Reservoir below the dam.[6] Table 4-9 summarizes this data. Currently there are no applicable state or Federal regulatory standards for suspended-sediment concentrations available to compare with the USGS-collected levels. Suspended-sediment concentrations are generally low below the dam, reflecting sediment settling in the Tongue River Reservoir and subsequent clear discharge from the dam. Concentrations increase downstream at Miles City, reflecting additional sediment contribution from the intervening drainage area.

[6] Suspended sediment consists of soil particles in suspension and are typically the result of soil erosion and its disposition into a receiving body of water, such as a stream, river, or lake. A similar measure of suspended sediment that differs in analytical technique is total suspended solids (TSS). These two terms are commonly used interchangeably, although it should be noted that "suspended sediment" analysis is more quantitative.

Table 4-9 – Suspended Sediment Concentration Data for the Tongue River

Station Number	Dates	Number of Samples	TSS Concentrations (mg/L)		
			Range	Mean	Median
06307500 at Tongue River Reservoir Dam	10/85–9/95	86	4-213	29	23
06308500 at Miles City	10/85–9/94	73	18-5,330	242	66
06308500 at Miles City	6/99–5/03	20	10-1900	344	130

Source: Patricia Ladd, USGS, Helena, MT, June 2004.

4.2.4.3 Groundwater Flow

Excluding alluvial aquifers formed by material laid down by physical processes in a river channel or on a floodplain, and aquifers influenced by surface topography, groundwater flow in the Tongue River Reservoir area is to the northeast. Within this area there are three major bedrock aquifers. From shallow to deep, they are the (1) Tongue River and (2) Tullock Members of the Paleocene (early Tertiary) Fort Union Formation, and (3) the Cretaceous Fox Hills/Hell Creek Formation. The Cretaceous Bearpaw Shale, underlying the Fox Hills Formation, is considered the major regional aquitard. Alluvial sands and gravels serve as productive aquifers where they are thick and well-developed. Deep sandstones of the Lakota Formation, carbonate rocks of the Madison Group, and dolomite of the Red River Formation are potential groundwater resources, rarely utilized at present. The Fox Hills-Lower Hell Creek Aquifer can yield up to 200 gallons per minute (gpm). Within the Fort Union Formation, the Tullock Aquifer can yield up to 85 gpm, and the hydrologic units of the Tongue River Aquifer can yield up to 50 gpm (MT DNRC et al. 1996). Alluvial aquifers can yield up to 500 gpm (Zelt et al. 1999).

4.2.5 Affected Environment – Cultural and Paleontological Resources

This section presents SEA's examination of cultural resources within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative, including prehistoric and historic resources. Section 4.2.5.1, "Paleontological, Cultural, and Historic Property Types," provides terms that will orient the reader for the discussion of potential impacts.

4.2.5.1 Paleontological, Cultural, and Historic Property Types

Paleontology is a biologic and geologic scientific discipline involving the study of fossils. Fossils include the body remains, traces, and imprints of plants or animals that have been preserved in the Earth's crust since some past geologic or prehistoric time. Generally, in order to be considered a fossil, the remains must be older than Recent in age.[7] All fossils contain scientific information, but not all have scientific significance. Among paleontologists, fossils are generally considered scientifically significant if they are unique, unusual, rare, diagnostically or stratigraphically important, or add to the existing body of knowledge in a specific area of the science.

[7] "Recent" means younger than 10,000 years in age (see Encarta encyclopedia article "Fossil," http://encarta.msn.com/encyclopedia_761564197/Fossil.html).

BLM considers all vertebrate fossils scientifically significant. Invertebrate and plant fossils may be determined to be significant on a case-by-case basis. Fossil resources are part of the rock formations in which they occur. Most fossils occur in sedimentary rocks, where they may be distributed extensively, both vertically and horizontally, throughout the units in which they occur, or they may occur in discontinuous pockets. As might be expected, some formations contain more fossils than others. The types of fossils preserved in a rock sequence depend on the geologic age of the rocks in which they occur and the environment in which the sediments that comprise the rocks have accumulated.

Cultural resources is a broad, general term relating to any property that is the location of past human activity, occupation, or use. They are identifiable through field inventory, historic documentation, or oral evidence. The term includes archeological sites, historic sites, places with important public and scientific uses, or definite locations of traditional cultural or religious importance to specified social and/or cultural groups.

Historic resources are cultural properties that are at least 50 years old, but date from the arrival of written records and documents, after 1800, in southeastern Montana.

Traditional cultural properties (TCPs) are those associated with cultural practices or beliefs of a living community, rooted in that community's history, and important to maintaining the continuing cultural identity of the community.

4.2.5.2 Laws, Regulations, and Guidelines

Cultural and historic resources must be considered according to the following laws and regulations:

- the National Historic Preservation Act of 1996 (NHPA)
- Section 101 of the National Environmental Policy Act of 1969 (NEPA)
- the Archaeological Resources Protection Act of 1979 (ARPA)
- the National Register of Historic Places of 1985 (NRHP) (National Park Service, 36 CFR §60)
- the Advisory Council on Historic Properties' Procedures for the Protection of Historic Properties (ACHP 1974 and 1986, 36 CFR §800)
- the Treatment of Archaeological Properties (ACHP 1980)
- Determination of Eligibility for Inclusion in the National Register of Historic Places of 1977 (National Park Service, 36 CFR §63)
- Standards and Guidelines for Archeology and Historic Preservation of 1983 (Department of the Interior)
- the Montana Antiquities Act of 1979 (Montana Code Annotated 22-3-424)
- Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)
- the Archaeological and Historic Preservation Act of 1974.

Three Federal laws and related regulations and policies serve as the chief authorities for BLM in managing paleontological resources on public lands under their administration:

- NEPA
- the Federal Land Policy and Management Act of 1976 (FLPMA)(43 USC 1701)
- the Code of Federal Regulations (CFR), Title 43.

BLM Paleontological Resource Management Manual 8270 and Handbook-H 8270-1(1998) detail procedures for assessment and mitigation, and provide citations for mandates of FLPMA and NEPA for managing paleontological resources. This manual and handbook together serve as the only current authority for BLM. Older directives are no longer in effect.

Consultation with relevant Native American groups concerning TCPs is required under the American Indian Religious Freedom Act of 1978 (U.S.C. Pub. L No. 95-341) (AIRFA), Section 4(c) of Archeological Resource Protection Act (Pub. L No. 96, 1979), and National Historic Preservation Act of 1996. National Register Bulletin 38, issued by the National Park Service in 1990, contains useful guidelines for evaluation of TCPs.

4.2.5.3 Methodology

To ensure proper identification and treatment of cultural resources, the Board has developed a new Programmatic Agreement (PA)[8] under Section 800.14 of the Section 106 Regulations (36 CFR 800) of the NHPA, which would apply to construction and operation of the entire rail line from Miles City to Decker via either the proposed Western Alignment or the approved Four Mile Creek Alternative. The PA sets forth detailed requirements for addressing the impacts of construction and operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative, as well as the remainder of the rail line to Miles City. It guides and regulates the identification and treatment of cultural resources, including archeological, architectural, historic, and cultural properties. The PA requires completion of detailed on-the-ground surveys of the railroad ROW prior to construction; development of a Treatment Plan in consultation with the parties to the PA; and procedures for reviewing and addressing objections and/or disagreements. The new PA will replace the previous PA developed for Tongue River II. The current Draft of the new PA is in Appendix G.

Under the terms of the PA, the Board will ensure that an active public participation program for the PA be implemented. Modified version of reports required under the PA (locational information removed), will be made available for review to the general public on the Board's website at www.stb.dot.gov. The views of the parties to the PA, interested parties, and the general public will be considered by the Board with respect to the terms of the PA.

Consistent with Section 304 of the NHPA, as amended, the parties to the PA will withhold from disclosure to the public information about the location, character, or ownership of a historic property if it is determined that disclosure may (1) cause a significant invasion of privacy, (2)

[8] "The heart of Section 106 review is the consultation process, which frequently includes discussions among the [project's lead] agency, the SHPO [State Historic Preservation Officer], and ACHP staff; other interested parties may participate as well. During consultation, these parties attempt to reach agreement on measures to avoid or mitigate the adverse effects of the agency's undertaking on historic resources. If the parties agree, they generally execute a Memorandum of Agreement (MOA) or, if an entire program or a complex, staged project is involved, a Programmatic Agreement (PA). Execution of an agreement for every project is not required by ACHP's regulations, although it is encouraged and has evolved as the most practical means of obtaining resolution of the Section 106 process in the vast majority of cases" (ACHP web site, "Alternatives for Implementing Section 106 of the National Historic Preservation Act: An Assessment," http://www.achp.gov/alternatives.html, 10/30/03). A draft PA was prepared in Tongue River II but never executed. A new PA was prepared in Tongue River III by SEA, in consultation with MT SHPO, ACHP, MT DNRC, the Corps, BLM, USDA, TRRC, and the Northern Cheyenne and Crow Tribes. The new PA shall be executed before the SEIS is finalized.

risk harm to a historic property, or (3) impede the use of a traditional religious site by practitioners.

Cultural and Historic Resources. The purpose of the cultural analysis is to identify the range of cultural properties in the area that might be eligible for listing on the NRHP. The methods generally employed in assessing impacts on cultural resources in the EIS in Tongue River I and Tongue River II were used in the analysis of the proposed Western Alignment and the approved Four Mile Creek Alternative.

SEA identified, through a Class I inventory,[9] potential impacts on cultural resources within 1,500 feet on either side of the proposed Western Alignment.[10] The Class I inventory involved a literature search, including a review of the following sources: the NRHP, the Montana Sites Compendium, the University of Montana archeological site files, and the MT SHPO files in Helena. SEA reviewed previous cultural resource surveys completed in the area, pertinent historical cartographic records (recorded General Land Office subdivision maps and USGS maps), and recent aerial photographs. SEA also conducted limited field reconnaissance to identify standing structures in the area. As part of the PA, SEA will conduct historic research to confirm the age of buildings noted in the field reconnaissance. Sites identified during the field reconnaissance, but not formally recorded, were given temporary numbers (e.g., TRR311). Sites formally recorded by the Montana State Archeological Records Office are given the Smithsonian trinomial number by the Archeological Records Office, e.g., 24BH1617, where "24" stands for Montana (the 24th state alphabetically), "BH" stands for Big Horn County and "1617" is the assigned site number for that county. SEA also developed a model to provide an estimate of the number of previously unrecorded cultural properties likely to be encountered during the Class III cultural resource inventory that will be required prior to beginning construction activities.[11] A Class III survey entails walking the entire 3,000-foot-wide corridor in search of cultural resources.

[9] "The purpose of the Class I survey is to identify known cultural resources in an area and to assess the need for additional survey information. The Class I inventory is primarily a literature and archival search. It consists of identifying cultural resources that have been listed on or determined eligible for inclusion on the National Register. It also includes contacting appropriate Federal, State, and local agencies, Native American Tribes, other interested persons, and records repositories." (U.S. Bureau of Reclamation web site, http://www.usbr.gov/recman/lnd/lnd02-01.htm, 10/30/03). A Class I inventory was conducted for the Four Mile Creek Alternative as part of the EIS for Tongue River II. A Class I inventory was conducted for the proposed Western Alignment as part of the Applicant's Environmental Report, which SEA independently reviewed and verified. Together, these inventories constitute the Class I inventory for Tongue River III.

[10] The 3,000-foot-wide corridor (1,500 on each side of the railroad centerline) was adopted as a MT SHPO standard while conducting field work for Tongue River I. This same approach was used to conduct field work for the EIS in Tongue River II.

[11] The analysis methodology utilized by SEA to identify cultural and historic resources along the proposed Western Alignment is the same as the methodology SEA employed in the analysis of the Four Mile Creek Alternative in the EIS in Tongue River II. SEA did this as a way to provide an accurate comparison of the potential impacts on cultural and historic resources from either the proposed Western Alignment or the approved Four Mile Creek Alternative.

As part of the Class I inventory, SEA consulted with Native American Tribes. In Tongue River II,[12] SEA consulted with Federally recognized Tribes in regards to the approved Four Mile Creek Alternative. In the winter and spring of 1999 and fall of 2003, SEA consulted with the Federally recognized Native American Tribes on the proposed Western Alignment. The PA provides that the consultation process with the Native American community continue through the construction phase of the project.

To date, consultation regarding the proposed Western Alignment has included the following activities: the Northern Cheyenne Tribe's response to the Notice of Intent (NOI); a review of available literature regarding the entire proposed rail line from Miles City to Decker; interviews of Northern Cheyenne elders from the Birney and Ashland areas; providing the Northern Cheyenne with maps and other materials of the proposed Western Alignment to facilitate the identification of areas of potential cultural significance; consultation with the Northern Cheyenne in preparation of the project area; and attempted consultation with Arapaho, Sioux, and Shoshone Tribes via letters and phone calls.

The Northern Cheyenne and the Crow, as concurring parties to the PA, will be asked for their assistance in site identification, evaluation of objects encountered during the construction process, and consultation in the curation of objects.

Paleontological Resources. To ensure proper identification and treatment of paleontological resources, SEA conducted a standard paleontology nonfield evaluation in August and September of 2003. A standard nonfield survey evaluation of paleontological resources includes review of previous literature and records relevant to the project area and vicinity.

In addition, SEA sent inquiries about the location of known fossil-rich areas in and near the project area to the Wyoming State Office of BLM (Dale Hanson), the Museum of the Rockies at Montana State University in Bozeman (Pat Leiggi), the Yale Peabody Museum in New Haven, CT (Mary Ann Turner), and the University of California at Berkeley (Pat Holroyd).

Dale Hanson, Lead Paleontologist for BLM in Wyoming, noted the general absence of known vertebrate fossils in the Fort Union Group in Montana, but said that fossil-yielding invertebrates (freshwater snails and clams) and plants (leaves) occur in the region of the project area. In addition, vertebrate fossils are mixed within molluscan assemblages that occur in the Fort Peck area. He concluded that the lack of fossil records in the project area may be more the result of lack of work than actual absence of fossils.

Mary Ann Turner, Collections Manager at the Yale Peabody Museum (which houses the former Princeton University Museum collection of vertebrate fossils, including those from Medicine Rocks State Park and the towns of Circle and Olive[13]), responded that the former Princeton

[12] The consultation process for the Four Mile Creek Alternative included discussions with representatives of the Northern Cheyenne Indian Tribe and other potentially affected Tribes. This process is described in the Draft EIS for Tongue River II, in Section 4.13, "Impacts to the Northern Cheyenne Indian Reservation and to the Crow Indian Reservation."

[13] The shortest distances between the project area (for the approved Four Mile Creek Alternative or the proposed Western Alignment) and Medicine Rocks State Park, Circle, and Olive are 65, 72, and 37 miles respectively.

collections are not curated into a searchable database at present. A search of other Yale collections revealed one fossil vertebrate locality in Rosebud County, well away from the project area, in the Lebo Formation "near Kelly's ranch, south of Forsyth." This area yielded a single fossil turtle specimen, identified as *Baena* sp. that was collected by Bell, Van Houten, and Silberling in 1940.

Dr. Pat Holroyd, Collections Manager at the Museum of Paleontology, University of California at Berkeley, reported that the museum's database of vertebrate fossils did not contain any localities in Rosebud or Big Horn counties.

No response was received from the Museum of the Rockies.

4.2.5.4 Property Types and Qualifications of Significance: Paleontological Resources

Rocks of the Fort Union Group in the Four Mile Creek Alternative and proposed Western Alignment project areas include only the Tongue River Formation, although the lower rock of this formation is known to be interstratified with rocks of the Lebo Formation a few miles west of the project areas (McLellan 1991). Thus, it is possible that some rocks of the Lebo may be present along the western boundary of the two project areas, but these rocks are too thin to be mapped at conventional map scales.

No fossils have been identified in the Tongue River Formation within the project area. However, the formation is known to produce scientifically significant fossils, including those of plants (leaf imprints and wood) and vertebrates (body and trace fossils), at widespread locations where it is exposed in Wyoming, eastern Montana, and western parts of North Dakota.

The Tongue River Formation is recognized by BLM as meeting the definition of Paleontology Condition 2. As defined in BLM Paleontological Resource Management Manual 8270 and Handbook H-8270-1 (1998), Paleontology Condition 2 includes areas with exposures of geological units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. The presence of geologic units from which such fossils have been recovered elsewhere may require further assessment of these same units where they are exposed in the project area.

Although not rated yet in Montana, the Tongue River Formation in Wyoming also qualifies for Class 3 of the Probable Fossil Yield Classification, a new system of describing paleontological potential that will likely be adopted and included in the revised BLM Paleontology Handbook. According to this system, Class 3 includes fossil-rich sedimentary units where fossil content varies in significance, abundance, and predictable occurrence. Since BLM's concern for paleoresources of Class 3 may extend across the entire range of BLM management, ground-disturbing activities would require sufficient mitigation to determine whether significant paleoresources occur in the area of a proposed action. Mitigation beyond initial findings would range from no further mitigation necessary to full and continuous monitoring of significant localities during the action (Hanson 2003).

4.2.5.5 Property Types and Qualifications of Significance: Human Resources

The proposed Western Alignment and the approved Four Mile Creek Alternative are located in the Northwestern Plains subarea of the Great Plains culture area. The seven successive phases of possible human habitation identified in the area are as follows:

- the Paleoindian phase (9500 through 5500 BC),
- the Early Plains Archaic phase (6000 through 3000 BC),
- the Middle Plains Archaic phase (3000 through 500 BC),
- the Late Plains Archaic phase (1000 BC through AD 500),
- the Late Prehistoric phase (AD 500 through 1700),
- the Protohistoric phase (AD 1700 through 1800), and
- the Historic phase (AD 1800 through 1950) (Mulloy 1966, Frison 1978, Newell 1980).

Prehistoric Resources. Based on the Class I inventory, property types with prehistoric resources likely to be found in the area include lithic procurement sites, lithic workshops, and camp sites. Occasionally, resource districts are established to join sites that are spatially and temporally related.

A lithic procurement site is a location where raw material was obtained to be used in the manufacture of tools. In the Tongue River area, the raw material most commonly exploited is porcellanite. These sites often do not contain diagnostic artifacts, limiting their chance of placement within a meaningful cultural context.

Lithic workshops are areas where stone tool manufacturing took place. They might be where the raw material was procured, but often they were established at a location more attractive for short-term camping or game observation. The limited diversity of activities associated with these sites restricts the types of research questions they can address. However, with sufficient quantities of material, these sites can often provide important clues concerning the lithic technology of prehistoric populations.

Camp sites include open camps, tipi ring camps, and rock shelter habitations. The relatively diverse activities that occurred at these camp sites may provide important information on the prehistoric Native American's nutrition and technology.

In addition to these main categories of prehistoric properties, a variety of properties representing specific extractive (subsistence) or ritual activities are in the area. For example, there are bison kill sites, where large numbers of bison were stampeded into natural or contrived traps, in the area. Rock art (pictograph or petroglyph) sites are also evident. Burials, wooden habitations and fortifications, eagle-catching pits, and ceremonial sites (medicine wheels, sun dance, vision quest) are more limited, but also occur in the region.

Historic Resources. The history of this region includes both the protohistoric phase and the historic phase that began with the onset of the written record. Sites associated with the protohistoric phase are usually indistinguishable from prehistoric sites. Historic-phase sites begin with the influx of Euroamericans in the region and continue to 1950. Historic property types identified during the Class I inventory include battle sites, agricultural settlements, transportation corridors, the Tongue River Reservoir Dam, and mining-related activities.

The early part of the historic phase is typified by increasingly hostile contacts between Native American Tribes and encroaching Euroamerican populations. Battle sites between the Tribes and the U.S. Army are generally considered significant at both the regional and national level as physical manifestations of the Indian War era. Historic resources at battle sites could include breastworks (low mounds of dirt), rifle pits, or other excavations in the ground surface. Where there are no physical remains, the historic site could be the landscape itself.

Agricultural settlements are represented by complexes that vary in size. This property type could include not only a small homestead with a house and one or two outbuildings, but also an extensive building complex, with structures specific to animal husbandry operations (lambing sheds, horse barns) and outlying line camps. Homestead sites include properties that were acquired through a variety of public-land laws, such as the Homestead Act or Desert Land Act. These sites mark the transfer of tribal/Federal-controlled lands to private ownership. These sites are generally evaluated on the quality of the standing structures or the site's ability to contribute to our understanding of the homesteading era. Nonhomestead-related farm/ranch complexes are sites established after the homesteading era that are more than 50 years old. Evaluation of significance usually focuses on the quality or uniqueness of the standing structures.

Transportation corridors are integral to establishing and maintaining the economic well-being of a region. Old roadways, bridges, waterways, and trails that substantially contributed to the social and/or economic development of an area are generally evaluated as eligible historic resources. Railroad grades would also be included in this category.

The original Tongue River Reservoir Dam was constructed between 1937 and 1940 as part of the Federal government's New Deal, which developed relief programs to construct large-scale projects and to provide employment during a national economic depression. With the influx of money associated with the construction of the dam, private industries developed. Therefore, dam-related sites could be considered significant for their ability to contribute to our understanding of communities developed during the New Deal era.

Mining provides employment and economic stability for much of the region. Resources associated with the development of the mining industry are likely to be considered of historic importance at the local or regional level. Historic coal mines in the study area are likely limited to small mines operated for domestic consumption only. Evidence of underground mines could include areas of subsidence, while evidence for surface mines would include stripped areas. There might be equipment at a mine site, along with a tipple[14] and remains of old rails.

Traditional Cultural Properties. TCPs are sites, objects, districts, and landscapes that are important from the perspectives of ethnic history and culture. These sites can be prehistoric or historic, and may or may not be eligible for inclusion in the NRHP. TCPs may or may not have spiritual qualities and may or may not fall within the purview of AIRFA. The Northern Cheyenne, Crow, Arapaho, Sioux, and Shoshone define the universe as an animate, living system, the material and spiritual aspects of which are inseparable. They believe that changes to material parts of the system cause changes to spiritual parts, and the reverse is also true. Property types universally identified as important to the Northern Cheyenne, Crow, Arapaho,

[14] A tipple is an apparatus for unloading freight cars by tipping them or the place where this is done.

and Sioux include the following: burial sites, religious sites (vision quest or fasting structures, medicine wheels, sun dance sites), and rock art. Other properties, such as battle sites, plant gathering areas, cairns, eagle trapping pits, bison kill sites, very large or small tipi rings, and early homesteads, can also be significant. The Northern Cheyenne, as well as the Crow and Sioux, believe these site types may have associated spirits and thus consider them sacred (Tallbull and Deaver 1991; Peterson et al. 1995). (See Figure 4-4 for the location of local Native American Reservations in the vicinity of the proposed Western Alignment and the approved Four Mile Creek Alternative ROWs.)

4.2.6 Affected Environment – Transportation and Safety

This section presents SEA's examination of the existing transportation resources within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative. This section also includes an examination of existing emergency services, including medical and ambulance services and fire safety, provided in the Tongue River area.

4.2.6.1 Roads

Several roads serve the areas of the proposed Western Alignment and the approved Four Mile Creek Alternative, including Secondary Highway 566 (S566), Secondary Highway 314 (S314), Rosebud County Road 528 (C528), Big Horn County Road 380 (C380), and U.S. Highway 212 (US 212). (See Figure 4-5.) US 212, which is located approximately 20 miles to the north of the area covered in Figure 4-5, connects the towns/cities of Busby, Lame Deer, and Ashland.

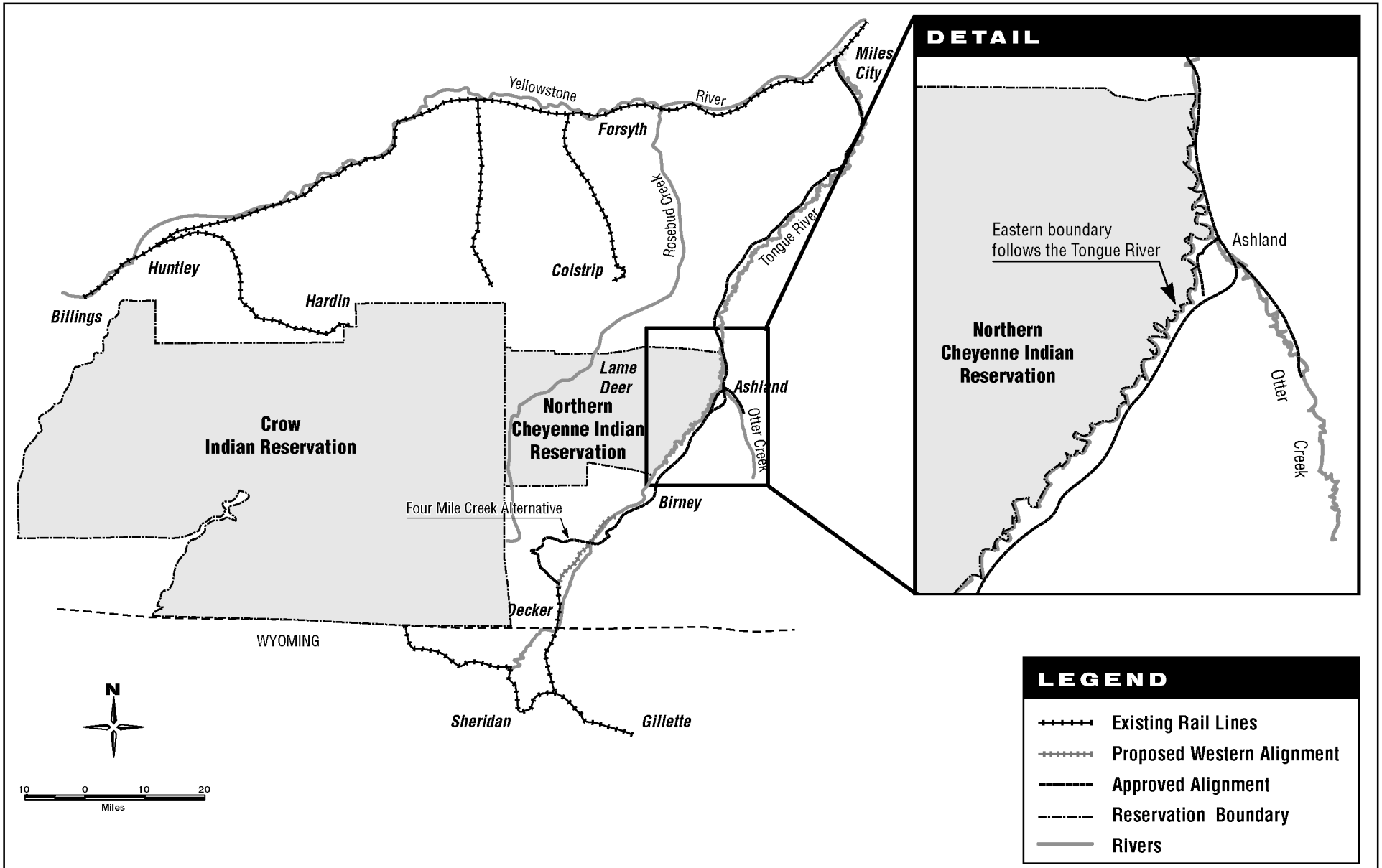
Secondary highways are eligible for state and Federal construction funding, and are maintained by the counties. They are functionally classified as rural collector roads. Traffic levels for area roads are relatively low, reflecting the rural character of the area (see Table 4-10). See Figure 4-5 for the location of roads in the vicinity of either the proposed Western Alignment or the approved Four Mile Creek Alternative ROW.

S566 extends from S314 northwest of the Tongue River Reservoir to Ashland. This two-lane section of roadway is approximately 60 miles long, with a gravel or scoria[15] surface ranging from 24 to 28 feet wide.

S314 extends from the north terminus of S338 at the Montana/Wyoming border to US 212 near Busby. This two-lane section of roadway is approximately 44 miles long with an asphalt surface ranging from 28 to 31 feet wide.

C380 begins at S314, west of the central portion of the Tongue River Reservoir. As shown in Figure 4-5, C380 becomes C528 at the Rosebud County line, and continues east until it joins S566 at Four Mile Creek. C380 and C528 are surfaced with a thin layer of gravel and are maintained by each county within its jurisdiction. The roadway includes four horizontal curves

[15] Scoria is the same as clinker: rock (usually sandstones, claystones, siltstones) baked by underlying coal seam fires.



INDEX OF MAP LOCATION

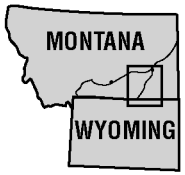
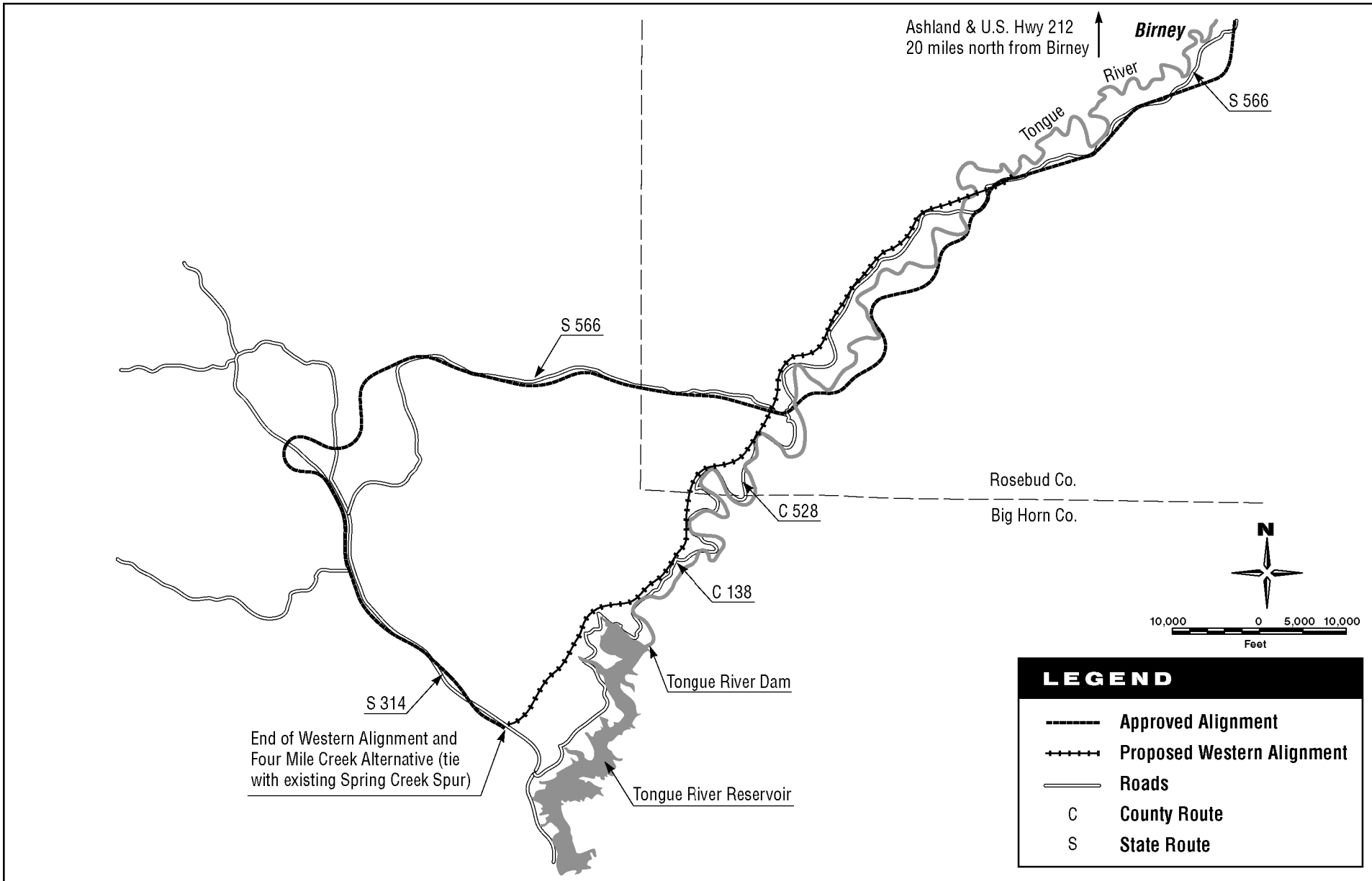


FIGURE 4-4

LOCATION OF THE NORTHERN CHEYENNE AND CROW INDIAN RESERVATIONS



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FIGURE 4-5

LOCATION OF ROADS IN THE VICINITY OF EITHER THE PROPOSED WESTERN ALIGNMENT OF THE APPROVED FOUR MILE CREEK ALIGNMENT RIGHTS-OF-WAY

with design speeds of less than 20 miles per hour (mph), seven horizontal curves with design speeds of less than 30 mph, and five horizontal curves with design speeds of less than 40 mph. Grades on the roadway are generally less than 8 percent. There is one section of road near the Tongue River Reservoir Dam and three additional shorter sections totaling 0.2 miles where vertical grades are about 10 percent. There is also approximately 0.1 mile where grades are 13 percent. Sight distance is less than desirable in some areas.

Table 4-10 – Traffic Levels for Selected Segments of Area Roads

Road Segment	ADHT for 2002[a]	Accidents from 1993-2002	Total Injury Accidents from 1993-2002	Total Fatal Accidents from 1993-2002
S566				
Ashland to Birney	64	11	5	0
Birney to Big Horn/Rosebud County Line	40	3	2	0
Big Horn/Rosebud County Line to S314	40	4	3	0
S314				
Montana/Wyoming State Line to S566 Junction	485	28	30	10
S566 Junction to U.S. 212 (west of Busby)	390	25	29	3

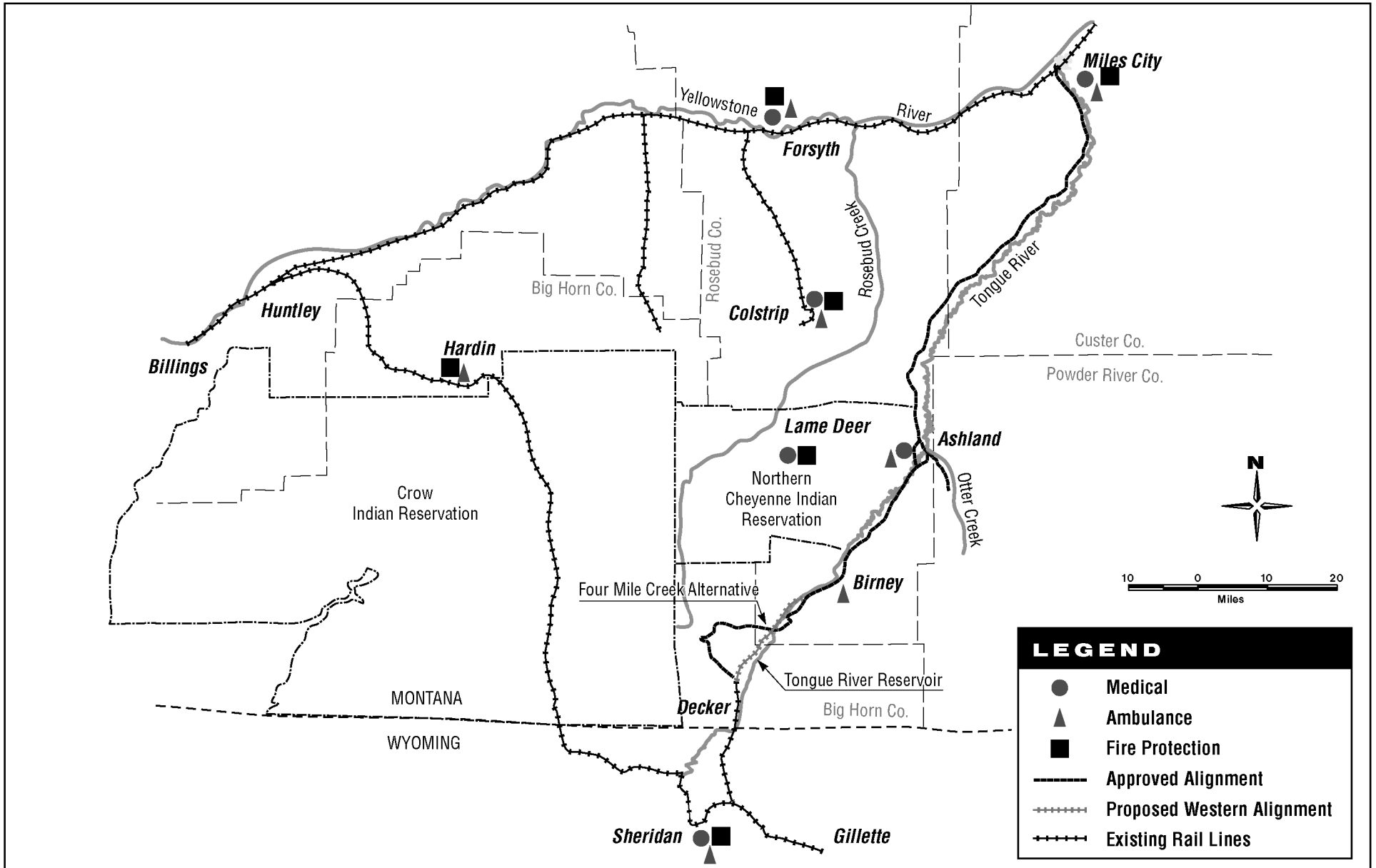
Source: Montana Department of Transportation, Personal Communication, DATE.
Note: [a] ADHT = Average daily highway traffic based on MDT studies.

4.2.6.2 Emergency Services

Emergency services, including medical, ambulance, and fire services, in the area of the proposed Western Alignment and the approved Four Mile Creek Alternative are limited due to the rural character of the area. (See Figure 4-6 for the location of emergency services.)

Medical Services and Emergency Medical Response. In the Ashland-Birney area, only basic medical services are available. Medical facilities for the region are located in Colstrip, Forsyth, Ashland, and Miles City, MT, and in Sheridan, WY. There are no medical facilities available in Birney (Rosebud County Chamber of Commerce, September 2003). Urgent medical services for residents of the immediate area are provided by the Bureau of Indian Affairs Clinic at Lame Deer. This clinic also provides emergency ambulance service to the area of the proposed Western Alignment and the approved Four Mile Creek Alternative, although service would require a 30-mile trip on gravel roads. Ambulance service for the Decker area is provided by Sheridan 911 Ambulance Service, operating from Sheridan, WY (Bill Clothier, Sheridan Fire-Rescue Department, September 2003). If a person is injured in the Ashland-Birney area and requires hospitalization, the patient is transported to Billings by road or helicopter evacuation.

Fire Protection. The Decker area of Big Horn County has a fire department located at the county maintenance garage on C380, north of its intersection with S314. There is one 500-gallon pump truck and one "wild land" truck (with a 1,000-gallon capacity), suitable for off-road



INDEX OF MAP LOCATION



FIGURE 4-6

LOCATION OF EMERGENCY SERVICES IN THE VICINITY OF THE RIGHTS-OF-WAY

response, stationed at the garage. Fire calls for the department are backed up by a dispatch from the county fire station at Hardin, approximately 75 miles away. Trucks dispatched from Hardin proceed to the Decker area to assist, but may be recalled if the local department indicates there is no need for further backup (Big Horn County Road and Fire Department, September 2003).

Rosebud County has a maintenance garage and an employee stationed in Birney. Although his primary duty is road maintenance, the employee has a collateral responsibility to respond to range fires. The County stores a truck with a 1,200-gallon tank at a county garage in Birney to respond to range fires (Doug Martens, Rosebud County Fire Warden, September, 2003).

Other principal fire protection facilities in the general area are located in Colstrip, Forsyth, Ashland, and Miles City, MT, and in Sheridan, WY.

4.2.7 Affected Environment – Air Quality

This section presents SEA's examination of the climate and existing ambient air quality in the general region encompassing the proposed Western Alignment and the approved Four Mile Creek Alternative and also includes an evaluation of particle emissions from locomotive operations and coal transport.

4.2.7.1 Climate

The temperature and precipitation of the Tongue River Basin[16] are typical of a semiarid climate. The region experiences cool moist springs, warm dry summers, and cold moist winters. Winters are influenced by high-pressure Canadian arctic cold air masses and Northern Pacific moist air masses. Spring and summer precipitation is usually the result of Gulf of Mexico moist air masses moving north and cooling as they rise across the High Plains of North America.

Precipitation in the region varies considerably from month to month. Mean annual precipitation levels range from about 12 inches at the lower elevations to 16 inches at the higher elevations. Approximately half of all annual precipitation occurs during the period from April to June, largely as thunderstorms. Precipitation data collected from the region have shown late spring and early summer to be the wettest periods and late summer to be the driest period.

Significant annual temperature variations are typical for the region. The mean annual temperature is about 45 degrees Fahrenheit (°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 (-9 °F) in January, and their highest (87 °F) in July (Western Regional Climate Center 7/21/48 to 3/31/03). The minimum and maximum temperatures recorded at the Montco meteorological station were -22 °F (12/16/80) and 102 °F (7/23/80), according to the most current data available from Western Regional Climate Center.

Winds in the Tongue River Basin tend to blow from the northwest in autumn and winter, from the west in spring, and from the southwest in summer. Near the Tongue River, winds are influenced by the topography of the Tongue River Valley. Wind speeds are generally moderate, averaging approximately 6 mph. Wind speeds can be considerably higher, especially during

[16] The Tongue River Basin is the topographic area drained by the Tongue River.

thunderstorms. There are large daily and seasonal changes in mixing heights[17] in the Tongue River region; the mixing height is generally low in the mornings and high in the afternoon. Morning mixing heights increase slightly in the spring; afternoon mixing heights are lowest in winter, but considerably higher in spring and summer. These factors are important in determining pollutant dispersion rates.

4.2.7.2 Ambient Air Quality

Ambient air quality conditions in the Tongue River Basin are generally considered good, although higher than normal air pollutant concentrations have occurred around existing coal mines and populated areas. Air pollution in the Tongue River Basin currently emanates from a variety of sources: coal strip mines, agricultural operations, wood-waste burning, home heating, vehicle traffic on unpaved roads, and wind erosion from exposed soil areas. Heavy equipment at the coal strip mines is a significant source of combustion-related gases, such as sulfur dioxide, nitrogen dioxide, volatile organic compounds, and carbon monoxide. All of the sources noted above contribute suspended particulate matter and particulates smaller than 10 microns in diameter (PM_{10}) to the ambient environment.

Air pollutant levels in southeastern Montana are well within Montana and Federal ambient air quality standards, with the exception of Lame Deer. (See Table 4-11 for ambient air quality standards.) In December 1990, EPA classified Lame Deer as a moderate nonattainment area for PM_{10}, as it is still classified. Air testing in the Lame Deer area indicates that airborne road dust is the primary cause of noncompliance with the Federal and state PM_{10} ambient standards. Lame Deer is located in the Northern Cheyenne Reservation, designated by the EPA as a Class I area, sensitive to increases in air pollutants. Under the Administrative Rules of Montana, increases in pollutant concentrations in Class I areas shall be limited (ARM §17.8.804) and a Class I area cannot be adversely affected by new emission sources (ARM §17.8.806(6)(a)).

EPA has designated all other areas in the Tongue River Valley as either attaining the National Ambient Air Quality Standards (NAAQS) or as nonclassified. Background PM_{10} measurements conducted 1992 through 1993 at the Spring Creek Coal Mines detected an average annual PM_{10} concentration of 13 microns per cubic meter ($\mu g/m^3$), well below the Federal and state annual average standard of 50 $\mu g/m^3$.

[17] The mixing height is the elevation at which all air quality constituents are thoroughly mixed.

Table 4-11 – Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Montana Standard	Federal Primary Standard[a]	Federal Secondary Standard[b]
Particulate Matter smaller than 10 microns (PM_{10})	Annual 24-hour	50 $\mu g/m^3$ 150 $\mu g/m^3$	50 $\mu g/m^3$ 150 $\mu g/m^3$	Same as primary standard
Particulate Matter smaller than 2.5 microns ($PM_{2.5}$)	Annual 24-hour	---	15 $\mu g/m^3$ 65 $\mu g/m^3$	---
Sulfur Dioxide	Annual 24-hour 3-hour 1-hour	0.02 ppm 0.10 ppm 0.50 ppm	0.03 ppm 0.14 ppm	0.50 ppm
Carbon Monoxide	8-hour 1-hour	9.0 ppm 23 ppm	9.0 ppm 35.0 ppm	---
Nitrogen Dioxide	Annual 1-hour	0.05 ppm 0.30 ppm	0.053 ppm	Same as primary standard
Ozone	8-hour 1-hour	 0.10 ppm	0.08 ppm 0.12 ppm	Same as primary standard
Lead	90-day 30-day	1.5 $\mu g/m^3$	 1.5 $\mu g/m^3$	Same as primary standard
Hydrogen Sulfide	1-hour	0.05 ppm	---	---
Settleable Particulate (Dustfall)	30-day	10 gm/m^2	---	---
Fluoride in Foliage	Monthly Average Grazing season	50 $\mu g/m$ 35 $\mu g/m$	---	---

Source: EPA 1976.
Notes: $\mu g/m^3$ = microns per cubic meter; ppm = parts per million; gm/m^2 = grams per square meter.
[a] A primary standard is designed to protect public health. The Federal Clean Air Act mandates that primary standards be based entirely on health-related information, without considering the economic costs of attaining the standard.
[b] A secondary standard is designed to protect public welfare. Public welfare includes effects on soils, water, crops, vegetation, buildings, property, animals, wildlife, weather, visibility, transportation, various economic values, and personal comfort and well-being.

4.2.8 Affected Environment – Noise and Vibration

This section presents SEA's examination of existing noise levels and sources of vibration within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative.

Noise Levels. Noise levels are measured in decibels (dB). Sound levels adjusted to represent frequencies as humans perceive them are referred to as A-weighted decibels, or dBA. Table 4-12 provides dBA levels typically associated with common sounds.

SEA's established noise thresholds[18] are similar to the U.S. Department of Housing and Urban Development (HUD) noise guidelines. These guidelines cover average sound levels over a 24-hour period, and reflect an increased sensitivity to nighttime noises that may disrupt sleep. Thus, HUD guidelines are expressed in "day-night levels" (L_{dn}), to reflect a 10-dBA noise penalty for sounds measured between 10 p.m. and 7 a.m.[19]

SEA examines noise-related impacts when identified noise-sensitive receptors experience noise levels of 65 dBA L_{dn} or more and an increase of at least 3 dBA L_{dn} is expected. An increase in indoor noise levels to below 65 dBA L_{dn} is not considered significant, because 65 dBA is the threshold for significant impacts. Also, SEA would not consider an increase in outdoor noise levels from 66 dBA to 68 dBA to be significant, because the difference is less than 3 dB.

SEA's noise analysis entailed determining the 65-dBA L_{dn} noise contour along both the proposed Western Alignment and the approved Four Mile Creek Alternative.[20] SEA counted the number of sensitive receptors within each 65-dBA L_{dn} noise contour and, based on noise estimates from the construction and operation of both alignments, determined whether any sensitive receptors would experience an increase of at least 3 dBA L_{dn}.

The methodology used by SEA in determining noise impacts was upheld in a U.S. Court of Appeals (Eighth Circuit) decision filed on October 2, 2003. In this case, several parties challenged the Board's actions under NEPA in granting approval to the Dakota, Minnesota & Eastern Railroad Corporation's proposal to construct and upgrade a combined 880 miles of rail line in several Western and Midwestern states. Part of the legal challenge focused on SEA's methods for determining noise impacts on receptors in the project area. The court recognized that while other agencies use varying standards or methodologies for identifying noise impacts, this disparity did not mean that SEA's methodology was flawed under NEPA. In fact, the court concluded that SEA's choice of methodology, which was consistent with its past practice and similar in nature to the noise analyses performed by other federal agencies, had merit and should therefore be upheld.

Common Sounds. Common sounds in the vicinity of the proposed Western Alignment and the approved Four Mile Creek Alternative are generated by motor vehicles, agricultural equipment, and natural sources such as wind and animals. The background noise level in this area ranges from 30 to 40 L_{dn}, with highest levels near major roads. Estimated average sound levels at 50 feet and 200 feet from S314 near the community of Decker are 65 L_{eq}[21] and 59 L_{eq}, respectively (MT DNRC et al. 1996).

[18] SEA's noise thresholds are specified in 49 CFR 1105.7(e)(6).

[19] L_{dn} ("day-night level") is used to quantify the noise level over a 24-hour period.

[20] A noise contour is a line plotted on a map connecting points of equal sound levels.

[21] L_{eq} is the average A-weighted sound level in a stated time period. The time period for which these estimates were developed is not known.

Table 4-12 – Comparison of Sound Levels

Sound	Decibels (dBA)
Threshold of Hearing	0
Breathing	10
Quiet Bedroom at Night	20
Library	40
EPA's Indoor Level for Avoidance of Interference and Annoyance	45[a]
EPA's Outdoor Level for Avoidance of Interference and Annoyance	55[b]
Normal Conversation	60
HUD Threshold of "Normally Unacceptable" Residential Noise	65[a]
Board Threshold	65[b]
HUD Threshold of "Unacceptable" Residential Noise	75[a]
Occupational Standard to Protect Hearing	90[c]
Busy Intersection	90
Power Lawnmower or Garbage Truck	100
Loud Motorcycle	110
Peak Level From a Rock Band	120
Jet Aircraft at 20 Feet	140

Sources: EPA 1974; Wanielista 1984.
Notes: [a] 24-hour L_{eq}.
[b] in $L_{dn.}$
[c] 8-hour L_{eq}.

4.2.9 Affected Environment – Socioeconomics

This section presents SEA's examination of socioeconomic issues such as population, employment, income and poverty, and government and social services. In Tongue River II, SEA conducted a socioeconomic analysis that was more comprehensive than required under NEPA or the Board's practice in other cases, at the request of the cooperating agencies. SEA reviewed and updated this analysis for the proposed Western Alignment. Unlike most of the other analyses in this document, the discussion of social and economic impacts is related to a larger geographic area than the Tongue River Valley, for the following reasons. First, social and economic impacts often affect a broader area than other impacts (e.g., property tax revenues would benefit school children living in Colstrip and Forsyth as well as the few living in the immediate project area). Second, the data on social and economic conditions are based on geographic units that extend beyond the immediate project area. Third, the project-related data utilized in the analysis, such as construction-period and operational-period employment figures, are for the entire proposed rail line from Miles City to Decker and not just the proposed Western Alignment or the approved Four Mile Creek Alternative.

SEA's socioeconomic analysis generally covers a five-county area. It includes a more specific discussion for the immediate vicinity of the proposed Western Alignment and the Four Mile Creek Alternative, as well as existing conditions on the Northern Cheyenne and Crow Indian reservations because they are close to the proposed Western Alignment and the approved Four Mile Creek Alternative. The analysis also includes a discussion of Billings, which is outside of the five-county area, as this urban center would also be affected by the construction of the proposed rail line. Of the five counties, four are in Montana: Rosebud, Big Horn, Custer, and Powder River. The fifth is Sheridan County in Wyoming, which is included because Sheridan is the nearest city to the southern end of the railroad. The Western Alignment and the Four Mile Creek Alternative cross portions of two Montana counties, Rosebud and Big Horn. As the two largest cities in proximity to the project area, Sheridan and Billings are included because they are likely to provide the largest and most consistent source of employees and materials necessary to construct and operate the project. As a result, these cities are relevant to the socioeconomic analysis.

4.2.9.1 Population for the Five-county Region

Table 4-13 shows the actual population of each of the five counties for the years 1980, 1990, 2000, and projections for 2010. The largest city in the region is Sheridan, which had a population of 15,804 in 2000. The region as a whole suffered population decreases during the 1980s but showed modest population increases during the 1990s. The decrease in population was linked to a decline in coal mine employment during the 1980s. Following the opening of five mines in the 1970s, no new mines have been developed, resulting in a 50 percent decrease in mine-related employment between 1980 and 1985 (MT DNRC et al. 1996). The population increase in recent years has been approximately one percent per year, which is less than the 1.7 percent annual increase for the State of Montana as a whole. Between 1990 and 2000, the total population in Montana increased by nearly 13 percent, while Wyoming's population increased by 8.9 percent.

Table 4-13 – Population (Actual and Estimated) for the Five-county Region

County / Year	Big Horn	Custer	Rosebud	Powder River	Sheridan County (WY)	Total
1980	11,096	13,109	9,899	2,520	25,048	61,672
1990	11,337	11,697	10,505	2,090	23,562	59,171
2000	12,671	11,696	9,383	1,858	26,560	62,168
2010 (estimated)	13,770	12,300	12,060	1,670	26,430	65,830
Percent Change 1990-2000	11.8	0	-10.7	-11.1	12.7	5.1

Sources: 1980, 1990, and 2000 actuals from U.S. Department of Commerce, Bureau of the Census; 2010 estimates in Montana from Montana Department of Labor and Industry, R&A Bureau; Sheridan 2010 estimates from Wyoming Division of Economic Analysis.

4.2.9.2 Employment, Income, and Poverty Rates for the Five-county Region

The percentage of unemployed workers, median household income, and poverty rate can be used as indicators of a region's economic health. As shown in Table 4-14, the economic health of the five-county region varies. Unemployment and poverty rates are highest in Big Horn and

Rosebud counties although the median household income in Rosebud County is high relative to the state average.

Table 4-14 – Unemployment Rates, Incomes, and Poverty Rates for the Five-county Region

	Big Horn	Custer	Rosebud	Powder River	Sheridan County (WY)	State of Montana
Unemployment rate (1999)	9.6%	4.4%	7.6%	3.7%	4.9%	5.2%
Median Household Income (1999)	$27,684	$30,000	$35,898	$28,398	$34,538	$33,024
Poverty Rates (1999)	29.2%	15.1%	22.4%	12.9%	10.7%	14.6%

Sources: U.S. Bureau of the Census 2000, Montana Department of Commerce 2000; and Wyoming Department of Economic Analysis 2000

The relatively high median household income for Rosebud County is related to the large number of coal mining and electricity production jobs, which pay significantly higher wages than other industries in the State of Montana. The top ten private employers in Rosebud County are Cheyenne Depot, Coal Bowl, Colstrip Park and Recreation District, PP&L of Montana, Peabody Coal Company, Power Maintenance Resources, Inc., Prince, Inc., Rosebud Healthcare Hospital, Rosebud IGA, and Western Energy. Although the two Decker coal mines (East and West Decker) and the nearby Spring Creek Coal Mines are all located in Big Horn County, the majority of employees commute from the City of Sheridan. According to the U.S. Bureau of the Census, 534 Sheridan County residents were employed at these three mines in 2000.

4.2.9.3 Government Structure and Services for Five-county Region

County government in the region is directed by county commissions. Miles City, Forsyth, and Broadus, MT, and Sheridan, WY are all incorporated communities, and each relies on a part-time mayor/city council system. All five counties have part-time or full-time planning staff.

The major source of revenue for city and county governments is property taxes. The four coal-fired power plants near Colstrip account for nearly two-thirds of the taxable property in Rosebud County with much of the remaining revenue coming from taxes on coal mining equipment and oil and gas production equipment (MT DNRC 1996). Other sources of revenue are intergovernmental transfers (including coal severance taxes) and miscellaneous collections, including license and permit fees, fines, and user charges. Part of the coal severance tax is deposited to a permanent trust fund, and interest is used for infrastructure (e.g., highways and bridges). The rest funds state and local government operations.

Local services within the study area are provided by each county, with the exception of Miles City and Sheridan city, which have their own fire and police departments. Forsyth has a consolidated police and sheriff's office. Deputy sheriffs are generally located throughout the counties, as are ambulance services and volunteer fire departments. (See Section 4.2.6, "Affected Environment – Transportation and Safety.")

Miles City and Forsyth each have a private hospital, and clinics are located in Colstrip, Ashland, Lame Dear, and Broadus. Sheridan County has one county hospital with 66 beds, as well as a

Veterans Administration Medical Center with 146 beds. Public libraries are located in Miles City, Forsyth, Broadus, and Sheridan.

The region is divided into several high school and elementary school districts. Education is financed by district property taxes and by the state school foundation program.

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 are also 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. These resources currently have low levels of utilization. In the smaller communities, most social activities are school-related. All age groups are generally involved, and total family participation is common.

4.2.9.4 U.S. Census Bureau Data for the Proposed Western Alignment and the Approved Four Mile Creek Alternative Areas

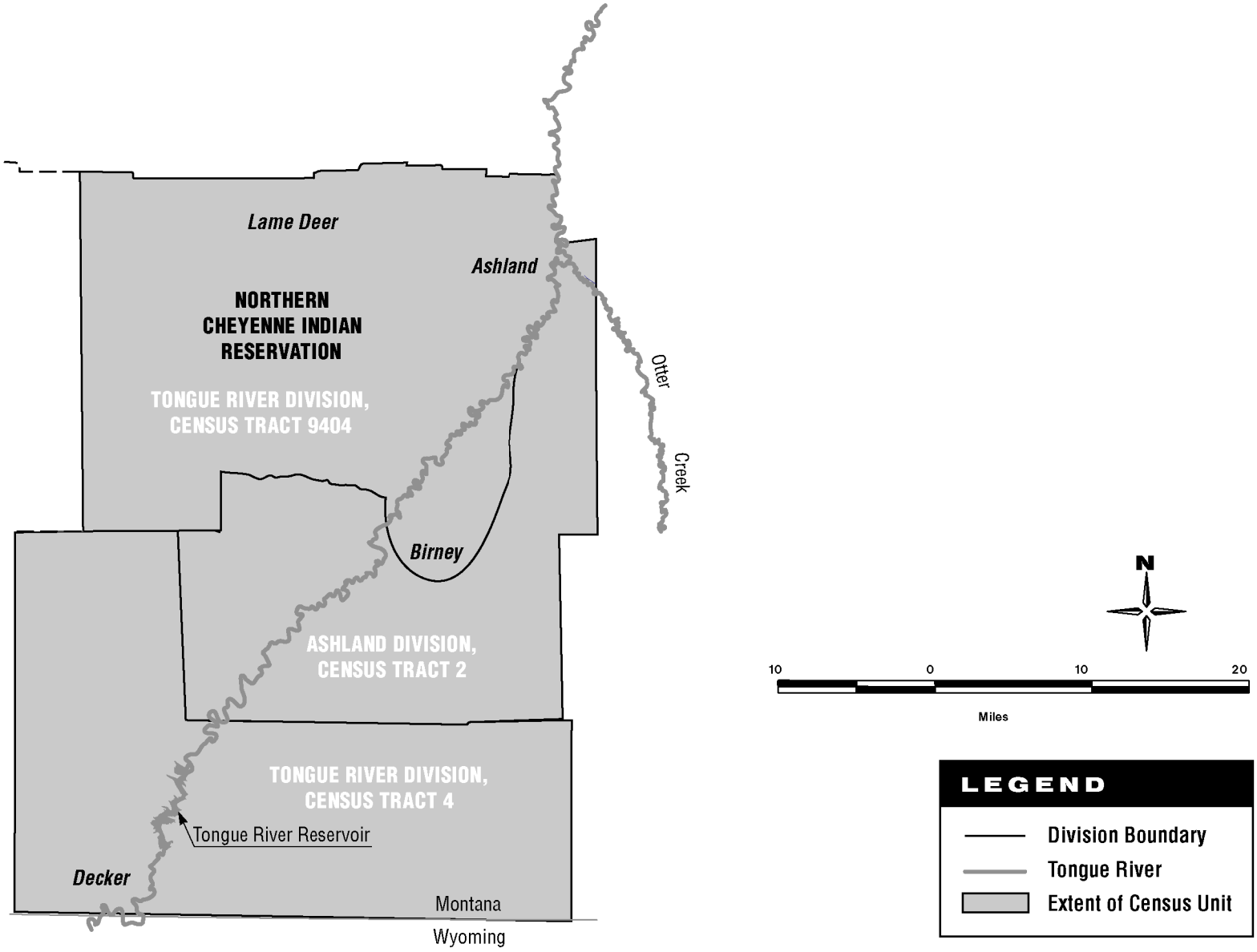
Figure 4-7 depicts the U.S. Census Bureau tracts within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative. Three census tracts encompass the Tongue River in this area. Census tract 4 falls in Big Horn County and includes the town of Decker. Census tract 9404 includes the towns of Ashland, Birney, and Lame Deer within Rosebud County. Census tract 2, block group 2 is located in Rosebud County and parallels the Tongue River on the east. The town of Ashland is also discussed in this section because it is the community nearest the Western Alignment.

Table 4-15 shows selected 2000 Census Bureau data for the three census tracts directly affected by the proposed Western Alignment and the approved Four Mile Creek Alternative.

The mostly Native American population in census tract 9404 can be attributed to the overlap of the Northern Cheyenne Reservation. Neither census tract 4 nor census tract 2 encompass a reservation, thus accounting for the majority of Caucasians in those areas. The median household income for the State of Montana is $33,024. The census tracts surrounding the area of the proposed Western Alignment and the approved Four Mile Creek Alternative are below the state average for median household income.

The proposed Western Alignment and the approved Four Mile Creek Alternative are located in a rural area for which the commercial center is Sheridan. The City of Sheridan, which had a population of 15,804 in 2000, would serve as a primary source of workers and materials during construction and operation of the project.

Ashland, which had a population of 464 in 2000, is the town most likely to be affected by the construction and operation of the entire Tongue River Railroad from Miles City to Decker. Due to the high unemployment rate in Ashland, several unemployed residents of the community are likely to seek temporary or full-time jobs related to the construction or operation of Tongue River III. A reduction in the City's unemployment rate would likely bolster its socioeconomic



INDEX OF MAP LOCATION

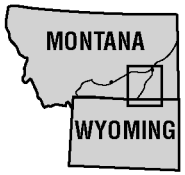


FIGURE 4-7

LOCATION OF CENSUS BUREAU TRACTS WITHIN THE AREA OF THE PROPOSED WESTERN ALIGNMENT AND THE FOUR MILE CREEK ALIGNMENT

Table 4-15 – Selected 2000 Census Data

Census Parameter	Census Tract 4 Big Horn County	Census Tract 9404 Ashland, Birney, and Lame Deer	Census Tract 2 Block Group 2 Eastern Tongue River
Population	145	2928	596
Male	73	1424	294
Enrolled in School	32	1096	153
Households	65	789	229
Race			
White	138	239	440
American Indian	6	2632	97
Other	1	57	59
Occupied Houses (vacant houses)	65 (32)	789 (90)	229 (66)
Vacant Houses Available for Rent (for sale)	3 (3)	25 (0)	13 (7)
Median Household Income in 1999	$20,417	$21,364	$32,031
Percentage of Individuals Below Poverty Level	11.7%	45.6%	14.7%

Source: U.S. Census Bureau 2000.

base and result in an improved quality of life. According to the Rosebud-Ashland Community Development Plan (Ashland CAT 1995), the community is characterized as follows:

- Many buildings are dilapidated and in need of repair.
- The main business district includes a dozen retail shops: gas stations, stores, a café, a motel, and a bank.
- There are two public schools, one in Ashland for grades Kindergarten through eight, and another at the St. Labre Indian Mission. There is no public high school, and most high school students in the area attend schools in Broadus, Colstrip, or Lame Deer.
- The St. Labre Indian Mission is Ashland's largest employer (220) with a lumber mill, mission, and school.
- Drinking water quality is poor; it meets EPA primary standards, but has a sulfurous odor and a salty taste.
- The area has no access to bus, air, or rail service.
- There are no park or library services available to the public.
- Unemployment is high, nearly 30 percent in 1990, compared to seven percent for the state as a whole.
- In 1990, the per capita income was one-third that of the state as a whole, and the poverty rate was 71.9 percent.
- The water and sewer system was built in 1974, in anticipation of a coal boom, to handle a population of 3,500, much greater than its current use.
- The housing supply is considered inadequate, and most existing occupied housing is rated either poor or moderately poor in quality.

- The most critical need expressed by residents was improved access to medical care. This was met in part by the opening of a new clinic in 1995.

The Lame Deer Volunteer Fire Department serves Lame Deer, Ashland, Busby, and Birney. Limited funding, inadequate equipment, and the lack of an available water supply hamper its effectiveness. The Insurance Services Office, Commercial Risk Services, Inc., gave the Lame Deer Volunteer Fire Department a score of eight on a scale of one (best) to ten (worst) (MT DNRC 1996). (See Section 4.2.6, "Affected Environment – Transportation and Safety," for a more detailed description of fire services.)

4.2.9.5 Northern Cheyenne Reservation

In the Social, Economic, and Cultural Supplement to the Powder River Coal Lease Draft EIS, BLM provided a detailed analysis of the socioeconomic conditions on the reservation (BLM 1989). In addition to the 2000 U.S. Census, the following information was compiled in a 2002 report developed by the Northern Cheyenne for BLM in response to the proposed increases in coal-bed methane development in southeast Montana. The following summary highlights the findings of the report entitled "The Northern Cheyenne Tribe and its Reservation," prepared by BLM and MT DNRC in 2002, with some updated information as appropriate:

- The Northern Cheyenne Reservation is more densely populated than the surrounding highly rural, ranching areas.
- In 2000, there were approximately 4,470 persons living on the reservation, of whom 4,029 were Native American. When adjusted for the likely undercount, the actual reservation population is estimated to be 5,000. Depending on changing economic conditions, the on-reservation population can fluctuate greatly.
- In 2000, the unemployment rate on the reservation was 21.8 percent,[22] while the poverty rate was 50 percent. That year, 2,025 people were living in households with an income below the poverty level.
- Per capita incomes on the reservation were less than two-thirds that of the rest of the Powder River region. The average per capita income for all races on the reservation in 2000 was $7,736.
- There is a severe housing shortage on the reservation. In 2000, there were 1,329 housing units, of which more than 10 percent were substandard. More than 300 families were on waiting lists for housing assistance. The lack of housing has led to overcrowding and has caused many of the Northern Cheyenne to look for housing off-reservation.
- For both the Northern Cheyenne and the Crow Indian Reservations, a comparison of the causes of death reveals that life expectancies overall are lower than for the general population, and rates of death are higher from alcoholism, motor vehicle accidents, cirrhosis of the liver, suicide, homicide, diabetes, congenital anomalies, and tuberculosis.
- In 2002, health care, law enforcement, fire fighting, and criminal justice services were judged to be inadequate.
- Energy development in the region during the 1970s and 1990s worsened conditions on the reservation. The poverty rate on the reservation increased from 41 to 48 percent. Home ownership dropped from 78 to 59 percent. The Northern Cheyenne realized no benefit in new job creation.

[22] Montana Research and Analysis Bureau, http://rad.dli.state.mt.us/program/resdata.asp.

- Water and sewer facilities were judged to be adequate, but additional solid waste disposal canisters were needed at some towns within the reservation, such as Lame Deer and Birney Village.
- The 2000 Census indicated that 46.7 percent of reservation residents have some college education, and 13.5 percent have a Bachelors degree or higher.[23] These percentages are comparable with non-reservation residents in Rosebud County. However, the high school drop-out rate on-reservation is 25.4 percent, which is substantially higher than off-reservation residents. Hunting and gathering are still important economic activities for the on-reservation population.

4.2.9.6 Crow Indian Reservation

In the Social, Economic, and Cultural Supplement to the Powder River Coal Lease Draft EIS, BLM provided an analysis of the current social and economic conditions on the Crow Indian Reservation. The following information is compiled from the 2000 U.S. Census and a report developed by the Crow for BLM in response to the proposed increases in coal-bed methane development in southeast Montana. Because regional coal development was expected to have a minimal impact on the Crow Indian Reservation, the BLM analysis was much less detailed than that provided for the Northern Cheyenne Indian Reservation. The following summary highlights BLM's findings, with some updated information as appropriate.[24]

- In 2000, there were approximately 6,894 persons living on the reservation, of whom 74.9 percent were Native American. Most of the residents are members of the Crow Tribe.
- There is a severe shortage of housing on the reservation. In 2002, the Crow Tribal Housing Authority identified 540 housing-assisted homes and 180 low-rent homes on the reservation.[25] The housing authority has identified 250 homes with more than one family in the household, and there is a waiting list of 300 families that need housing.[26]
- Per capita incomes on the reservation are below that of the rest of the Powder River region. In 1999, the per capita income on the reservation was $9,440, and the poverty rate was 35 percent.
- In the 2000 Census, the largest sectors of unemployment were agriculture (17.8 percent); education, health and social services (33 percent); and retail (8 percent). Private wage and salary (34.3 percent) and government (45 percent) were the largest classes of employment. In 2002, the unemployment rate on the reservation was 21.8 percent in contrast to the 4.6 percent rate for the State of Montana.

[23]Numbers derived from Census Data Set "Sex by Educational Attainment for the Population 25 Years and Over" (sum of all relevant data).

[24] BLM Draft Economic, Social, and Cultural Supplement to the Powder River I Regional EIS (BLM 2003:61-72).

[25]Tribal Housing Authority, 2002.

[26] Crow Indian Reservation. Report Prepared for the U.S. Department of Land Management and the State of Montana Department of Natural Resources and Conservation, Billings, MT, 2002.

4.2.10 Affected Environment – Recreation

This section presents SEA's examination of the recreational opportunities in the area of the proposed Western Alignment and the approved Four Mile Creek Alternative, including fishing, hunting, and other uses in the Tongue River Recreation Area.

In addition to agriculture and industrial uses, the Tongue River Valley is enjoyed for its natural beauty and recreational activities. The primary recreational area in the vicinity of the proposed Western Alignment and the approved Four Mile Creek Alternative is the 642-acre Tongue River Reservoir State Park. The park, a regionally important resource, is located in a remote setting at an elevation of 3,454 feet on the shores of the 12-mile-long Tongue River Reservoir. Situated among scenic red shale geologic formations and juniper canyons, it provides a unique aquatic resource in the prairie counties of southeastern Montana, and a tranquil retreat in a natural setting. The park also offers a diverse range of outdoor activities, which include camping, cycling, picnicking, boating, fishing, ice fishing, water skiing, and waterfowl hunting. It is especially popular for its recreational boating opportunities and excellent sport fishing. Both Montana and Wyoming residents utilize the park, which was expected to receive approximately 90,000 visitors in 2003. The park is managed by MT DFWP, and run by three seasonal (summer) employees and one manager who is on site for nine months of the year (MT DFWP 2003).

Almost all the facilities managed by MT DFWP were renovated, rebuilt, or newly constructed due to the four-foot rise in reservoir water level resulting from the Tongue River Reservoir Dam spillway-rehabilitation project. Improvements included the construction of a concession store with on-site gasoline pumps, an RV dump station, a fish cleaning station, three potable water wells, a septic system, two boat ramps with courtesy docks, boat docks with slips for eight boats, 45 designated camp pads/sites at Campers Point, construction of new interior park roads, 125 picnic tables, 75 fire rings, six picnic shelters, 12 latrines, and the creation of a boat harbor (frog pond), new landscaping, and a drip irrigation system on Campers Point.

Park visitation has increased 164 percent since 1999 (MT DFWP 2003). Visitors typically come from within a 150-mile radius of the reservoir, including Sheridan, Johnson, and Campbell counties in Wyoming, and Yellowstone, Custer, Big Horn, Rosebud, Powder River, and Treasure counties in Montana. This is one of only four state parks (Tongue River, Cooney, Hell Creek, and Medicine Rocks) in Montana that provide rustic camping opportunities with nondesignated camp sites, minimal water supply, central trash receptacles, and occasional fire rings (MT DNRC et al. 1996). Popular park camping areas in the vicinity of the proposed Western Alignment or the approved Four Mile Creek Alternative include Sand Point, Peewee Point, Campers Point, Rattlesnake Point, and the downstream campground. (See Section 4.3.10, "Environmental Consequences – Recreation," Figure 4-13, for a map of the campgrounds.)

A subdivision development informally known as Cormorant Estates, adjacent to the northern border of the park, includes land on the north shore of the Tongue River Reservoir, west of the dam. It has 11 lots, one with a cabin, and the remaining undeveloped lots still for sale. On the east shore of the reservoir, there are nine privately owned cabins on land leased to private owners by MT DNRC. Developments planned for the downstream area include a new gravel road system, camp pads, picnic shelters and tables, and fire rings.

Recreational activities such as fishing, hunting, and boating also occur along the Tongue River. In particular, the segment of the river extending 10 miles north (downstream) of the Tongue River Reservoir and Dam has recreational potential because of scenic canyons and wooded bottomlands. However, the lack of designated access points limits use of this portion of the river for recreational activities. The downstream area is an increasingly popular fishing spot offering large rainbow trout and warm/cool water species, including bass, crappie, walleye, and catfish. Some private landowners below the dam allow fishing access to those who request right-of-entry. MT DFWP estimated that between the Tongue River Reservoir Dam and Beaver Creek, the Tongue River provided approximately 1,424 angler days from March 2001 through February 2002. The area is also a popular waterfowl hunting area in the late fall due to the large population of mallards (MT DFWP 2003).

The Tongue River is primarily a smallmouth bass fishery that is self-reproducing and distributed along the length of the river. A backwater area near the proposed bridge for the approved Four Mile Creek Alternative might be a smallmouth bass spawning and resting area. Smallmouth bass are relatively new to the river system, having been introduced in the Birney area in 1970. They have since spread throughout the river system and are the species most sought by anglers.

Although most studies have found smallmouth bass to be a sedentary species (Fajen 1962; Munther 1970), Tongue River smallmouth bass have shown a marked tendency to move long distances at two specific times of the year. During the spring (April and May), fish larger than 12 inches move upstream, some as far as 50 miles, most likely for the nesting season in Hanging Woman and Otter Creeks (Clancey 1980). In September and October, they move back downstream. A high proportion move into a short section of river with boulder substrate for spawning and rearing approximately one mile north of Ashland, resulting in a concentration of fish in this area in the fall (Clancey, MT DFWP, 1999).

The clearer, lower-temperature stretch of the river downstream from the dam contains rainbow and brown trout. The rainbow trout fishery is maintained with hatchery stock, and little over-winter survival occurs. The mouth of the Tongue River may be used as a spawning stream for Yellowstone River shovelnose sturgeon, burbot, paddlefish, and blue sucker. Northern pike are also a popular sport fish in the river (Clancey 1980).

4.2.11 Affected Environment – Aesthetics

This section presents SEA's examination of the existing aesthetic resources within the area of the proposed Western Alignment and the approved Four Mile Creek Alternative.

The dominant visual characteristic of the area is open space, primarily associated with grazing and other agricultural uses. The topography of this region is dominated by the Tongue River Valley, surrounded by rolling hills and rugged terrain. The most common vegetation type in the area is big sagebrush/grassland. (See Section 4.2.2.1, "Affected Environment – Biological Resources – Vegetation," for a discussion of other types of vegetation found in the area.)

Viewer groups in the area include residents, motorists, and recreational users. There are only a few residents, as the area is sparsely populated. The majority of motorists on local roads are residents of the area or of the larger towns in the area, such as Ashland or Sheridan, or people

utilizing the area for recreational activities. Recreational users are concentrated in the Tongue River Reservoir State Park.

4.2.12 Affected Environment – Energy

This section presents SEA's examination of the following energy-related effects of the proposed Western Alignment and the approved Four Mile Creek Alternative, pursuant to the Board's regulations at 49 CFR 1105.7(e)(4):

1. The effect of the proposed Western Alignment and the approved Four Mile Creek Alternative on recyclable commodities, such as aluminum, plastic, and paper.

2. The degree to which the construction and operation of the entire Tongue River Railroad between Miles City and Decker would result in an increase or decrease in overall energy (fuel) consumption.

SEA evaluated the potential effects of the proposed Western Alignment and the approved Four Mile Creek Alternative on the transportation of energy resources and determined coal to be the dominant material that would be transported by the Tongue River Railroad between Miles City and Decker. (See Section 4.3.12, "Environmental Consequences – Energy," for a description of SEA's analysis relative to these Federal regulations.)

4.3 ENVIRONMENTAL CONSEQUENCES

Section 4.3 presents SEA's analysis of the potential environmental impacts that would result from construction and operation of the proposed Western Alignment. SEA's analysis is based on relevant information contained in the EIS prepared in Tongue River II, updated where appropriate to provide an accurate comparison between the potential environmental impacts of the proposed Western Alignment as compared to the approved Four Mile Creek Alternative. Chapter 3, "Overview of SEA's Analysis Conducted for This Draft SEIS," provides a description of SEA's approach to the analyses conducted for this Draft SEIS. In many cases, SEA believes that, based on the information available to date, mitigation measures adopted in Tongue River II would be adequate to reduce or avoid the impacts associated with the proposed Western Alignment and the approved Four Mile Creek Alternative. These mitigation measures are applicable to both projects and are outlined in each environmental topic area discussed below.

Based on the new and updated analyses conducted for this Draft SEIS, SEA has also preliminarily identified several new mitigation measures, applicable to both lines, that would further reduce impacts associated with construction and operation of the approved Four Mile Creek Alternative or the proposed Western Alignment. The recommended new mitigation measures are proposed to minimize impacts to the 100-year floodplain; minimize impacts on aquatic resources, wetland habitat, and plant and animal species of special concern; provide more detail regarding the revegetation of disturbed soils; require noxious weed control; address

the impacts of saline/sodic soils and soil slumping[27]; minimize the impacts of blasting on the Tongue River Reservoir Dam; provide specificity regarding bridge and culvert construction; reduce impacts on paleontological resources; and ensure trains are operated safely. Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker," provides a comprehensive compilation of SEA's recommended mitigation measures for either the proposed Western Alignment, if approved, or the Four Mile Creek Alternative, as well as construction and operation of the entire rail line from Miles City to Decker. SEA is recommending that these mitigation measures supersede and replace the mitigation measures adopted by the Board in Tongue River I and Tongue River II.

4.3.1 Environmental Consequences – Land Use

4.3.1.1 Summary

The proposed Western Alignment and the approved Four Mile Creek Alternative would traverse mostly rural and undeveloped land. For both alignments, the primary land use issues involve construction and operation on private ranching operations and on lands publicly owned and managed by either BLM or the State of Montana. SEA conducted a thorough and comprehensive analysis of these impacts, as well as other potential associated impacts.

New Analyses. SEA's analysis of impacts of the approved Four Mile Creek Alternative on land use resulting from construction and operation utilizes information contained in the EIS in Tongue River II. The analysis of the proposed Western Alignment utilizes information from the Environmental Report for the proposed Western Alignment prepared by TRRC in 1998 (Environmental Report). SEA reviewed the information and conducted site visits and aerial surveys to verify that the information was accurate.

Mitigation. As part of this analysis, SEA preliminarily recommends modification of one mitigation measure (Mitigation Measure 2) that was adopted by the Board in Tongue River I and 12 mitigation measures (Mitigation Measures 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13) adopted by the Board in Tongue River II. The purpose of modifying the mitigation measure from Tongue River I is to clarify TRRC's role regarding potential land use concerns during the operation of the Tongue River Railroad. The purpose of modifying the mitigation measures from Tongue River II is to clarify that these mitigation measures have already been adopted by the Board.

Conclusion. Based on the information available to date, SEA preliminarily concludes that, with mitigation, neither the construction nor the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative would result in significant impacts on land use.

4.3.1.2 Construction-period Land Use Impacts

Construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would affect existing land uses. Construction-period land use impacts would be of

[27] Slumping is the failure of a slope in either a fill or a cut. The failure is typically identified as a movement of earth in a downhill direction, which can lead to damage of structures located at either the top of the slope (i.e., the railroad) or the bottom (e.g., a road, house, or pasture). The movement of earth can also lead to additional sediment transport as the soil is more susceptible to erosion in its loose state and/or the movement could terminate in a drainage where the soil would be exposed to surface water runoff.

relatively short-term duration, such as the acquisition and use of land for construction staging and work camps.

Lands Permanently Acquired for the Proposed Rail Line (or ROW).[28] Acquisition of land for the ROW would be a permanent and unavoidable impact of the construction of the proposed Western Alignment or the previously approved Four Mile Creek Alternative. Due to its longer length, the approved Four Mile Creek Alternative would result in permanent acquisition of more ROW than the proposed Western Alignment. The land necessary to construct either the proposed Western Alignment or the approved Four Mile Creek Alternative is primarily rangeland, and there are no urban centers or smaller communities within the proposed ROW. Table 4-16 provides the land ownership and total acreages of the land that would be permanently acquired for the ROW for the proposed Western Alignment and the approved Four Mile Creek Alternative. Table 4-17 provides the land use categories and total acreages of the land that would be permanently acquired for the ROW for the proposed Western Alignment and the approved Four Mile Creek Alternative. The ROW acreages in Tables 4-16 and 4-17 do not include temporary acquisitions for construction of staging areas and work camps, which would require approximately 10 additional acres at the southern end near the existing Spring Creek Mine spur.

Table 4-16 – Land Ownership in the ROW of the Proposed Western Alignment and the Approved Four Mile Creek Alternative

Land Ownership Category	Proposed Western Alignment (17.3 miles)	Approved Four Mile Creek Alternative (29.4 miles)
Landowners Affected by ROW	13	15
Residences Removed	0	2
Total ROW (acres)	672	765
Public Land - BLM (acres)	120	84
Public Land - State of Montana (acres)	9	29
Private Land (acres)	543	652

Source: WESTECH 1998; Mission Engineering 1999

[28] These lands are referred to as the railroad right-of-way or ROW.

Table 4-17 – Land Use in the ROW for the Proposed Western Alignment and the Approved Four Mile Creek Alternative (in Acres)

Land Use Category	Proposed Western Alignment (17.3 miles)	Approved Four Mile Creek Alternative (29.4 miles)
Total ROW	672	765
Total ROW Disturbed During Construction	513	542
Non-irrigated Farmland	9.0	54.8
Non-irrigated Farmland Disturbed During Construction	6.9	38.8
Irrigated (Prime) Farmland – In Use	5.5	3.8
Irrigated (Prime) Farmland – In Use Disturbed During Construction	4.2	2.7
Irrigated (Prime) Farmland – Not In Use	6.0	3.2
Irrigated (Prime) Farmland – Not In Use Disturbed During Construction	4.6	2.3
Other Range Land	651.5	703.2
Other Range Land Disturbed During Construction	497.3	498.2
Recreation	0	0
Waters of the United States (Total Acreage)[a]	38.05	65.51

Source: WESTECH 1998; Mission Engineering 1999
Note: [a] Waters of the United States were identified within a 400-foot wide ROW (200 feet on either side of the centerline) for each alignment. This width was selected because it was wider than all but a few known locations of the potential ROW. For a definition of waters of the United States and information on acreage by type of United States waters, see Appendix D.

At the request of BLM, TRRC conducted an analysis of potential alternatives to crossing BLM land along the entire line from Miles City to Decker. (See Appendix E.) BLM requires this analysis before it would issue easements to TRRC to construct the proposed Western Alignment or the approved Four Mile Creek Alternative across BLM-owned and managed land. The analysis, which was reviewed and independently verified by SEA, concluded that construction and operation of the Tongue River Railroad across BLM lands under the proposed Western Alignment would not cause significant environmental impacts. It also concluded that an alternative route that would avoid BLM lands by crossing adjacent private properties would result in a variety of potential adverse environmental impacts to the private properties, as well as to the long-term operational, maintenance, and safety aspects of rail operations. Finally, the analysis concluded that the level of impact to BLM lands resulting from construction and operation of the proposed Western Alignment would be minor, like the approved Four Mile Creek Alternative, and the type of impact would be similar for both alignments.

Information on requirements for obtaining an easement on state lands is included in Appendix F.

In Tongue River II, the Board adopted the following mitigation measure to minimize impacts on landowners resulting from the temporary or permanent acquisition of land, which would apply to either alternative:

Mitigation Measure 1 (Direct and Indirect Land Loss). TRRC shall negotiate compensation for direct and indirect loss of agricultural land on an individual basis with each landowner whose property will be affected as a result of the construction and operation of the line between Miles City and Decker. TRRC shall assist landowners in identifying and developing alternative agricultural uses for severed land, where appropriate. TRRC shall apply a combination of alternative land use assistance and compensation as necessary and agreed upon during right-of-way negotiations. *[TRRC II, Land Use Condition (1), modified by minor edits]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts from temporary and permanent land acquisition resulting from implementation of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, would not be significant.

Rangeland. Much of the ROW for the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would cross non-irrigated grazing land. SEA believes that crossing non-irrigated grazing land does not constitute a severance of the parcel, because it would still be possible to move cattle between pastures. Ranchers have noted that cattle may be reluctant to use cattle passes constructed across or under the railroad, especially those that are used infrequently. This situation could increase herding time between pastures, but would not constitute a significant impact. Other non-domestic species are discussed in Section 4.3.2, "Environmental Consequences – Biological Resources."

In Tongue River I and Tongue River II, the Board adopted the following mitigation measures to minimize impacts on landowners resulting from crossing non-irrigated grazing land:

Mitigation Measure 2 (ROW Fencing). TRRC shall construct fencing along the railroad right-of-way (ROW) where required to control livestock, as requested by the landowner. If fencing is requested, fence construction and type shall be used that allows movement of big game animals across the railroad ROW. The general fencing options to be used shall be developed by TRRC for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. In the event that a land owner does not agree with the Task Force's general determinations about fencing, the Task Force shall be consulted to determine mitigation on a case-by-case basis. *[TRRC I, Condition 10.1(5) and Land Use Condition (3), combined and modified to require the Task Force's involvement in the development of appropriate fencing types]*

Mitigation Measure 3 (Access Restrictions). TRRC shall install cattle passes (oval, corrugated metal structures, approximately 11 feet high and 12 feet wide at the base) along the railroad right-of-way to ensure passage of cattle under the rail line. TRRC shall work with landowners to identify appropriate locations for cattle passes and private grade crossings for equipment. *[TRRC II, Land Use Condition (4)]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that impacts on rangeland resulting from implementation of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, would not be significant.

Severed Farmland. Construction of the proposed Western Alignment, like the approved Four Mile Creek Alternative, could affect farmland by severing parcels. Severance would occur when the permanent ROW traverses a contiguous land parcel. Severance of parcels would be a permanent and unavoidable impact of either the proposed Western Alignment or the approved Four Mile Creek Alternative.

The most valuable type of farmland that could be subject to severance is farmland that employs mechanical irrigation systems. Neither the proposed Western Alignment nor the approved Four Mile Creek Alternative would sever irrigated lands served by mechanical systems. All affected farmland is presently irrigated by gravity flow systems, which would continue to function after the railroad ROW bisects the land.

In Tongue River II, the Board adopted a mitigation measure to minimize impacts on landowners resulting from severance of farmland (see Mitigation Measure 1, above). Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts resulting from implementation of the proposed Western Alignment, as well as for the approved Four Mile Creek Alternative, would not be significant.

Displacement of Capital Improvements. The proposed Western Alignment, like the approved Four Mile Creek Alternative, would follow a route that is primarily rural with few capital improvements. The proposed Western Alignment would not displace any residences; the approved Four Mile Creek Alternative would displace two. (See "Impacts on Other Land Uses" below.) As noted above under "Severed Farmland," no mechanical irrigation systems would be affected by the proposed Western Alignment or the approved Four Mile Creek Alternative. However, other capital improvements, such as outbuildings, fences, wells, and waterlines, could be displaced.

In Tongue River II, the Board adopted the following mitigation measure to minimize impacts resulting from the displacement of capital improvements:

> **Mitigation Measure 4 (Displacement of Capital Improvements).** Where capital improvements are displaced as a result of construction or operation of this rail line, TRRC shall relocate or replace these improvements or provide appropriate compensation based on the fair market value of the capital improvements being displaced. *[TRRC II, Land Use Condition (2), modified to provide additional clarity regarding fair market value compensation]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts from displacement of capital improvements resulting from implementation of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, would not be significant.

Effect on Prime Farmland. For either the proposed Western Alignment or the approved Four Mile Creek Alternative, the amount of prime farmland that would be taken out of production is not considered significant. For the proposed Western Alignment, like the approved Four Mile Creek Alternative, the only land with a potential for prime farmland status is irrigated farmland. For its analysis of the proposed Western Alignment in this Draft SEIS, SEA conservatively

assumed that all irrigated farmlands were prime farmlands. As shown in Table 4-17, the total amount of prime farmland that would be taken out of production by the construction of the proposed Western Alignment is estimated to be 11.5 acres, 5.5 of which are currently in use. The total amount of prime farmland that would be taken out of production by the construction of the approved Four Mile Creek Alternative was estimated to be 7.0 acres, of which 3.8 are currently in use.

In Tongue River II, the Board adopted a mitigation measure to minimize impacts on landowners resulting from the direct and indirect loss of land (see Mitigation Measure 1, above). Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts on landowners resulting from prime farmland being taken out of production from the proposed Western Alignment, like the approved Four Mile Creek Alternative, would not be significant.

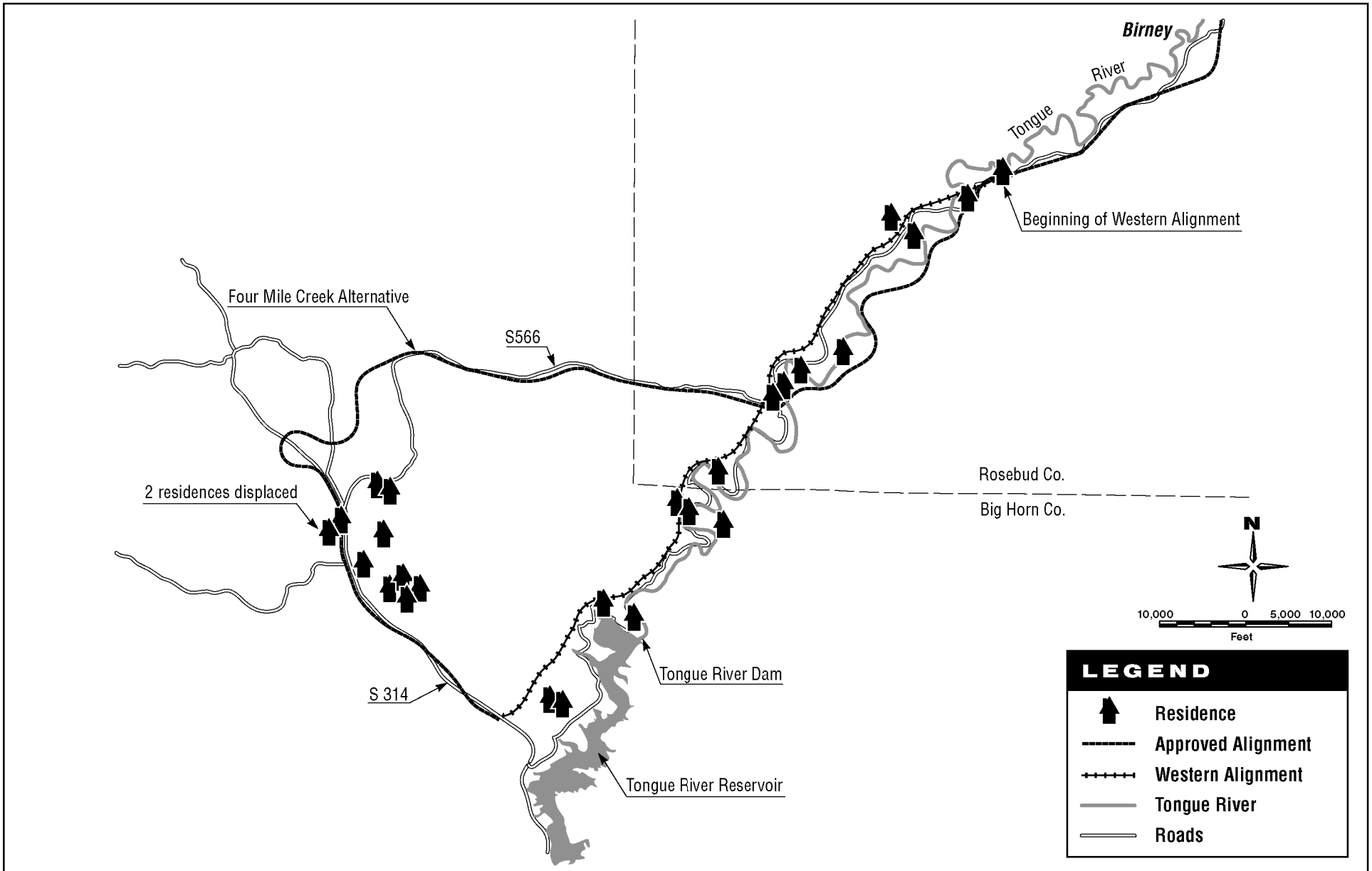
Impacts on Other Land Uses. As stated previously, the primary land use in the Tongue River area is agricultural rangeland. Residences, second-home subdivision sites, and recreational areas could also be affected by either the proposed Western Alignment or the approved Four Mile Creek Alternative.

Residences. The proposed Western Alignment would not result in any direct impacts on residences, because there are none within the proposed ROW, whereas the approved Four Mile Creek Alternative would displace two residences. (See Figure 4-8 for the location of residences in the vicinity of the ROWs.) These residences are located on the west side of S314, near where the approved Four Mile Creek Alternative crosses this road. One of these residences was constructed after approval of Tongue River II; the other existed before, but was not identified as part of that analysis.

Although the displacement of residences was not specifically addressed in Tongue River II, based on the information available to date, SEA preliminarily concludes that implementation of Mitigation Measure 4 (see above), adopted by the Board in Tongue River II, would be adequate to ensure that impacts resulting from implementation of the proposed Western Alignment or the approved Four Mile Creek Alternative, would not be significant.

Indirect impacts on residences, such as noise and vibration, would be temporary during construction and minor during operation. (See Section 4.3.8, "Environmental Consequences – Noise and Vibration," for a discussion of these impacts.) For the proposed Western Alignment, as well as the approved Four Mile Creek Alternative, visual impacts on residences would be minimal. (See Section 4.3.11, "Environmental Consequences – Aesthetics," for a discussion of these impacts.)\

Second-home Subdivision Sites. The second-home subdivision known as Cormorant Estates is located along the north shore of the Tongue River Reservoir. Cormorant Estates is located to the east of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, and would not experience significant direct effects, such as the loss of land, or indirect effects, such as noise and vibration, from the construction of either alignment. At its closest point, the proposed Western Alignment would be approximately 750 feet from the nearest Cormorant Estates residence, which is closer than the approved Four Mile Creek Alternative.



INDEX OF MAP LOCATION

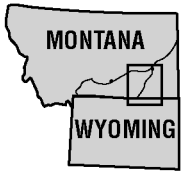


FIGURE 4-8

RESIDENTIAL STRUCTURES
ADJACENT TO RIGHTS-OF-WAY

Recreational Areas. Impacts on recreation resources are discussed in Section 4.3.10, "Environmental Consequences – Recreation."

Trespassing. Landowners have expressed concern that the presence of a railroad ROW adjacent to or bisecting their lands could result in trespassers. Given the isolated nature of the upper Tongue River Valley, trespassing would principally be a problem during the construction period for either the proposed Western Alignment or the approved Four Mile Creek Alternative. Following construction, access to the ROW would be limited to railroad maintenance, and portions of the ROW would be fenced and sign-posted to deter access by persons other than railroad personnel. Therefore, trespassing is far less likely to occur. Consultations between landowners and railroad construction personnel, facilitated by the establishment of a railroad liaison, should be sufficient to address any trespassing problems that might arise.

In Tongue River II, the Board adopted the following mitigation measures to minimize impacts on landowners resulting from construction:

> **Mitigation Measure 5 (Impacts During Construction).** During final engineering, TRRC shall consult with individual landowners to minimize conflict between construction activities and ranching operations. *[TRRC II, Land Use Condition (5), modified by minor edits]*
>
> **Mitigation Measure 6 (Construction Areas).** TRRC shall confine all construction activities to the railroad right-of-way and to the construction camps along the rail line, at locations to be negotiated between individual landowners and TRRC. *[TRRC II, Land Use Condition (6), modified by minor edits]*
>
> **Mitigation Measure 7 (Construction Camps).** TRRC shall require its contractors to assure that its construction camps are orderly. Upon completion of construction, TRRC shall return the camps to their previously existing use. *[TRRC II, Land Use Condition (7)]*
>
> **Mitigation Measure 8 (Construction Liaison).** TRRC shall appoint a representative, with direct access to management, to work with primary construction contractors, subcontractors, and affected landowners to address any problems that develop during construction. *[TRRC II, Land Use Condition (8)]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that construction impacts on landowners resulting from implementation of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, would not be significant.

4.3.1.3 Land Use Impacts of Operation and Maintenance

Operation of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would affect existing land use in its vicinity. Section 4.3.1.2 contains a discussion of lands that would be permanently converted to railroad ROW. Local residents and ranchers have expressed particular concern over several other aspects of railroad operations, including the possibility of wildfires and propagation of noxious weeds by passing trains. The issues associated with the operation of the proposed Western Alignment, and a comparison of the Four Mile Creek Alternative, are discussed in more detail below.

Range Fires. As was the case for the approved Four Mile Creek Alternative, range fires could increase due to the operation of the proposed Western Alignment. The most recent statewide fire data from MT DNRC (formerly the Montana Department of State Lands [MT DSL]) indicates that lightning strikes caused the greatest number of fires (54 percent) during the study timeframe (1993 through 2002). Equipment, including all mechanical equipment other than railroad equipment, such as airplane crashes, exhaust pipes, fuel sparks, chain saws, and broken electrical fences, was the second highest cause (20 percent). Rail operations accounted for only about two percent, ranking behind powerline sparks and debris burning. MT DNRC data indicate that a typical railroad-related wildfire affects 90 acres (John Monzie, MT DNRC, September 2003). The potential for range fires caused by rail operations is higher for the approved Four Mile Creek Alternative, due to its greater length and steeper grades.[29]

To assess the range-fire potential for the approved Four Mile Creek Alternative, SEA prepared a Railroad-Caused Fires Report for the Final EIS in Tongue River II, in which SEA concluded that the full effects of the construction and operation of the entire Tongue River Railroad are not clear, because of the many variables involved, such as fuel bed characteristics, weather patterns and fire fighter response. In Tongue River II, the Board adopted mitigation measures to minimize the impact of railroad-related wildfires (Tongue River II, Safety Conditions 4 through 7). BLM would have fire suppression responsibilities on public land for Type I and II[30] fires. SEA preliminarily recommends the adoption of the same measures for the proposed Western Alignment, with a modification of mitigation measures adopted in Tongue River II to clarify the language therein:

> **Mitigation Measure 9 (Wildfire Suppression and Control Plan).** Prior to construction of this rail line, TRRC shall develop a Wildfire Suppression and Control Plan for fires occurring on the right-of-way as a result of rail construction/operations or undetermined causes. TRRC shall observe the following measures in developing the plan:
>
> (1) The plan shall be developed with the Montana Department of Natural Resources and Conservation's Eastern Land Office, as well as other appropriate governmental agencies and volunteer fire departments along the route.
> (2) The plan shall be developed by TRRC after final engineering and overall operation plans are complete. This will afford planners the benefit of specific information regarding TRRC's operation, equipment, and personnel that might be of use in case a fire occurs.
> (3) State-of-the-art techniques for fire prevention and suppression shall be evaluated and included in the plan, as appropriate.
>
> *[TRRC II, Safety Condition (4), modified to clarify that the above measures are those required for fire suppression]*

[29] According to the Railroad-Caused Fires Report in the Tongue River II Final EIS, the two main causes of railroad embankment fires are carbon sparks in the exhaust when the train is running at full throttle and sparks from loaded trains requiring dynamic braking on downhill grades.

[30] The two types of teams that manage these fires are National Type 1, Interagency Management Teams, and Type 2, Geographic Area Teams.

Mitigation Measure 10 (Fire Prevention). To minimize the potential for railroad-caused fires, TRRC shall observe all general rail safety regulations promulgated by the Federal Railroad Administration regarding railroad operations. *[TRRC II, Safety Condition (4), modified to clarify that this measure is to help prevent fire]*

Mitigation Measure 11 (Fire Suppression). Prior to construction of this rail line, TRRC shall negotiate with local ranchers along the right-of-way the placement of fire suppression equipment so that it may be used to promptly extinguish fires during construction and operation of the line. *[TRRC II, Safety Condition (5), modified by minor edits]*

Mitigation Measure 12 (Fire Access Road). During construction and operation of this rail line, TRRC shall maintain a serviceable access road within, and access points along, the right-of-way at locations determined in consultation with the local fire officials, to permit entry to the railroad right-of-way of vehicles to aid in fire suppression. *[TRRC II, Safety Condition (6), modified by minor edit]*

Mitigation Measure 13 (Mobile Communications). Prior to beginning construction of this rail line, TRRC shall develop and install a mobile communications system between the local volunteer fire fighting units, train crews, and ranchers with property adjacent to the right-of-way to ensure adequate communication in emergency situations during construction and operation of this line. *[TRRC II, Safety Condition (7), modified by minor edit]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that wildfire impacts resulting from implementation of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, would not be significant.

Noxious Weed Propagation. See Section 4.3.2, "Environmental Consequences – Biological Resources," for a complete analysis of potential noxious weed effects, including a discussion of pertinent mitigation measures to prevent their introduction and spread.

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts on landowners resulting from implementation of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, would not be significant.

4.3.2 Environmental Consequences – Biological Resources

4.3.2.1 Summary

The proposed Western Alignment and the approved Four Mile Creek Alternative would traverse mostly rural land that is home to a wide range of terrestrial and aquatic biological resources. For both alignments, the primary biological resources affected would be plant and animal species of concern and waters of the United States, including riparian and wetland areas. Also, either alignment could lead to the introduction and dissemination of noxious weeds.

New Analyses. SEA's analysis of impacts on biological resources resulting from the construction and operation of the Four Mile Creek Alternative utilizes information contained in the EIS in Tongue River II and the Environmental Report prepared by TRRC in Tongue

River III. Because much of the proposed rail line would traverse private property not near public roads, access to the rail line was severely limited and ground-based surveys were not possible. To address this situation and provide the most accurate data possible, SEA conducted numerous studies based on aerial photography and aerial surveys to obtain the most current information for the proposed rail line corridor. Specific activities undertaken in support of the preparation of this Draft SEIS are listed in Section 4.2.2, "Affected Environment – Biological Resources."

Mitigation. Mitigation measures have been identified to reduce or avoid the impacts associated with construction and operation of either route. As part of this analysis, SEA identified nine new mitigation measures applicable to either route to address potential impacts on plant and animal species of concern. New mitigation measures would ensure that the following impacts are adequately addressed:

- Loss of vegetation leading to erosion. Mitigation describes the required method of revegetation to ensure cut and fill slopes are reestablished with appropriate local vegetation.

- Increase in roadkill during construction. Mitigation would require implementation of reduced speed limits to ensure that roadkill impacts are minimized during construction.

- Loss of wetlands. Mitigation would ensure that impacts are minimized to the extent feasible and that new wetlands are created to balance the number of acres that would be lost.

- Impacts to aquatic resources. Mitigation would ensure that aquatic resource sampling properly identifies aquatic resources. Mitigation would also ensure that the data collected in the sampling is used to develop proper measures to minimize harm to aquatic resources.

- Impacts to plant and animal species. Mitigation would ensure that preconstruction surveys are conducted to properly identify plant and animal species in the ROW. Mitigation would also ensure that TRRC adheres to the conditions of mitigation plans developed to protect those species.

SEA also preliminarily recommends modification of mitigation measures that were adopted by the Board in Tongue River I and Tongue River II. The purpose of modifying the mitigation measures adopted in Tongue River I is to include examples of best management practices, to clarify the goal of the wildlife compensation program, and to update the language to clarify that these mitigation measures have already been adopted by the Board. The purpose of modifying the mitigation measures adopted in Tongue River II is to clarify where vegetative reclamation activities would take place, to include examples of BMPs, to provide additional clarity regarding the noxious weed control requirements, to clarify the purpose and requirements of ground and air surveys, to clarify the goal of the wildlife compensation program, to clarify that public access would only be provided if the adjacent landowners agree, to ensure that the information critical to determining potential impacts to aquatic resources would be collected, to provide additional clarity regarding the roles and responsibilities of the Multi-agency/Railroad Task Force, discussed below, and to update the language to clarify that these mitigation measures have

already been adopted by the Board. These modified mitigation measures would also apply to either route.

Multi-agency/Railroad Task Force. In Tongue River II, because of the sensitivity of the biological resources in the vicinity of the approved Four Mile Creek Alternative, the Board adopted a mitigation measure requiring the establishment of a Multi-agency/Railroad Task Force to advise, assist, and coordinate with TRRC in accomplishing the pertinent mitigation measures adopted in Tongue River II.

SEA preliminarily recommends that the Task Force condition from Tongue River II apply to the proposed Western Alignment as well, and that the condition be modified to clarify the roles and responsibilities of the Multi-agency/Railroad Task Force, to add a requirement that TRRC retain a third-party independent contractor to assist the Board in its role as lead agency on the Task Force, to clarify that the Task Force would remain in existence during construction and for a period of two years following the commencement of rail operations or for whatever period the Board imposes, and to update the names of state agencies and members of the Task Force. SEA also specifically requests comments on what other functions the Task Force might perform.

> **Mitigation Measure 14 (Task Force).** TRRC shall participate as a member of a Multi-agency/Railroad Task Force. The purpose of the Task Force shall be to approve the implementation and monitoring of biological (i.e., terrestrial and aquatic) mitigation measures for the entire rail line (Tongue River I, Tongue River II, and Tongue River III), with the exception of such issues concerning the Miles City Fish Hatchery.
>
> Unless otherwise indicated in the mitigation conditions, TRRC is responsible for compliance with all biological mitigation conditions set forth below. As specified in the mitigation conditions themselves, TRRC shall prepare various surveys, plans and documents for review and approval by the Task Force. It is the responsibility of the Board representative on the Task Force to convene the Task Force when an appropriate issue involving terrestrial and aquatic matters arises. The Task Force, in conducting its review of any terrestrial and aquatic issues that are proposed to it, shall attempt to reach agreement and approval through consensus. However, if a consensus cannot be reached by the Task Force members, a vote will be taken and approval will be determined by a majority of the Task Force members present (at least one half of the members present plus one vote). If the Task Force is unable to reach a decision, either through consensus or by a majority vote, the Board representative on the Task Force will bring a recommended resolution back to the Board, at which time the Board will make a final decision.
>
> Task Force members shall participate in the Task Force at their own discretion and expense and to the extent that their resources permit. Further, Task Force members may use additional resources available to them to accomplish mitigation. Other interested parties may be invited to participate as appropriate.
>
> Those agencies who have agreed to participate on the Task Force include the Board, Montana Department of Fish, Wildlife and Parks (MT DFWP), Montana Department of Natural Resources and Conservation (MT DNRC), United States Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), and United States Corps of Engineers (Corps). TRRC has also agreed to participate. The Board will act as the lead agency to

coordinate the Task Force. Each participating agency, as well as TRRC, shall designate representative(s) to work with the Task Force.

The Task Force will remain active until TRRC certifies to SEA that the rail line construction has been completed and that all construction mitigation measures have been implemented and for a period of two years of rail operations or any other period the Board may impose. *[TRRC II, Aquatic Condition A.9.1 General, modified to provide additional clarity, duration, and responsibilities to the Task Force]*

Mitigation Measure 15 (Material Changes). If there is a material change in the facts or circumstances upon which the Board relied in imposing specific environmental mitigation conditions, and upon petition by any party who demonstrates such material change, the Board may review the continuing applicability of its final mitigation, if warranted. *[TRRC III, new]*

Mitigation Measure 16 (Third-party Contractor). TRRC shall retain a third-party contractor to assist SEA in the monitoring and enforcement of mitigation measures on an as-needed basis until TRRC has completed project-related construction and for a period covering the first two years of railroad operations or for any oversight period the Board may impose. *[TRRC III, new]*

Mitigation Measure 17 (Reporting). TRRC shall submit to SEA on no less than a quarterly basis, beginning with the effective date of the Board's final decision in Tongue River III and continuing for the first two years of railroad operations, or for any other period that the Board may impose, reports documenting the status of implementation of the Board's final environmental mitigation conditions. *[TRRC III, new]*

Conclusion. Based on the information available to date, SEA preliminarily concludes that these measures, in conjunction with the other measures identified in this section, would be adequate to ensure that the impact on biological resources from the construction and operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

4.3.2.2 Construction-period Impacts on Biological Resources

The construction of the proposed Western Alignment or the approved Four Mile Creek Alternative would result in both short-term and long-term impacts to biological resources. For both alignments, construction would result in the greatest potential for impacts to biological resources. Impacts on terrestrial biological resources would include the removal or alteration of vegetation along the ROW and the resulting loss of some wildlife habitat and displacement of some wildlife, as well as the destruction of members of relatively non-mobile species. Impacts on aquatic biological resources would include increased sedimentation, increased potential for toxic spills, and loss of habitat because of increased restrictions to the floodplain.

SEA consulted with MT DNRC, MDEQ, MT DFWP, BLM, the Corps, and USFWS to identify impacts on biological resources arising from the construction of the proposed Western Alignment. In addition, SEA utilized additional information and studies provided by TRRC, and performed its own analyses. SEA undertook these consultations, reviewed and verified information and studies provided by TRRC, and performed new analyses to determine the

potential impacts of the proposed Western Alignment and to ensure that the information in the EIS in Tongue River II relevant to the approved Four Mile Creek Alternative provides an accurate comparison for the potential impacts of the two alignments. The results of SEA's analysis are shown below. Measures 18 through 35 are measures intended to mitigate the impacts that have been identified.

Vegetation. ***Federal Species of Concern.*** Surveys conducted as part of the BA did not identify any Federally listed threatened or endangered species in the area along the ROW of either the proposed Western Alignment or the approved Four Mile Creek Alternative. There are three Federally listed threatened or endangered plant species known to occur in Montana: water howellia (*Howellia auqatilis*), spalding's campion (*Silene spaldingii*), and ute ladies' tresses (*Spiranthes diluvialis*). These species are not likely to occur in the project area (McMaster 1999).

While no Federally listed threatened or endangered plant species have been identified in the area along the ROW for either the proposed Western Alignment or the approved Four Mile Creek Alternative, SEA was unable to conduct the ground-level surveys of the entire ROW that would confirm this conclusion because of access restrictions to the proposed ROW. Therefore, a final determination regarding the existence of Federally listed threatened or endangered species along the proposed Western Alignment or the approved Four Mile Creek Alternative ROW would be made prior to construction, once access to the ROW is secured.

The EIS in Tongue River II does not directly address impacts from the approved Four Mile Creek Alternative on Federal and state plant species of concern. Based on the analysis conducted in connection with the proposed Western Alignment, SEA preliminarily recommends the adoption of the following mitigation measure to address potential impacts on Federal and state plant species of concern for either the proposed Western Alignment or the approved Four Mile Creek Alternative:

> **Mitigation Measure 18 (Plant Species of Concern).** TRRC shall conduct a field search of the alignment during final-phase engineering of this line to identify plant species of concern (Federal and state) and to implement appropriate mitigation measures during construction activities if such species are found. This field search shall be conducted during the appropriate time of year to identify any potential rare plant species. (The survey schedule shall be approved by the Task Force in accordance with the process set forth in Mitigation Measure 14.) TRRC shall prepare and implement a formal mitigation plan approved by the Task Force for minimizing impacts on species of concern. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this new measure would be adequate to ensure that the impact on plant species of concern (Federal and state) from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant. The Task Force to which this mitigation measure refers is discussed in Section 4.3.2.1, "Summary," under "Multi-agency/Railroad Task Force" (Mitigation Measure 14).

State Species of Concern. There are 20 state plant species of concern as listed by MT NHP (2003a) for which potential habitat occurs in the vicinity of the proposed Western Alignment and the approved Four Mile Creek Alternative. (See Section 4.2.2, "Affected Environment –

Biological Resources.") While no species of concern have been identified in the area along the ROW for either the proposed Western Alignment or the approved Four Mile Creek Alternative, SEA was unable to conduct the ground-level surveys of the entire ROW that would confirm this conclusion because of limited access to the portion of either ROW that crosses private property. The final determination regarding the existence of state species of concern along the proposed Western Alignment or the approved Four Mile Creek Alternative ROW would be made prior to construction, once access to these areas is secured. Mitigation Measure 18, discussed above, addresses potential impacts on Federal and state vegetative species of concern.

Based on the information available to date, SEA preliminarily concludes that the implementation of Mitigation Measure 18 would be adequate to ensure that the impact on vegetative species of concern (Federal and state) from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Other Vegetation. SEA analyzed potential impacts on vegetation using aerial photography, USGS maps, and field inspection from public roadways and publically accessible areas. Using these aids, SEA determined that the construction of the proposed Western Alignment would directly affect approximately 513 acres, and that the construction of the approved Four Mile Creek Alternative would directly affect approximately 542 acres. The vegetation or habitat types affected by each alignment would be similar: a mixture of pine, juniper, grassland, sagebrush, agriculture, prairie, deciduous trees, shrubs, and breaks. Vegetation would be able to return to disturbed areas after construction is completed, except for the areas within the ROW used for the track, ballast, and drainage ditches.[31] The total amount of disturbed area for which revegetation is expected to occur is approximately 429 acres for the proposed Western Alignment and 399 acres for the approved Four Mile Creek Alternative. Table 4-18 shows the specific acreage that would be disturbed for each habitat type.

Table 4-18 – Disturbed Acres by Habitat Type for the Proposed Western Alignment and the Approved Four Mile Creek Alternative

Habitat Type	Proposed Western Alignment	Approved Four Mile Creek Alternative
Pine/Juniper	236.0	156.8
Silver Sagebrush/Grassland	78.7	41.2
Big Sagebrush/Grassland	110.6	98.1
Skunkbush/Sumac/Grassland	0.3	20.0
Breaks	50.3	29.2
Agriculture/Disturbed Sites/Pasture	5.1	21.9
Greasewood/Grassland	0.0	0.0

[31] Track and ballast width is typically 28 feet. Drainage ditch width is typically 12 feet. Based on these figures, the area in which revegetation would not occur would be approximately 84 acres for the proposed Western Alignment and 143 acres for the approved Four Mile Creek Alternative. The analysis of area unavailable for revegetation is conservative because it assumes that drainage ditches would be required over the length of the alignment, whereas they would most likely only be necessary along slopes.

Habitat Type	Proposed Western Alignment	Approved Four Mile Creek Alternative
Prairie	15.1	123.4
Deciduous Tree/Shrub	1.2	7.6
Irrigated Farmland (in use)	4.2	2.7
Irrigated Farmland (not in use)	4.6	2.3
Non-irrigated Farmland	6.9	38.8
Total	**513.0**	**542.0**

Sources: WESTECH 1998; Mission Engineering 1999.
Note: Total acres are actual disturbed areas, which include most but not all of the ROW, because sometimes the ROW is wider than the disturbed area.

The loss of vegetation due to the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative could destabilize soils and increase erosion from wind and water. This impact would be slightly higher for the approved Four Mile Creek Alternative because it would disturb a greater number of acres than the proposed Western Alignment (542 acres and 513 acres, respectively). Revegetation would occur naturally in disturbed areas after construction is complete. Planned revegetation would be performed in those areas where revegetation is needed to also stabilize soils after final engineering and grading.

In Tongue River II, the Board adopted mitigation measures to promote timely revegetation in sensitive vegetation area. SEA preliminarily recommends the modification of these measures to update them for either the proposed Western Alignment or the approved Four Mile Creek Alternative based on current information and to provide improved clarity as to where reclamation activities would take place:

> **Mitigation Measure 19 (Reclamation).** During construction of this line, TRRC shall implement reclamation and revegetation of the right-of-way (ROW) at the earliest possible time after clearing has been completed. Revegetation shall be implemented only in those ROW areas with adequate substrate and grade. Wherever possible, construction and attendant revegetation shall be expedited. The following generally accepted practices shall be employed in the reclamation process: *[TRRC II, Vegetation Condition A.9.3.2(1), modified to clarify where reclamation activities shall take place]*
>
> (1) **Preconstruction Planning** – TRRC shall include the following elements in its reclamation planning:
> (a) Designation of sensitive areas.
> (b) Proposed time schedule of construction activities.
> (c) Right-of-way clearing and site preparation plans.
> (d) Preconstruction evaluation of soils to be disturbed. The soils' A horizon (the A horizon is the topmost soil layer that is commonly made up of unconsolidated organic matter (e.g., leaf litter) and is not saturated with water) shall be identified, removed, stored, and replaced prior to revegetation.
> (e) Erosion and sediment control plans.
> (f) Waste disposal plan.

(g) Restoration, reclamation, and revegetation plan. *[TRRC I, Condition 10.3(1)(a); TRRC II, Vegetation Condition A.9.3.2.(1)(a), modified to include soils evaluation]*

(2) **Restoration/Reclamation Plan** – TRRC shall follow the following procedures in its restoration and reclamation plan:

(a) Commencement of reclamation as soon as practicable after construction ends, with the goal of rapidly reestablishing ground cover on disturbed soils that could support vegetation, with all cut and fill slopes mulched and seeded as they are completed.

(b) Avoidance of reclamation when soil moisture is high or ground is frozen.

(c) Use of straw mats in the revegetation process to reduce erosion and to add carbon back into the soil system to promote the accumulation of soil organic matter.

(d) Ripping and disking of soils prior to revegetation to prevent compaction of soils and to increase the ability of plant roots and water to penetrate the soil.

(e) Analysis of site soil requirements and seasonal precipitation patterns to identify planting dates for optimal revegetation success.

(f) Use of rapidly establishing plant species for thorough and rapid ground surface protection.

(g) Retention of a reclamation specialist to determine specific procedures for reclamation on steep slopes or locations near waterways.

(h) Revegetation shall not be implemented uniformly along the entire rail line, but rather revegetation criteria shall be based on the circumstances present in specific construction areas to assure that habitat and functionality are maintained within each ecosystem. *[TRRC II, Vegetation Condition A.9.3.2(1)(b), modified to clarify where reclamation efforts would be successful and include additional measures]*

(3) **Revegetation Success Assurances** – To ensure revegetation success, TRRC shall implement the following measures:

(a) Development of an inventory and documentation of pre-existing conditions.

(b) The type and quantity of seed, fertilizer, and other soil amendments to be used shall be determined based on soil chemical and physical properties. TRRC shall use native species for revegetation, where possible, unless alternatives are approved, in advance of application, by the Task Force in accordance with the process set forth in Mitigation Measure 14. On BLM tracts, all seeds shall be from native species. Species to be used for revegetation may include, but are not limited to:

- western wheatgrass (*Pascopyrun smithii (Agropyron s.)*)
- green needlegrass (*Nasella viridula (Stipa v.)*)
- sideoats grama (*Bouteloua curtipendula*)
- little bluestem (*Schizachyrium scoparium*)
- blue grama (*Bouteloua gracilis*)

(c) Segregation of topsoil from subsoil and topsoil stockpiled for later application on the reclaimed ROW.

(d) Use of only seed of registered quality and germination success, that has been certified as weed-free.

(e) Use of appropriate seeding techniques, such as drill seeding on level terrain and broadcast seeding or hydroseeding on slopes, to ensure distribution of seed mixture on individual microenvironments.

(f) Use of mulch material that has been certified as weed free, such as straw and woodchips, as a temporary erosion measure and to minimize soil temperature

fluctuations and soil moisture loss. Mulch shall be applied more heavily on slopes than on level terrain, and nitrogen levels shall be adjusted to reflect the increased demand during mulch decomposition.

(g) Cover and compaction of seeded area following seeding.

(h) Use of a minimum of 20 pounds per acre of pure live seed throughout the route, where applicable.

(i) For slopes and construction areas near waterways, employment of a variety of Best Management Practices, including the use of sediment traps/basins, berms, contour furrows, silt fencing, straw bale barriers, rock checkdams, slope drains, toe-slope ditches, diversion channels, sodding, and erosion control blankets and/or mulching.

(j) Monitoring of reclamation. Regrading shall be undertaken for revegetating areas not successfully reclaimed.

(k) Development of success criteria.

(l) Development of a timeline for completion of the revegetation plan as well as follow-up monitoring and enforcement of the revegetation plan and success criteria. *[TRRC I, Condition 10.3(1)(c); TRRC II, Vegetation Condition A.9.3.2(1)(c), modified to include examples of BMPs and Task Force approval]*

(4) **Provisions for Areas of Special Concern**

(a) On all slopes less than 3:1 (a slope of 3:1 signifies 1 vertical unit for every 3 horizontal units), BMPs shall be utilized to effectively and efficiently revegetate the surfaces. BMPs have been identified by the National Resource Conservation Service (NRCS) for Montana, and these BMPs will be the primary guidance for all revegetation on slopes less than 3:1. Each cut and fill slope shall be evaluated individually, and the practices shall be modified to meet the needs of each individual slope and conditions. In general, these BMPs will be utilized unless site-specific conditions warrant different management practices. Below is a list of general BMPs that could be utilized by TRRC for revegetation of slopes less than 3:1, depending on the site-specific conditions at each individual cut/fill slope.

1. Construction of furrows parallel to the slope contour to minimize erosion and stabilize seed beds by effectively reducing the length of the slope, which in turn will reduce the erosive properties of water by decreasing the water's kinetic energy.
2. Minimization of foot traffic and grazing of domesticated animals so that the emerging vegetation at the site will establish more quickly.
3. Weed control either by clipping or applying labeled herbicides so that decreased competition from invasive species will enable the intended species to maximize the use of limited soil, water, and nutrients.
4. Preparation of the site seed bed utilizing standard agricultural techniques (e.g., disking, ripping) to facilitate plant emergence. If the site has limited topsoil, additional salvaged soil shall be placed on the surface to facilitate the preparation of the seed bed and provide a minimum of 4 inches of soil for revegetation activities.
5. Practice of fertilization rates, species selection, and seeding rates on a site-specific basis by a range management specialist. All seeds utilized in the revegetation program shall comply with Montana State Seed Law and Regulations.

6. Use of varying seeding methods at the cut/fill sites, including broadcast seeding, hydroseeding, or traditional agricultural drilling methods. If the site is planted by broadcast or hydroseeding, the seeding rates shall be doubled to ensure adequate plant emergence.
7. Mulching on all slopes less than 3:1 to minimize erosion using mulches such as straw woven fabric or artificial mulches based on site-specific conditions.
8. Additional temporary measures to reduce run-on onto the revegetated site. On sites where run-on could be a significant contributor to erosion, temporary diversion devices may be warranted to route water around the revegetated area. These diversion devices shall be removed once the site has been successfully revegetated. Additionally, the diversion devices shall be constructed to minimize concentration of water that could cause excessive erosion on non-disturbed sites.
9. If the cut/fill slope material is primarily clinker or bedrock, the slope shall not be revegetated. *[TRRC II, Vegetation Condition A.9.3.2(1)(d)3, modified to include additional specifics regarding slopes] [TRRC II, Vegetation Condition A.9.3.2(1)(d)1; deleted here, inserted as modified as HYD-5]; [TRRC II, Vegetation Condition A.9.3.2(1)(d)2; deleted here, inserted as modified as SAF-10]*

Based on additional analysis conducted in connection with the proposed Western Alignment, SEA preliminarily recommends adoption of the following mitigation measure in addition to the mitigation measure adopted in Tongue River II. This additional measure, which would be added to measure A.9.3.2(1)(c) adopted in Tongue River II, would ensure that the revegetation plan is adhered to.

Mitigation Measure 20 (Task Force Oversight of Revegetation Plan). TRRC's revegetation plans shall be subject to review and approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. If it becomes clear that the success criteria of the revegetation plans are not feasible, the Task Force shall approve appropriate alternate mitigation. Yearly monitoring schedules and funds shall be arranged prior to construction of each rail segment, and work plans shall be approved by the Task Force in accordance with the process set forth in Mitigation Measure 14 before final engineering is complete. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these approved, modified, and new measures would be adequate to ensure that the impacts associated with devegetation from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Noxious Weeds. Ranchers have expressed concern about the introduction and propagation of noxious weeds along the ROW resulting from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative. In addition to being a fire hazard, weeds can also reduce crop production. Because of its greater length, the approved Four Mile Creek Alternative has a greater potential for promoting the propagation of noxious weeds than the proposed Western Alignment.

In Tongue River II, the Board adopted mitigation measures to prevent the spread of noxious weeds. SEA recommends the modification of these measures to provide additional clarity regarding the noxious weed control requirements:

> **Mitigation Measure 21 (Noxious Weed Control).** TRRC shall construct the rail line in compliance with county weed control plans for Rosebud and Big Horn counties, Montana. Except for the portion of the right-of-way described in Mitigation Measure 85 in and near the Miles City Fish Hatchery, TRRC, in consultation with local ranchers, the county extension agents, and the Task Force, shall develop a reasonable written Noxious Weed Control Program prior to commencing any construction of the rail line. The program shall include requiring construction methods that minimize the introduction and spread of noxious weeds, including the use of sterile ballast, weed-free seed straw, mulching, and hydroseeding materials. TRRC shall also minimize digging in areas where the rhizomes of rhizomatous weed species such as leafy spurge might be cut and spread throughout the site.
>
> (1) The noxious-weed-control program shall include a combination of mechanical and herbicide spray methods to control noxious weeds. TRRC shall use mechanical removal of weeds near watercourses wherever feasible, depending upon time of year. Spray sequences shall be utilized to ensure that weed plants do not reach maturity.
>
> (2) TRRC shall keep and reference records of herbicide application dates to ensure that the noxious-weed-control program goals are fulfilled. TRRC shall submit a report of weed control activities to the Task Force annually during construction. In all cases, only trained, licensed personnel shall be involved in noxious-weed-control applications. *[TRRC II, Vegetation Condition A.9.3.2(2), modified to provide additional clarity regarding the noxious weed control requirements]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this modified measure would be adequate to ensure that the impacts associated with noxious weeds from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant. The Task Force referred to in this mitigation measure is discussed in Section 4.3.2.1, "Summary," under "Multi-agency/Railroad Task Force" (Mitigation Measure 14).

Wetlands. SEA determined that the approved Four Mile Creek Alternative would impact nearly four times as many acres of wetlands as the proposed Western Alignment. Table 4-19 provides the amount of disturbed acreage at each creek or river crossing, as estimated from aerial photos. The actual amount of disturbed acreage at each wetland location would be determined prior to construction once more precise engineering plans are developed.

Table 4-19 – Estimated Disturbed Acreage for Wetlands Impacted by the Proposed Western Alignment and the Approved Four Mile Creek Alternative

Site	Location	Disturbed Acreage
Western Alignment		
1	Crossing of Tongue River, South Side	1.55
2	Canyon Creek	0.14
	Total	**1.69**
Four Mile Creek Alternative		
1	Wall Creek	0.63
2	Harris Creek	0.84
3	Crossing of Tongue River, East Side	2.75
4	Crossing of Tongue River, West Side	1.87
	Total	**6.09**

Sources: Mission Engineering 1999; WESTECH 1998.

According to the current Corps administrative policy of "no net loss" of wetlands, any wetlands that are drained or filled by railroad construction would require replacement somewhere within the same general vicinity. The minimum wetland replacement ratio is 1:1, although the actual ratio is often higher because functions and values of impacted wetlands often vary among different projects.

Based on additional analysis conducted in connection with the proposed Western Alignment, SEA preliminarily recommends the adoption of the following mitigation measures to address potential impacts to wetlands from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative:

> **Mitigation Measure 22 (Wetland Permit).** TRRC shall adhere to the reasonable mitigation measures identified in the Conceptual Habitat Mitigation Plan (a document prepared to determine the appropriate habitat mitigation) as otherwise imposed by the U.S. Corps of Engineers in any Section 404 permit(s) issued by the Corps for construction of the line. *[TRRC III, new]*
>
> **Mitigation Measure 23 (Stream Survey).** Prior to construction of each rail segment and once site access is granted, TRRC shall, in consultation with the Montana Department of Natural Resources, conduct surveys of ephemeral streams that would be crossed by the railroad to determine the potential impacts of erosion and sedimentation on state species of concern and consult with MT DNRC on appropriate mitigation. *[TRRC III, new]*

Mitigation measures identified in the Conceptual Habitat Mitigation Plan include refining the alignment and using design and techniques to avoid wetlands, minimize placement of fill in streams, and protect and, if necessary, reclaim the area affected by construction. Appendix D contains the Conceptual Habitat Mitigation Plan.

Based on the information available to date, SEA preliminarily concludes that these new measures would be adequate to ensure that the impacts on wetlands from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Wildlife. ***Federal Species of Concern.*** Six Federally listed threatened or endangered species were identified to possibly occur in the vicinity of the proposed rail line from Miles City to Decker via either the proposed Western Alignment or the approved Four Mile Creek Alternative: black-footed ferret, whooping crane, interior least tern, bald eagle, pallid sturgeon, and mountain plover (USFWS, Letter to SEA, January 19, 1999).

The following section discusses potential impacts to the black-footed ferret, the bald eagle and the pallid sturgeon resulting from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative. It is anticipated that the whooping crane, interior least tern, and mountain plover would not be impacted by construction of the project. (See Appendix L for a discussion of lack of impacts to certain threatened or endangered species and Chapter 5, "Focused Review of Tongue River I and Tongue River II," for a discussion of potential impacts to Federally listed threatened and endangered species located north of the proposed Western Alignment.)

The Board, in Tongue River II, adopted mitigation measures to reduce impacts to Federally listed threatened and endangered species to less than significant levels [TRRC II, Wildlife Condition, A.9.3.1(1); TRRC II, Wildlife Condition, A.9.3.1(2)(a-g); TRRC II, Wildlife Mitigative Conditions, A.9.3.1.1(1-2)]. SEA preliminarily recommends that the following mitigation measure supersede the aforementioned measures from Tongue River II, and apply (on both the approved Four Mile Creek Alternative and the proposed Western Alignment) to all of the Federally listed threatened and endangered species discussed in this section, including the black-tailed prairie dog, black-footed ferret, whooping crane, interior least tern, bald eagle, pallid sturgeon, and mountain plover:

> **Mitigation Measure 24 (Biological Opinion).** TRRC shall adhere to the mitigation conditions imposed by the U.S. Fish and Wildlife Service in a Biological Opinion, if any is issued for the TRRC line. If no Biological Opinion is issued, TRRC shall adhere to the mitigation measures in the Biological Assessment addressing construction and operation of the rail line. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that this measure would be adequate to ensure that the impacts of the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative on Federally listed threatened and endangered species of concern would not be significant. See Appendix L for the BA.

Black-footed Ferret. Since critical habitat for the black-footed ferret is prairie dog colonies, it is assumed that ferrets will occur in or near prairie dog colonies if they are within the area potentially affected by the proposed Western Alignment or approved Four Mile Creek Alternative.

The Spring 2004 aerial survey found six prairie dog colonies that would be traversed by the proposed Tongue River Railroad, totaling approximately 87 acres, none of which are located

within the approved Four Mile Creek Alternative or the proposed Western Alignment. However, the 87 acres represent less than 16 percent of the total colony. Therefore, although construction is expected to impact black-tailed prairie dog colonies, and possibly to affect individuals within colonies, it would not necessarily impact the colony as a whole. Displacement of black-footed ferrets due to construction activities could also occur but would be short term because undisturbed burrows would likely be reoccupied shortly after human activity ceased.

Other potential effects to black-footed ferrets include mortality from trains, and impacts from fires, dust, potential fuel spills, or other rail line accidents. Such impacts would be short term and would be limited to comparatively small areas and numbers of ferrets. They would not affect local or regional populations of ferrets.

It is not expected that landowner attitudes towards prairie dogs would change as a result of the construction and operation of the Tongue River Railroad. Thus, ranchers would be expected to continue to control prairie dogs periodically on their property.

Reasonably foreseeable related and unrelated actions and cumulative effects on black-footed ferrets, which typically inhabit prairie dog colonies, would include the following:

1. Assuming construction of the Tongue River Railroad results in the development of two or three coal mines in the Ashland area, direct and indirect impacts associated with these mines could potentially affect other existing prairie dog colonies. These direct and indirect impacts would be similar to those for the Tongue River Railroad.
2. Recreational hunting of prairie dogs might increase as an indirect effect of the increasing human population in the region. However, the intensity of recreational hunting would depend on private landowner permission and cooperation.
3. The Tongue River Basin Project would directly affect one small, apparently isolated prairie dog colony (Albers 1995).

Bald Eagle. The greatest potential impact of construction of the proposed Western Alignment near an active bald eagle nest would be increased stress to a breeding pair during the nesting season, which could result in nest abandonment or failure. Construction activities might also displace certain kinds of prey, such as waterfowl and other birds. Such displacement would be localized and short term. Other types of prey, including fish, would not be significantly affected, and even this minor effect would be short term and would occur only during the construction period.

Indirect effects to bald eagles from construction would be related to the presence of the construction work force, and would potentially include (1) recreational activities (e.g., fishing, hunting, hiking, camping, wildlife observation) relocated to the area due to the increased usage by the construction work force; (2) mortality of bald eagles from vehicles along access roads, particularly if bald eagles were attracted to these roads by the presence of carrion such as vehicle-killed deer (USFWS 1986); and (3) an increased potential for illegal killing of bald eagles as a result of an increased number of people in the area. Once construction is completed and the construction work force departs, these impacts would cease.

Because bald eagles generally prefer areas adjacent to the river, they would be less disturbed by construction of the approved Four Mile Creek Alternative than by the proposed Western Alignment.

Pallid Sturgeon. Since the pallid sturgeon is not known to occur in the reaches of the Tongue River potentially affected by construction and operation of the proposed Western Alignment or the approved Four Mile Creek Alternative (i.e., bridge crossings and riprap areas), there would be no direct effect to this species.

An indirect effect of both the proposed Western Alignment and the approved Four Mile Creek Alternative on pallid sturgeon could include additional sediment loads during construction where the rail line crosses a stream. This effect would be insignificant compared to normal sediment loads in the Tongue River, particularly since potential occupied pallid sturgeon habitat is far downstream from either the proposed Western Alignment or the approved Four Mile Creek Alternative. Effects such as accidental fuel spills into the Tongue River could affect water quality and influence spawning success of the pallid sturgeon in the lower Tongue River and Yellowstone River. These impacts would likely be controlled by TRRC's spill-control efforts prior to any intrusion into pallid sturgeon habitat.

Tongue River II does not directly address construction-period impacts on the pallid sturgeon, although mitigation measures adopted in Tongue River II to reduce potential increases in sediment load would reduce impacts on this species. (See Section 4.3.4, "Environmental Consequences – Hydrology and Water Quality.") As part of this Draft SEIS, SEA developed Mitigation Measure 23, discussed previously in this section, to further reduce potential impacts on pallid sturgeon and other species of concern.

Based on the information available to date, SEA preliminarily concludes that the implementation of Mitigation Measure 23 would be adequate to ensure that the impacts on pallid sturgeon from the construction of the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

State Species of Concern. There are 20 state species of concern, as listed on MT NHP's Species of Concern List (2003a), for which potential habitat occurs in the vicinity of the proposed Western Alignment and the approved Four Mile Creek Alternative. These species include the Great Plains toad, plains spadefoot toad, northern leopard frog, snapping turtle, spiny softshell turtle, sagebrush lizard, greater short-horned lizard, western hognose snake, milk snake, American white pelican, bald eagle, northern goshawk, Baird's sparrow, Cassin's kingbird, dwarf shrew, Merriams's shrew, spotted bat, Townsend's big-eared bat, pallid bat, and meadow jumping mouse.

With the exception of the bald eagle, the black-footed ferret, and the black-tailed prairie dog, discussed previously in this section under Federal species of concern, all the state species of concern may be present within the proposed ROW of either the proposed Western Alignment or the approved Four Mile Creek Alternative. Surveys would be completed along the entire railroad ROW prior to construction to determine more precisely the potential for the existence of state species of concern and impacts to possible habitat areas. If state species of concern are present, construction and operation of either alignment could result in mortality and/or displacement from disturbed habitat.

Although the potential impacts to state species of concern are not specifically addressed in Tongue River II, modifications are now proposed to Wildlife Conditions that were adopted by the Board in Tongue River II. These modifications would minimize impacts to state species of concern under either the proposed Western Alignment or the approved Four Mile Creek Alternative. (For those state species of concern that are also listed as threatened or endangered on the Federal list, mitigation measures are described in the BA.) The measures listed below are also intended to address potential impacts to other wildlife species, as discussed later in this section.

Mitigation Measure 25 (Aerial Survey). TRRC shall conduct an updated biological aerial survey during the winter before construction of each segment of the rail line begins. This aerial survey shall attempt to identify specific locations for ground surveys and any new winter ranges of species of concern. It shall also attempt to locate potentially active raptor nests especially in deciduous tree areas, while leaves are down. In addition, the aerial survey shall attempt to locate new prairie dog colonies along the route. Using the results of the surveys, TRRC will develop appropriate mitigation measures to minimize harm to species of concern, as needed, for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Condition A.9.3.1(1), modified to clarify that aerial surveys shall be required for species of concern and involvement of Task Force in developing any needed new conditions]*

Mitigation Measure 26 (Data Reconnaissance). Prior to the beginning of construction of each segment and once full access to the site of the railroad right-of-way is obtained, TRRC shall conduct aerial and ground-level surveys, as appropriate. Surveys shall be conducted to determine if construction of the line will traverse any additional prairie dog colonies. The surveys shall also determine the existence of black-footed ferrets. If black-footed ferrets are discovered, the Montana Department of Fish, Wildlife, and Parks shall be notified. Based on the surveys, TRRC shall develop appropriate means to mitigate the effects of construction and operation of the line on the black-tailed prairie dog and the black-footed ferrets for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14.

The surveys shall also locate habitat areas and nesting sites for the following species on the entire rail line. The surveys shall be conducted during the following time periods:

Big GameWinter Range	December 1 to February 28
Sage/Sharp-tailed Grouse	March 15 to June 15
Raptors/Migratory Birds	May 15 to June 15
Bats	July 1 to July 31
Breeding Birds	May 15 to June 15
Reptiles/Amphibians	July 1 to August 31

TRRC shall identify big game winter range and active nests of sage grouse, sharp-tailed grouse leks (mating grounds) and raptors, particularly golden eagles and prairie falcons prior to the construction of any rail segments, on a map as part of the aerial and ground surveys. In each subsequent year of construction, additional surveys shall be conducted annually for the section (distance) of line that is to be built in that year. Due to the potential for nest initiation in the years after the initial survey, surveys shall be conducted according to

standard survey procedures during summer to determine the presence of nests or of reptile and amphibian species. Pedestrian surveys shall be done to locate habitat areas as well as indicate recent activity. Using the results of the surveys, TRRC shall develop appropriate mitigation measures, as needed, for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Condition A.9.3.1(2), modified to better explain reason for distance-specific annual surveys and involvement of Task Force if new conditions are needed]*

(1) The purpose of the reconnaissance shall be to locate (a) big game winter range based on evidence, such as animal remains, hair, pellet groups, etc.; (b) sage grouse and sharp-tailed grouse leks; and (c) raptor nests, particularly golden eagles and prairie falcons. Any evidence of state or Federal threatened, endangered, or sensitive species shall also be documented during the reconnaissance. *[TRRC II, Wildlife Condition A.9.3.1(2)(a), modified to include Federally threatened, endangered or sensitive species]*

(2) Any specific-use sites that are identified during the reconnaissance shall be mapped, described in field notes, photographed and evaluated for significance. Nesting species of concern shall not be disturbed during reconnaissance. Nests shall be described as active or inactive. Results of the ground reconnaissance shall be presented and used by TRRC for developing mitigation measures to minimize impacts to sensitive wildlife and wildlife-use areas for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. This could include, but would not be limited to, restricting construction activities near nests during the nesting period; employing nest site monitors to gauge the level of disturbance and halt construction if disturbance is great; and requiring off-site habitat enhancement or replacement for unavoidable losses of sensitive wildlife resources. *[TRRC II, Wildlife Condition A.9.3.1(2)(b), modified to provide additional clarity and involvement of the Task Force and include other possible mitigation measures]*

(3) Surveys for sage and sharp-tailed grouse leks shall be conducted following the Montana Sage Grouse Conservation Plan of the Montana Sage Grouse Work Group. If a possible lek site is identified, observations shall be made between March 15 and June 15 to verify activity at each site. Surveys shall be conducted at dawn to listen for male activity at each lek and shall be completed at least five days apart.

The extent of each lek shall be mapped. Vegetative cover suitable for nesting and brooding habitat adjacent to each active lek shall also be mapped within a one-mile radius of the lek. Active leks shall not be destroyed by construction of the railroad. If impacts to active leks as a result of construction activities are unavoidable, TRRC shall seek approval from the Task Force in accordance with the process set forth in Mitigation Measure 14 as to whether avoidance of the lek site during the mating season (March and April), is adequate mitigation. If the Task Force determines that the permanent loss of the lek would be a significant and unavoidable impact, TRRC shall develop appropriate replacement compensation for potential loss of grouse habitat for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. If the success of lek site mitigation, as determined by the Task Force in accordance with the process set forth in Mitigation Measure 14, has not been resolved during the construction period, TRRC shall continue monitoring into the operational period and shall advise SEA of its

progress, in accordance with the reporting requirements of Mitigation Measure 17. *[TRRC II, Wildlife Condition A.9.3.1(2)(c), modified to clarify possible mitigation options]*

(4) To reduce impacts of the Tongue River Railroad on prairie dog colonies, prior to construction, TRRC shall develop appropriate means to mitigate the effects of construction and operation of the Tongue River Railroad on the black-tailed prairie dog for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Condition A.9.3.1(2)(d, e and f), modified to clarify]*

Mitigation Measure 27 (Night Survey). TRRC shall conduct nighttime surveys in conjunction with the ground reconnaissance required by Mitigation Measure 26 between July 1 to July 31, prior to construction of each segment of the rail line, for the purpose of identifying the location of any bat species of concern. *[TRRC III, new]*

Mitigation Measure 28 (Construction Surveys). TRRC shall utilize monitors during construction to identify and clearly mark areas containing sensitive biological resources for avoidance and to educate construction contractors and the employees that will be involved in rail construction activities about sensitive resources and the areas to be avoided during the rail construction activities. *[TRRC III, new]*

Mitigation Measure 29 (Destruction of Habitat). Active habitats for species such as nests, brooding locations, and migratory corridors, etc., shall not be destroyed during construction of the railroad. If impacts to these areas (short of destroying them) are unavoidable, TRRC seek approval from the Task Force in accordance with the process set forth in Mitigation Measure 14 as to whether avoidance during a species' active season would be adequate mitigation. If the Task Force determines that the permanent loss of habitat is a significant and unavoidable impact, TRRC shall develop appropriate replacement compensation for this potential loss of habitat in accordance with the process set forth in Mitigation Measure 26. In addition, if the Task Force determines that there has been significant habitat alteration after construction, TRRC shall develop appropriate habitat compensation for alteration of habitat in accordance with the process set forth in Mitigation Measure 26. *[TRRC III, new]*

Mitigation Measure 30 (Construction Activity Coordination). Rail construction activities shall be coordinated and timed to protect wildlife to the maximum extent possible. As part of these efforts, all reasonable attempts shall be made to minimize construction at big game wintering sites from December through March. *[TRRC II, Wildlife Condition A.9.3.1.1(1) clarified]*

Other Wildlife. In addition to Federal and state species of concern, construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative could affect mammals such as deer and pronghorn antelope; birds such as upland game birds, waterfowl, and raptors; and reptiles and amphibians. A comparison of the potential impacts resulting from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative is presented under each species or species type below, along with recommended mitigation measures that would be applicable to either alignment. In preparing this Draft SEIS, SEA identified several mitigation measures in addition to those adopted in Tongue River II to further reduce potential impacts on wildlife.

Construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would result in permanent alteration of wildlife habitats along the ROW, which in turn would reflect permanent displacement of wildlife species. Table 4-18 summarizes the loss of acreage by habitat type for both the proposed Western Alignment and the approved Four Mile Creek Alternative.

In addition to these direct impacts, construction of the railroad would induce indirect impacts to habitat use in the surrounding area. These indirect impacts include reduction in the size of existing habitat patches, habitat fragmentation, increase in edge-type habitat, and creation of barriers that block movement of wildlife between patches. Wildlife casualties, disturbance, and pollution are also factors that may negatively impact species. When combined with direct impacts, indirect impacts may be significant (Ieull et al. 2003).

Generally, the proposed Western Alignment is routed mostly within upland prairie-grassland-shrub habitat that is above the Tongue River riparian corridor. For this alignment, the railroad would be constructed perpendicular to drainages that enter the Tongue River Valley from this upland area. This route would avoid direct impact to approximately 70 acres of land that would be directly impacted in the approved Four Mile Creek Alternative. However, with the proposed Western Alignment, additional impacts to wildlife are anticipated due to the location of the ROW relative to the river. Species of wildlife that migrate from upland areas to riparian corridors may be isolated from migratory destinations. Access opportunities for wildlife species over or under the railroad would be assessed as part of the preconstruction survey analysis. Additional mitigation may be developed based on the findings of the survey.

As compared to the proposed Western Alignment, the approved Four Mile Creek Alternative would directly impact more acres (672 and 765, respectively) of potential wildlife habitat, mostly prairie-grasslands. The railroad ROW would be constructed within the upper reaches of the major drainages that eventually enter the Tongue River to the east. These drainages provide habitat for a number of wildlife species.

During the construction phase of the project (April to October, as proposed), potential impacts that could occur along either the proposed Western Alignment or the approved Four Mile Creek Alternative include the displacement of wildlife due to increased noise and dust from construction-related equipment, increased roadkills due to an increase in traffic accessing the area, increased hunting and poaching that may occur as a result of the increased access to the area, and increased recreational (camping and hiking/biking) use by the construction work force. These potential impacts could further displace wildlife and could negatively impact reproductive success for some species.

The proposed April to October construction period is a period of comparatively low stress for wildlife in the area. During drought years, there may be elevated stress and increased movement of wildlife between habitat types. If construction extends into winter months, when wildlife is subject to higher stress, wildlife mortality rates could increase. Any extension of construction into winter months, however, is likely to occur during mild winter conditions when stress levels are relatively low.

In Tongue River II, the Board adopted several mitigation measures intended to reduce general impacts on wildlife. Modifications to these measures are proposed by SEA to clarify that any

public access along privately owned land is at the landowner's discretion. In addition, ICC imposed measures in Tongue River I requiring the granting of conservation easements, which Federal Railroad Administration (FRA) policy recommends should be applied to the entire Tongue River Railroad from Miles City to Decker. These measures are listed below:

Mitigation Measure 31 (Compensation Program). TRRC shall include the following mitigation measures as part of final right-of-way negotiations with private landowners along the ROW:

(1) TRRC shall participate in the development of a reasonable compensation program for lost wildlife habitat along the rail line prior to beginning construction on any portion of the rail line. The goal of the compensation program shall be to ensure that there is no net decrease in wildlife-habitat values resulting from the project. Habitat values of acreage lost shall be assessed using the U.S. Fish and Wildlife Service's Habitat Evaluation Procedure. TRRC shall be responsible for acquiring land (through purchase, conservation easements or other measures) and enhancing the wildlife-habitat value on that land to achieve the no-net-loss goal, and developing and implementing a monitoring plan to evaluate success of enhancement measures. Monitoring shall continue through the oversight and reporting period described in Mitigation Measure 17. The process of valuing habitat loss, acquiring and enhancing new lands, and implementing the monitoring plan shall be done by TRRC with prior approval of the Task Force in accordance with the process set forth in Mitigation Measure 14. The process of valuing habitat loss for individual species or habitat types shall include an as needed analysis of potential "habitat fragmentation", i.e., assessment of the direct loss of wildlife habitat, reduction in the size of existing habitat patches, creation of more edge-type habitat, and creation of barriers that block movement of wildlife between patches. An example of appropriate habitat compensation could include the purchase by TRRC of "cutoff" land parcels containing good wildlife habitat, and the donation of these lands to the Montana Department of Fish, Wildlife, and Parks for beneficial wildlife management. *[TRRC I, Condition 10.1(1); TRRC II, Terrestrial Condition A.9.3(1), modified to clarify the goal of the compensation program]*

(2) TRRC shall construct ponds adjacent to the railroad grade, or use the railroad grade as a dam where practicable. These ponds could include "dugout" type ponds and "bypass" ponds designed to be filled during high flows where appropriate. *[TRRC II, Terrestrial Condition A.9.3(2)]*. For the construction of ponds, the railroad embankment (berm) shall form one (high) side of a depression. In its development of options for wildlife passage across the railroad right-of-way, TRRC shall consider ponds as a possible obstruction passage. Ponds shall also include erosion control features where appropriate. *[TRRC III, new]*

(3) If adjacent landowners agree, TRRC shall provide public access, in appropriate locations, if any, along the rail line right-of-way. *[TRRC II, Terrestrial Condition A.9.3(3), modified to clarify that access would only be provided if the adjacent landowners agreed]*

(4) TRRC shall grant conservation easements along the rail line where appropriate. *[TRRC I, Condition 10.1(4); TRRC II, Terrestrial Condition A.9.3(4), modified by minor edits]*

Deer and Pronghorn Antelope. The construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would remove habitat for mule deer and white-tailed deer (primarily pine, juniper, big sagebrush, and grassland habitat) and pronghorn antelope (primarily big sagebrush, grassland, and prairie habitat).

In Tongue River II, the Board adopted mitigation measures to minimize impacts on general wildlife species, including deer and pronghorn antelope. Mitigation Measure 32 addresses specific impacts to pronghorn antelope.

Mitigation Measure 32 (Pronghorn Antelope). TRRC shall prepare surveys that identify locations of pronghorn concentration, distributions, and movement for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. This survey program shall be conducted prior to the beginning of construction of each segment of the rail line. TRRC shall present the results of the study to the Task Force for its review and shall consider conducting a radio telemetry study (funded by TRRC) if preliminary surveys indicate heavy pronghorn use within the project area.

Once potential impacts have been fully determined following the above mentioned studies, TRRC shall work with the Task Force to develop appropriate measures, as needed, to minimize impacts from the railroad. The following measures shall be considered and implemented, as appropriate:

(1) establishment and enforcement of fencing standards along the railroad right-of-way that will allow movement of pronghorn while excluding livestock, as needed;

(2) identification of optimal passage-site locations for pronghorn movement across the railroad;

(3) use of grillwork as needed to exclude livestock while allowing movement of pronghorn across railroad at optimal locations;

(4) follow-up monitoring on an annual basis to evaluate effectiveness of passage.

Monitoring shall continue through the oversight and reporting period previously identified in Mitigation Measure 17. In the unlikely event that this follow-up monitoring shows that the above mentioned mitigation measures are inadequate and the Task Force concludes that impacts to the wildlife's ability to migrate are resulting in a decline in species population, TRRC shall develop additional mitigation options for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Conditions (1) and (2), modified to provide additional clarity regarding survey requirements and specify potential mitigation measures that are appropriate for species]*

Based on the information available to date, SEA preliminarily concludes that the adopted and modified measures would be adequate to ensure that the impacts on deer and pronghorn antelope

from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Other Mammals. Small and medium-sized mammals, such as mice, rats, and rabbits, found within the area of either the proposed Western Alignment or the approved Four Mile Creek Alternative, including predators, would be displaced or eliminated during construction. However, this would have only a temporary impact because reclamation along either ROW would attract these mammals to the revegetated areas. Mitigation measures recommended to promote reclamation and revegetation are discussed above. Impacts on small and medium-sized mammals from construction would be the same for either alignment.

Small and medium-sized mammals may also be subject to increased roadkills due to increased traffic associated with construction and increased hunting from construction workers temporarily staying in the area. The EIS in Tongue River II does not directly address these impacts from the construction of the approved Four Mile Creek Alternative on small and medium-sized mammals. Based on the analysis conducted in connection with the proposed Western Alignment, SEA preliminarily recommends the adoption of the following mitigation measure to address impacts from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative on small and medium-sized mammals:

> **Mitigation Measure 33 (Speed Limits).** Prior to construction of each rail segment, TRRC shall post and strictly enforce speed limits on all construction access roads to minimize roadkills of wildlife due to increased traffic from construction workers temporarily living in the area. TRRC shall also advise all rail construction personnel that the purpose of these speed limits is to protect wildlife. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that this new measure, in addition to those listed above, would be adequate to ensure that the impacts on small and medium-sized mammals from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Upland Game Birds. Upland game bird populations within the area of either the proposed Western Alignment or the approved Four Mile Creek Alternative would be displaced or eliminated during construction. Construction, however, would have only a temporary impact, and it would be the same for either alignment.

Specifically, some habitat for sharp-tailed grouse, sage grouse, pheasant, and gray partridge could be removed by construction activities. Some sharp-tailed grouse or sage grouse leks could be removed or displaced by construction at the north end of either the proposed Western Alignment or the approved Four Mile Creek Alternative. Locations of leks from Birney to the terminus of the proposed Western Alignment at the Spring Creek spur are not well known, so potential impacts on grouse in this portion of the line are difficult to determine. Native grouse populations in the area have been depressed for several years. Construction activities in the vicinity of leks and nesting areas could affect local populations of grouse by interfering with reproduction and could reduce overall population numbers with increased hunting by construction workers. Some pheasant and gray partridge habitat would be disturbed, and some birds would probably be temporarily displaced from the vicinity of construction. Merriam's turkeys would not likely lose much habitat. Turkeys are accustomed to moving periodically

from uplands to the valley bottom areas. Birds that winter along the Tongue River could be displaced by noise and activity.

Mitigation Measure 31, discussed above, which is designed to minimize the impacts on general wildlife species, would also minimize potential impacts to game birds.

Based on the information available to date, SEA preliminarily concludes that these previously adopted and modified measures, in addition to those listed above, would be adequate to ensure that the impacts on upland game birds from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Waterfowl and Other Water Birds. Waterfowl and other water birds could be displaced during construction of the one crossing of the Tongue River for either the proposed Western Alignment or the approved Four Mile Creek Alternative. This displacement could occur because of the disturbance of isolated areas of water along either alignment, noise, and vibration. However, this would have only a temporary impact. Construction-period impacts on waterfowl and other water birds are likely to be similar for either alignment. Both alignments would avoid most of the more sensitive waterfowl wintering and nesting areas below the Tongue River Reservoir Dam. If sensitive areas are affected, potential impacts to waterfowl and other water birds could include a decrease in population distribution.

Waterfowl and other water birds tend to congregate in the two- to three-mile section of the Tongue River just north of the dam. Since this section of the river never freezes, it serves as an important wintering area for waterfowl. Waterfowl using the Tongue River for wintering, nesting, or resting during migration could be displaced during construction of the proposed Western Alignment. This could have a short-term effect on waterfowl, if displacement takes place during winter months, or on geese and ducks when they are nesting in vegetation between the river's edge and the uplands during spring and summer months. Potential spills of materials such as gasoline, diesel fuel, lubricating oil, and solvent could negatively affect waterfowl, including shore and wading bird species. The approved Four Mile Creek Alternative would result in less impact to these species as it runs along fewer water bodies than the proposed Western Alignment, which runs along the Tongue River. Herons and other nesting birds, such as cormorants, that form colonies also could be displaced from nest sites and fishing areas during construction.

Raptors. Several raptor species nest, hunt, or winter on or near the proposed Western Alignment and the approved Four Mile Creek Alternative. Red-tailed hawks, great-horned owls, and American kestrels commonly nest on or near the bottom of the valley. These and other nesting raptors could be temporarily displaced, and production of offspring could be affected by increased stress if the proposed Western Alignment or the approved Four Mile Creek Alternative is constructed. Some hunting and roosting habitat could also be removed and some prey species could be lost or displaced. Some raptor species could be displaced until construction is completed. This would be a temporary impact. Olson-Elliot Associates (1980a) found that raptor activity decreased with distance from the Tongue River Valley. Therefore, it is likely that impacts on raptors during the winter months and the spring nesting season would be lower for the approved Four Mile Creek Alternative than for the proposed Western Alignment.

Mitigation Measure 31, discussed above, would minimize impacts on general wildlife species, including raptors.

Based on the information available to date, SEA preliminarily concludes that adopting the outlined mitigation measures, in addition to those listed above, would be adequate to ensure that the impacts on raptors from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Reptiles and Amphibians. Reptiles and amphibians found within the area of either the proposed Western Alignment or the approved Four Mile Creek Alternative would likely be displaced or eliminated during construction. Impacts on reptiles and amphibians from construction would be the same for either alignment. However, this would be a temporary impact, because reclamation along either ROW would attract these animals to the revegetated areas. Implementation of Mitigation Measures 19 and 20 to promote reclamation and revegetation would be adequate to mitigate any potential impacts to reptiles and amphibians; SEA does not therefore propose any mitigation measures specific to these species.

Fish. Temporary impacts on fish populations could occur during construction activities of either the proposed Western Alignment or the approved Four Mile Creek Alternative. Complete information is not yet available on the potential impacts of fish species. This information would be collected before the start of construction as part of the aquatic resource sampling process, as required by Mitigation Measure 34 (below). Impacts could also occur from any fuel or chemical spills. (See Section 4.3.6, "Environmental Consequences – Transportation and Safety," for a discussion of these impacts.) The impacts from construction activities would occur primarily as a result of increases in total suspended solids (TSS), although such impacts are unlikely to be long-term. Sediments have the potential to affect fishes in the following ways (Iwamoto et al. 1978, Cordone and Kelly 1961):

- Clogging and abrading gills and other respiratory surfaces.
- Adhering to the chorion[32] of eggs.
- Providing conditions conducive to the entry and persistence of disease-related organisms.
- Inducing behavioral change.
- Entombing different life stages.
- Altering water chemistry by the absorption of chemicals.
- Affecting utilizable habitat by scouring and filling of pools and riffles and changing bedload composition.
- Reducing photosynthesis and primary production.
- Affecting intragravel permeability and dissolved oxygen levels, which affect egg and embryo stages of fish species, such as salmonids, that develop within the gravel.
- Affecting the fishing for sport fishes.

Construction activities could temporarily deter fish movement through the construction zone. In addition, fish species could suffer from gill irritation due to increases in sediment loads. All fish are sensitive to increases in TSS, but in the upper Tongue River, where the water is normally

[32] The outer membrane enclosure of an embryo.

clear, the species that would be most sensitive are all varieties of trout (brown, rainbow, etc.) and longnose suckers (Brown 1971).

Temporary or permanent loss of spawning areas for smallmouth bass or Northern pike could occur from the construction of the one bridge crossing of the Tongue River or from increased sediment levels in the Tongue River. Smallmouth bass spawning is widely dispersed throughout the Tongue River. Hanging Woman Creek, located downstream and outside of the area analyzed in this section, is a known spawning area for smallmouth bass. However, it is not yet determined if areas in the vicinity of the proposed Western Alignment or the approved Four Mile Creek Alternative are used for spawning. Spawning habitat is probably more scarce for Northern pike than smallmouth bass; therefore, impacts on Northern pike may be more significant. Impacts to smallmouth bass and Northern pike would be greater during construction of the proposed Western Alignment, due to a larger amount of earth needed to construct this alignment, as well as the proximity of this alignment to the Tongue River and the number of drainages crossed, all of which could result in higher amounts of sediment released to the river. (See Section 4.3.4, "Environmental Consequences – Hydrology and High Water," for a discussion of increased sediment loads.)

The construction of the proposed crossings of the Tongue River for the proposed Western Alignment or for the approved Four Mile Creek Alternative would result in a temporary increase in TSS but would have little long-term impact on aquatic life. These impacts could be minimized by taking all reasonable precautions to reduce sediment entering water bodies. (See Section 4.3.3, "Environmental Consequences – Soils and Geology," and Section 4.3.4, "Environmental Consequences – Hydrology and Water Quality," for a discussion of mitigation measures designed to reduce sediment levels entering water bodies.)

In Tongue River II, the Board adopted the following mitigation measures to help identify aquatic resources. SEA recommends applying this mitigation to the proposed Western Alignment as well. SEA also recommends modifications and an addition to Aquatic Condition A.9.2(1), approved in Tongue River II, to ensure that the information critical to determining potential impacts to aquatic resources would be collected:

> **Mitigation Measure 34 (Aquatic Resource Sampling).** Prior to beginning construction activities in locations where the railroad would cross the Tongue River, or where extensive riprapping would occur, TRRC shall conduct a three-part study plan to identify aquatic resources. The results of this study shall be utilized in the development of mitigation plans for the river crossing and riprap areas for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. This study shall include (1) a stream habitat survey to identify existing habitat features and values; (2) benthic macroinvertebrate sampling to identify community composition and numbers; and (3) a fish spawning survey to determine the importance of the area to spawning of fish. TRRC shall undertake the three-part study methods outlined below. *[TRRC I, Condition 9.1(1); TRRC II, Aquatic Condition A.9.2(1), modified to provide clarity regarding the timing and location of the study]*
>
> (1) **Stream Habitat Survey.** The stream habitat survey shall utilize methods described in Methods for Evaluating Stream, Riparian, and Biotic Conditions by William S. Platts, Walter F. Megahan, and G. Wayne Minshall. Stream transects shall be established and impact zones shall be identified in appropriate locations to evaluate existing conditions

and to monitor changes during construction. Along each transect, the following variables shall be measured:

(a) Stream width.
(b) Stream shore depth.
(c) Stream average depth.
(d) Pool quality and forming feature (in feet).
(e) Riffle (a ripple in a stream or a current of water) (in feet).
(f) Run (in feet).
(g) Substrate (Mineral or organic material that forms the bed of a stream).
(h) Stream bank soil alteration rating.
(i) Stream vegetative stability rating.
(j) Stream bank undercut and angle.
(k) Vegetation overhang.
(l) Embeddedness. *[TRRC II, Aquatic Condition A.9.2(1)(a), modified to include identification of impact zones]*

(2) **Benthic Macroinvertebrates**. TRRC shall collect quantitative samples of benthic macroinvertebrates immediately upstream and downstream of each proposed location of disturbance during rail construction activities. The collected specimens shall then be counted and identified following the Montana Department of Environmental Quality's Rapid Bioassessment Protocols for Sampling and Sample Analysis Standard Operating Procedures. *[TRRC I, Condition 9.1(1)(b); TRRC II, Aquatic Condition A.9.2(1)(b), modified to clarify the most useful techniques for sampling benthic macroinvertebrates]*

(3) **Fish Survey**. Prior to construction of each rail segment, TRRC shall conduct a fish survey and fish habitat survey. The fish survey shall be conducted to estimate population and to monitor potential mortality or emigration due to construction impacts. Mark-recapture methods shall be incorporated in each survey.

TRRC's fish habitat survey shall be conducted to determine habitat value, quantity, and utilization. In general, methods shall follow the methods used in recent work on the Tongue River for comparative purposes. Methods used in the comparative analysis may include those from Community Structure and Habitat Associations of Fishes in the Lower Tongue and Powder Rivers (R. Trenka 2000). Sampling shall occur before and after construction in impacted areas to allow quantification of effects, if any. The establishment of reference sites in areas outside of immediate impact zones, identified in the Stream Habitat Survey described above in Section 1, shall be used as a control to which impacted area surveys may be compared. All major habitat types shall be represented, and the total number of sites shall depend upon how many habitat types are identified by the Stream Habitat Survey. For each major habitat type at each bridge location, at least three affected sites and one reference site shall be surveyed. Sampling gear shall be adapted to each habitat type and standardized for both before and after construction surveys to allow for meaningful data comparisons. At each fish habitat survey site, the following shall be recorded:

(a) Habitat type.
(b) Sampling gear used (hoop net, fyke net, electrofishing, seines, etc.).

(c) Species present (number, age class, length, and weight).
(d) Relative abundance by species.
(e) Catch per unit effort (before and after construction).

If determined to be necessary by the Task Force, a spawning habitat potential survey shall be conducted at each proposed bridge location as well as in areas of proposed riprapping and other perennial, intermittent, and ephemeral draws that the railroad crosses. Sampling periods for the spawning survey shall be early spring after ice breakup, after peak runoff, and in the fall. *[TRRC II, Aquatic Condition A.9.2(1)(c), modified to broaden the purpose of the surveys]*

Mitigation Measure 35 (Aquatic Mitigation Techniques). With the exception of construction of the portion of the rail line described in Mitigation Measure 87 (Miles City Fish Hatchery), prior to construction of each rail segment and once aquatic resource sampling is completed and detailed data on the aquatic resources to be affected has been obtained, TRRC shall develop appropriate mitigation measures for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. These mitigation measures may include the following, as appropriate:

(1) Preparation of a construction schedule which, if possible and practical, provides for instream work at those times that are (a) least critical to the specific fishery or aquatic resource occurring at a site, and (b) least conducive to sediment transport. These periods may differ by stream and species affected.

(2) Development of special procedures for the handling of displaced materials and petroleum products during construction in order to prevent introduction of such materials into the aquatic system.

(3) Filtering of silty water, which would result from dewatering for footing construction, through settling pond systems.

(4) Assuring that riprap is washed and essentially silt free.

(5) Double-shifting of work crews at river crossing sites to minimize the duration of construction activities in or near river or stream banks. *[TRRC II, Aquatic Condition A.9.2(2), modified by minor edits]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that the impacts to aquatic organisms from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative are not significant.

Invertebrates. The upper portion of the Tongue River (Fishery Zone V) contains aquatic invertebrates that are adapted to the relatively cold, clear water that is released from the Tongue River Reservoir Dam (Gore 1976). (See Section 4.2.2, "Affected Environment – Biological Resources," for a discussion of fishery zones.) Potential impacts on this portion of the river would occur during construction of the bridge crossing for the proposed Western Alignment and the approved Four Mile Creek Alternative. The temporary increase in TSS that would result

from such construction and related filling of areas adjacent to the river could cause a temporary increase in downstream drift of aquatic invertebrates, and a resultant lowering of invertebrate populations in the construction area (Allan 1995). If the sediment load is large enough or is long-lasting, it can decrease the overall macroinvertebrate population. Macroinvertebrates are a major food source for fish. The impact would be similar for both alignments. Mitigation measures designed to minimize sediment increase in the Tongue River and its tributaries are discussed in Section 4.3.3, "Environmental Consequences – Soils and Geology," and Section 4.3.4, "Environmental Consequences – Hydrology and Water Quality." When construction is complete and the fine sediment has been flushed from the substrate, recolonization of macroinvertebrates would be expected to occur.

Mitigation Measure 34, designed to address impacts on invertebrates from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative, has been discussed previously in this section.

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that the impacts to invertebrates from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative are not significant.

4.3.2.3 Impacts of Operation and Maintenance on Biological Resources

Long-term impacts on biological resources would result from the operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative. Potential effects include direct and indirect impacts on biological resources in the ROW. Direct impacts include the loss of animals due to collision with trains and maintenance vehicles, the creation of barriers to the movement or migration of some species, and potential damage to or elimination of habitat. Indirect impacts include general demands on the environment associated with increased population and use of the area. Improved roads lead to increased wildlife-vehicle collisions, the displacement of wildlife by recreationists, and increased poaching and hunting. Aquatic resources could be affected by fuel or chemical spills, impacts from the use of herbicides to control weeds in the ROW, and impacts related to coal dust emissions.

In order to identify impacts on biological resources related to operation and maintenance of the proposed Western Alignment, SEA consulted with MT DNRC, MT DFWP, BLM, the Corps, and USFWS, requested additional information and analyses from TRRC, and performed its own environmental analysis. SEA also undertook these consultations and analysis to ensure that the information in the EIS in Tongue River II relating to the approved Four Mile Creek Alternative remained accurate and up to date. The result of SEA's analysis is discussed below. Only species that would be impacted by operation and maintenance of the project are discussed here.

Mitigation measures designed to reduce impacts to water quality, including emergency spill response plans, are discussed in Section 4.3.4, "Environmental Consequences – Hydrology and Water Quality," and Section 4.3.6, "Environmental Consequences – Transportation and Safety."

Vegetation. ***Federal Species of Concern.*** As discussed earlier, the final determination of the existence of Federally listed threatened or endangered species along the proposed Western Alignment or the approved Four Mile Creek Alternative ROW would be made prior to construction, once access to these areas is secured.

Based on information available to date, SEA preliminarily concludes that implementation of Mitigation Measure 18 would be adequate to ensure that the impact on vegetative species of concern (Federal) from operation and maintenance of the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

State Species of Concern. As discussed, a final determination regarding the existence of state species of concern along the proposed Western Alignment or the approved Four Mile Creek Alternative ROW would be made prior to construction, once access to these areas is secured.

Based on information available to date, SEA preliminarily concludes that implementation of Mitigation Measure 18 would be adequate to ensure that the impact on vegetative species of concern (state) from operation and maintenance of the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Other Vegetation. Wetlands. Based on additional analysis conducted in connection with the proposed Western Alignment, SEA preliminarily recommends the adoption of Mitigation Measure 22 to address potential impacts to wetlands from the operation and maintenance of the proposed Western Alignment or the approved Four Mile Creek Alternative.

Mitigation measures identified in the Conceptual Habitat Mitigation Plan include refining the alignment and using design and techniques to avoid wetlands, to minimize placement of fill in streams, and to protect and, if necessary, to reclaim the area affected by operation and maintenance. Appendix D contains the Conceptual Habitat Mitigation Plan.

Based on the information available to date, SEA preliminarily concludes that these measures would be adequate to ensure that the impacts on wetlands from the operation and maintenance of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Wildlife. ***Federal Species of Concern.*** The Board, in Tongue River II, adopted mitigation measures to reduce impacts to Federally listed threatened or endangered species to less than significant levels [TRRC II, Wildlife Condition, A.9.3.1(1); TRRC II, Wildlife Condition, A.9.3.1(2)(a-g); TRRC II, Wildlife Mitigative Conditions, A.9.3.1.1(1-2)]. SEA preliminarily recommends that Mitigation Measure 24, discussed previously in this section, replace the aforementioned measures from Tongue River II, and that this measure be applied to all of the Federally listed threatened or endangered species, including black-footed ferrets, whooping cranes, interior least terns, bald eagles, mountain plovers, pallid sturgeon, and black-tailed prairie dogs.

Based on the information available to date, SEA preliminarily concludes that implementation of Mitigation Measure 24 would be adequate to ensure that the impacts of the operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative on Federally listed threatened or endangered species would not be significant. See Appendix L for the BA.

Black-footed Ferret. The black-footed ferret is not known to occur in the area potentially affected by the proposed Western Alignment or the approved Four Mile Creek Alternative. If no ferrets are present, operation of either alignment would not affect this species. If ferrets are

present, impacts could include mortality (e.g., ferrets could be killed by trains during operation) and displacement from disturbed habitat (due to fires, dust, noise, accidental fuel spills, etc.).

Since critical habitat for the black-footed ferret is prairie dog colonies, it is assumed that ferrets will occur in or near prairie dog colonies if they are within the area potentially affected by the proposed Western Alignment or the approved Four Mile Creek Alternative. Disturbance of prairie dog colonies could potentially disturb black-footed ferrets.

Whooping Crane. The whooping crane occurs only on migration within the area potentially affected by the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative. Thus, any whooping cranes would be transients through the area and would not be directly affected by the proposed project. Indirect impacts on whooping cranes could include loss of migration habitat such as wetlands.

Interior Least Tern. Impacts to interior least terns due to train operations on either alignment are likely to be indirect and could include noise from operation, which could cause abandonment of nests. No direct impacts to interior least terns are expected to occur.

Bald Eagle. The Montana Bald Eagle Working Group (1994) defines disturbance to be "any human elicited response that induces a behavioral or physiological change in a bald eagle contradictory to those that facilitate survival and reproduction. Disturbance may include elevated heart or respiratory rate, flushing from a perch, or events that cause a bald eagle to avoid an area or nest site."

Based on the above description, it is reasonable to assume that bald eagles nesting in the area potentially affected by the proposed Western Alignment or approved Four Mile Creek Alternative would already be accustomed to some level of disturbance related to human use of the public roads, residences, agricultural activities, and limited recreational use of the Tongue River.

Nest 03, which has been an active bald eagle nest every year since 1995, is within 400 feet of a public road, about 0.5 mile from an occupied residence, and also adjacent to active ranching activities. Therefore, the bald eagles that use this nest are used to some level of human activity near their nest, even during the peak of the nesting season. The proposed Western Alignment would be about 0.7 miles from Nest 03, farther away from the nest than all these existing human activities. The approved Four Mile Creek Alternative is approximately 3.4 miles from Nest 03 at the nearest point.

Nest 02 Alternate, which appears to have been built or modified by eagles but apparently has not been actively used by bald eagles and was occupied by red-tailed hawks in April 1999, is about 0.75 miles from a public road, about 0.9 miles from a residence, and is adjacent to active ranching activities. It is about 0.8 miles from the proposed Western Alignment and 0.3 miles from the approved Four Mile Creek Alternative.

Rail-line-maintenance activities near active bald eagle nests could result in short-term displacement of eagles under either alignment. The magnitude of this impact on any nest site cannot be predicted because (1) whether or not a maintenance activity would be required near an active eagle nest during the nesting season is not predictable, and (2) the type of maintenance

activity could influence the magnitude of the effect. For example, extensive replacement of rails could have more effect than a normal rail inspection, since more workers and equipment would be needed for a longer period of time in the vicinity of the nest. However, given the distance of either alignment from the two nests, the impact of maintenance of the Tongue River Railroad to bald eagle nesting is expected to be minor for low-level maintenance activities and moderate for extensive maintenance activities.

Pallid Sturgeon. Indirect effects of operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative could include accidental fuel spills into the Tongue River, affecting water quality and influencing spawning success of the pallid sturgeon in the lower Tongue River and Yellowstone River. These impacts, however, would likely be controlled by TRRC's spill-control efforts prior to intrusion into pallid sturgeon spawning habitat.

Tongue River II does not directly address operation-period impacts on the pallid sturgeon. As part of this Draft SEIS, SEA developed Mitigation Measure 23 to reduce potential impacts on pallid sturgeon under either alignment.

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that the impacts on pallid sturgeon from the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

State Species of Concern. There are 20 species of concern, as listed on MT NHP's Species of Concern List (2003a), for which potential habitat occurs in the vicinity of the proposed Western Alignment (as based on spatial distribution maps from MT NHP [2003b]). Surveys conducted as part of the BA prepared for Tongue River II and the BA prepared for the proposed Western Alignment did not identify any sensitive wildlife species in either the proposed Western Alignment or the approved Four Mile Creek Alternative area. Any impacts to species identified during a field search of the alignment during final phase engineering would be addressed by the formal mitigation plan for minimizing impacts on state sensitive species, as discussed above.

Other Wildlife. Construction of the entire rail line from Miles City to Decker, along the proposed Western Alignment or the approved Four Mile Creek Alternative, would contribute to the fragmentation of habitat. Fragmentation is defined as "the break-up of ecosystems and/or habitats of plant and animal populations into smaller, more isolated units" (Bekker 1998). Habitat fragmentation is a potential problem because individuals in isolated populations are more susceptible to stress or local extinction if environmental conditions are unsuitable and individuals are unable to migrate to new suitable habitat. The railroad may create a barrier to some species, such as reptiles and amphibians, and would create an impediment to movement of all wildlife (except birds) from upland areas to the Tongue River.

Deer and Pronghorn Antelope. As summarized in Table 4-20, pronghorn antelope habitat is more abundant in the area of the approved Four Mile Creek Alternative. According to mapping by MT DFWP, fragmentation of year-round and winter-range pronghorn habitat would occur with the approved Four Mile Creek Alternative as a result of operation. Other potential impacts to pronghorn antelope populations resulting from operation of that alignment include restriction of movement through fence installation and removal of habitat areas. Restriction of movement may result in significant impacts to population and genetics and limited access to seasonal

ranges (Van Riper et al. 2001). Although there are approximately 76 acres of pronghorn habitat within the ROW of the proposed Western Alignment, this alignment is not expected to result in significant isolation of pronghorn habitat areas because it closely follows the Tongue River Corridor, which is not primary pronghorn habitat. The proposed Western Alignment would not result in significant isolation of pronghorn habitat areas. Table 4-20 below quantifies the approximate acreage of pronghorn habitat within the ROW for each alignment.

Table 4-20 – Approximate Acreage of Pronghorn Antelope Habitat Within the ROW (Based on Preliminary Habitat Mapping)

Habitat Type	Proposed Western Alignment	Approved Four Mile Creek Alternative
Year-round Only	76	215
Winter-range	0	143
Total Habitat	**76**	**358**

Source: MT DFWP 2002.

As discussed earlier, Mitigation Measure 25 requires that prior to construction of the railroad, TRRC shall conduct aerial surveys and ground-level reconnaissance, and would develop a construction schedule to minimize potential impacts to large game, including deer and pronghorn antelope.

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that the impacts on deer and pronghorn antelope from the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Other Mammals. Small and medium-sized mammals could suffer increased mortality through road kill and from trains if these mammals are attracted to revegetated areas along the ROW. Fires, dust, noise, increased activity, and potential fuel spills could affect existing habitat. Overall, however, short-term losses of small and medium-sized mammals due to operation of either alignment should not affect local populations.

There could be some indirect impacts on predators and furbearers from the proposed project. Either alignment could have a small effect on local populations. These impacts, however, would likely be less in number for the proposed Western Alignment than for the approved Four Mile Creek Alternative, since there is less habitat loss under the proposed Western Alignment. SEA does not consider these impacts to be significant for either alignment, therefore no mitigation measures are proposed.

Upland Game Birds. Potential impacts to upland game birds, such as sharp-tailed grouse and sage grouse, resulting from railroad operations and maintenance may affect upland bird populations through injury from trains and vehicles, increased hunting and/or poaching, and loss of upland habitat. While birds may be displaced from some mating, nesting, rearing, and wintering habitats, it is likely that they will repopulate adjacent suitable areas.

Generally, the proposed Western Alignment would be constructed just west of the Tongue River riparian area at the edge of upland habitat that may be occupied by birds. Suitable alternate

habitat would be available to upland game birds along the entire railroad corridor. Relocation to adjacent areas would be possible under either the proposed Western Alignment or approved Four Mile Creek Alternative. It is expected that there would be a small net loss of upland bird populations from the operation and maintenance of the railroad. SEA does not consider these potential impacts to be significant for either alignment, therefore no additional mitigation measures are proposed for railroad operations and maintenance.

Waterfowl and Other Water Birds. In areas where either alignment would pass through the Tongue River Valley, waterfowl, wading birds, and shore birds could be displaced from nesting, brood rearing, resting, or winter habitat due to the continuous disturbance associated with railroad operation and maintenance. Fuel spills, herbicides, fire, and dust could affect waterfowl in the water or on land. These potential impacts could have a negative effect on waterfowl, wading birds, and shore birds in the immediate area. Sufficient habitat exists outside of the immediate area of impact that there likely would be no significant adverse effect on regional populations and therefore no mitigation measures are proposed.

Raptors. For both alignments, raptors utilizing habitats for resting, nesting, and/or hunting on or near the ROW would likely be displaced from those areas in the open country north of Canyon Creek. South of Canyon Creek, as the valley narrows, raptors could choose not to utilize the adjacent habitats because of noise, increased human activity, and potentially lower amounts of prey. Special use areas not adjacent to the ROW would not be affected by the increased activity associated with the operation of either alignment. SEA does not consider impacts to raptors to be significant for either alignment because the species can utilize other nearby areas and other special use areas. Therefore, no mitigation measures are proposed.

Reptiles and Amphibians. Reptiles and amphibians would suffer increased mortality through roadkill, and from being struck by trains. Revegetated areas and ditches along the ROW may provide habitat for some species.

The proposed Western Alignment would impact a greater amount of shrub and brushland than the approved Four Mile Creek Alternative; however, the approved Four Mile Creek Alternative would impact a greater amount of grassland.

Surveys would be conducted prior to construction of either alignment to establish the potential presence of reptile and amphibian species of concern within the project area. Surveys would also report sightings of other reptiles and amphibians, when encountered. These baseline data would be used to determine specific locations where biologically sensitive areas may exist within the ROW or where the railroad may cross important habitat areas for these species. Culverts could be constructed as needed to allow free movement of reptiles and amphibians across the railroad ROW at key locations. The Task Force would consider whether special construction techniques or timing considerations would be required to further minimize impacts to reptiles and amphibians.

Other Biological Concerns. Herbicides. Potential impacts from the use of herbicides to maintain the ROW would depend on the type of herbicide used, the application procedure, the weather at the time of application, and the proximity of the ROW to the river. Potential impacts on the Tongue River would be greater from the proposed Western Alignment than from the

approved Four Mile Creek Alternative because of the Western Alignment's proximity to the river.

SEA preliminarily determines that mitigation measures adopted in Tongue River II and Mitigation Measure 21 identified under "Noxious Weeds" in Section 4.3.2.2 would minimize impacts from the use of herbicides for ROW maintenance, with the result that the impacts would not be significant.

Coal. Coal is a relatively inert and insoluble substance. There is unlikely to be any chemical effect on aquatic organisms from coal dust, given the limited exposure of either alignment to the Tongue River and associated creeks and draws.

In the unlikely event of a train derailment on either alignment at a river or stream crossing, a large amount of coal could potentially enter the water body. Most of the damage that would occur from such an event would be from the coal dust that washes off the coal, increasing total suspended solids, and from the impact of heavy equipment operating in the river during the cleanup. Assuming a prompt and thorough cleanup of spills, these impacts would be short term and confined to a limited area of the river or stream. (See Section 4.3.6, "Environmental Consequences – Transportation and Safety" for a discussion of the cleanup program for spills.) Consequently, the impact from transporting coal is not expected to be significant for either alignment.

4.3.3 Environmental Consequences – Soils and Geology

4.3.3.1 Summary

The proposed Western Alignment, like the approved Four Mile Creek Alternative, would traverse mostly undisturbed soils. For the proposed Western Alignment, like the approved Four Mile Creek Alternative, the primary soils and geology issues are related to the impacts of the movement of large quantities of soil for construction and the potential for soil failure (slumping) along constructed cuts and fills. As a result, SEA conducted a thorough and comprehensive analysis of these impacts, as well as other soils and geology-related impacts, both in the EIS in Tongue River II and in this Draft SEIS.

New Analyses. SEA's analysis of soils and geological impacts resulting from the proposed Western Alignment utilizes information contained in TRRC's Environmental Report, which was completed in advance of this Draft SEIS. Analysis of impacts resulting from the approved Four Mile Creek Alternative utilizes information from TRRC's Environmental Report and EIS in Tongue River II. SEA reviewed the information and conducted site visits and aerial surveys to verify that the information was accurate and up to date.

Mitigation. As part of this analysis, SEA identified seven new or revised mitigation measures to address potential soil erosion impacts. These measures would clarify the language and update the terminology from the previously adopted measures, and address impacts associated with saline and sodic (containing sodium) soils and slumping. SEA also preliminarily recommends modification of the mitigation measures that were adopted by the Board in Tongue River II to address potential impacts to include additional specifics regarding construction of slopes.

Conclusion. Based on the information available to date, SEA preliminarily concludes that, with mitigation, neither the construction nor the operation of the proposed Western Alignment, like the approved Four Mile Creek Alternative, would result in significant soil or geologic impacts.

4.3.3.2 Construction-period Impacts on Soils and Geology

Temporary impacts on soils and geology would result from the construction of the proposed Western Alignment, as they would from the approved Four Mile Creek Alternative. Construction-related impacts could include soil erosion, changes in the physical characteristics of the soil, changes to biological activity in the soil, effects from saline and sodic soils, and slumping.

The rail line will need approximately 8 inches of ballast and 12 inches of sub-ballast material along the length of the railroad, except for river crossings. There are many scoria sources along the proposed ROW, however much of that scoria is weathered and would be too soft for use as sub-ballast material. Several geotechnical studies have been completed and have identified potential gravel sources along the proposed rail line corridor. Most, if not all, of these potential sources are on private land, and would be developed for sub-ballast on an as-needed basis. TRRC proposes to acquire ballast from an existing quarry near Whitehall, Montana, that presently supplies ballast to the major railroads in Montana. The ballast would be transported via rail from Whitehall to the construction area. No new quarries are anticipated to supply construction materials to this project.

SEA consulted EPA and MDEQ and performed its own analysis to identify impacts on soils and geology arising from the construction of the proposed Western Alignment and to ensure that the information in the EIS in Tongue River II involving the approved Four Mile Creek Alternative remained accurate and up to date. The results of SEA's analysis are summarized below.

Soil Types. Both the proposed Western Alignment and the approved Four Mile Creek Alternative would traverse topography varying from flat valley floors to steep canyon walls. In general, the proposed Western Alignment crosses more rugged terrain than the approved Four Mile Creek Alternative, with typically shallow soils and bedrock outcrops. The approved Four Mile Creek Alternative follows a steeper route, with a mixture of soils and bedrock outcrops depending primarily on the distance of the alignment to the river, with deeper soils closer to the river and bedrock outcrops farther away. In general, for both alignments, the soils tend to be the same and are mostly clays, silts, and sands, with more gravel in the alluvial deposits comprising the floodplain.

Drainages crossed by the proposed Western Alignment generally flow east with non-perennial flow into the Tongue River. The proposed Western Alignment would typically run perpendicular to drainages and would require significant construction cuts and/or fills. Cuts from 100 to 200 feet high and fills from 100 to 180 feet deep are anticipated. The approved Four Mile Creek Alternative would be aligned east to west, parallel to Four Mile Creek. This alignment would be located in the Four Mile Creek Valley, along its southern side, and would proceed to the highlands at the top of the Four Mile Creek watershed. Compared to the proposed Western Alignment, this alignment would require less soil movement during construction, lower cuts, and shallower fills.

SEA evaluated the soils and bedrock in the area based on the potential for erosion or slumping (slope failure) and potential impacts on water quality. Bedrock materials are not very susceptible to erosion in their natural state. However, instability in cut slopes and/or fills can lead to slope failures, which could transport significant quantities of sediment to the Tongue River. Impacts of slope failure would be mitigated by revegetation and restoration of the slopes. An advance evaluation of the needs and availability of stockpile soils has not been conducted because soils generated during excavation operations would be employed in the restoration of altered slopes to the greatest extent feasible. (See Section 4.3.2, "Environmental Consequences – Biological Resources," for a discussion of revegetation and restoration.)

Water Erosion. Construction of the proposed Western Alignment, like the approved Four Mile Creek Alternative, would likely cause temporary soil erosion due to water runoff. (See Section 4.3.7, "Environmental Consequences – Air Quality," for a further discussion of effects of wind erosion.)

Soil characteristics, slope steepness, and precipitation are more important factors in determining water erosion rates than the amount of earthwork required. Accordingly, SEA determined that initial water erosion rates for the proposed Western Alignment (as well as the approved Four Mile Creek Alternative) would be moderate to high (see Table 4-21). Areas cleared of topsoil, denuded, or otherwise disturbed are generally more susceptible to erosive forces because subsoils tend to have lower inherent infiltration and percolation rates, increasing the potential for runoff. These factors would be aggravated by compaction from equipment operation during construction.

Temporary construction staging sites and construction access corridors would be susceptible to water erosion. Topsoil stockpiles also would be susceptible to water erosion, the degree of which would depend on slope steepness and soil type. If left exposed and unprotected for more than a few months, significant amounts of soil could erode during precipitation runoff.

The majority of surface soils for the proposed Western Alignment, like the approved Four Mile Creek Alternative, have fine fractions (less than 2 millimeters), with loamy to silty clay loam textures that have a moderate to low susceptibility to erosion. Where slopes exceed 15 percent, water erosion potential would be high regardless of the texture. Alternately, water erosion potential would be reduced where coarse fragment content exceeds 50 percent, because coarse textures have a lower erodibility factor. The other two classes of soils aside from coarse are medium and fine, both of which would be more susceptible to erosion than coarse soils.

Table 4-21 – Potential Gross Waterborne Soil Erosion Estimates

Alignment	Affected Area (acres)[a]	Average Slope Length (feet)	Gross Erosion Estimate with the Project[b]		Gross Erosion Estimate without the Project (Baseline)[b]	
			(tons/acre/ year)	(tons/year)	(tons/acre/ year)	(tons/year)
Proposed Western Alignment	513	104	35.7 to 56.0	18,300 to 28,700	1.5 to 3.0	546 to 1,077
Approved Four Mile Creek Alternative [c]	542	74	26.9 to 44.0	14,600 to 23,800	1.0 to 1.9	456 to 885

Source: Mission Engineering
Notes: Conservative (worst-case) estimates do not take mitigation measures into account.
[a] Affected acres are actual disturbed areas, which include most but not all of the ROW.
[b] The data reflect the difficulty in determining the erodibility of subsurface soils that would be exposed during construction and represent best-case to worst-case scenarios. The gross erosion estimate is based on the Revised Universal Soil Loss Equation (RUSLE), which is explained in Appendix I.
[c] Four Mile Creek estimates are from the Tongue River II Draft EIS.

As shown in the above table, without mitigation, both the proposed Western Alignment and the approved Four Mile Creek Alternative could result in significant increases in soil loss. These worst-case estimates assume no revegetation of disturbed slopes. Soil loss could be reduced to near the levels of erosion occurring under existing conditions by reestablishing vegetation on disturbed areas. The soil loss estimates indicate that, if no revegetation occurs, there would be over ten times as much soil erosion from construction conditions as compared to the amount of erosion occurring under existing conditions. Annually, the proposed Western Alignment would result in a higher construction-period gross soil erosion rate than the approved Four Mile Creek Alternative. The difference is due to the greater slope lengths required to level the track through the steeper terrain of the proposed Western Alignment. The proposed Western Alignment would also result in more total soil loss for an average year, despite it being a significantly shorter alignment than the approved Four Mile Creek Alternative.

The "cut and fill" process is used in construction to level off steep slopes by cutting away from the top of the slope and filling in at the bottom, thereby providing a flatter ROW for the railroad and/or access roads. In Tongue River II, the Board adopted mitigation measures [TRRC II, Vegetation Conditions A.9.3.2 (1)c.4, 5 and 8] to reduce erosion from railroad and access-road cut and fill, to minimize soil disturbance and displacement, and to leave unprotected as little disturbed soil as possible at a given time. SEA recommends that the following mitigation measure supersede the measures adopted in Tongue River II:

> **Mitigation Measure 36 (Stormwater Pollution Prevention Plan).** TRRC shall prepare a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion Control Plan using Montana Department of Environmental Quality Guidelines Best Management Practices (BMPs) and shall obtain coverage under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity. Prior to construction of each rail segment, TRRC shall determine which BMPs shall be employed at different locations in the project area.

The SWPPP shall identify areas that have a high potential for soil erosion due to topography, slope characteristics, facility activities, and/or other factors. (Generally, areas with little or no vegetative cover, 0-25 percent on slopes greater than or equal to 15 percent, have a high potential for soil erosion.) To determine areas of high erosion potential, TRRC shall consult with the County Natural Resource Conservation Service, research, as appropriate, published soil survey reports, and/or conduct soil/geologic studies.

The SWPPP may include the use of sediment basins, berms, filter strips, covers, diversion structures, sediment control fences, straw bale dikes, seeding, sodding, and/or other control structures or BMPs. The SWPPP shall identify and locate the BMPs to be used during and after construction to control sediment discharges to surface waters. The SWPPP shall include a description of storm water BMPs appropriate for the rail line, which TRRC shall implement. The SWPPP shall also include a schedule for implementation and address the following:

(1) Individual(s) responsible for preventing pollution and for implementing storm water management BMPs.
(2) Risk identification and assessment/material inventory.
(3) Spill prevention and response procedures.
(4) Storm water management.
(5) Sediment and erosion prevention.
(6) Visual inspections.
(7) Record keeping and internal reporting.
(8) Non-storm water discharges. *[TRRC III, new]*

The anticipated effectiveness of several BMPs in Mitigation Measure 36 are as follows:

Seeding and/or mulching of cut and fill slopes:	
seeding and fertilizing	25% mitigation (USDA Forest Service 1990)
straw application	60% mitigation (Burroughs and King 1989)
Armoring surface:	
rock surfacing	75-80% mitigation (Burroughs and King 1985; Luce and Black 1999)
Silt fences, waterway protection, sediment traps:	
filter windrow at toe of fillslope	85% mitigation (Burroughs and King 1989; Cook and King 1983)

Given the effectiveness of the BMPs, a 50 percent reduction in waterborne soil erosion is likely a conservative estimate. See Appendix F for more information concerning state requirements pertaining to erosion control.

Cut and fill slopes whose length is less than twice the height (2:1) are considered relatively unstable and make erosion prevention difficult. Therefore, TRRC has proposed to construct all cut and fill slopes with a length greater than or equal to 2:1. On cut and fill slopes where the length is less than three times the height, special measures must be undertaken to prevent erosion. In Tongue River II, the Board adopted a mitigation measure (19) to minimize impacts

from soil erosion on cut and fill slopes where the length is less than three times the height (3:1). Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that the impact of erosion from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant. The implementation of these measures is particularly important for areas adjacent to the Tongue River (or the perennial tributaries along the alignment) in order to minimize sediment input into the river.

Soil Salvage. The MDEQ Storm Water Pollution Prevention Plan will contain additional measures to assure that all reasonably salvageable topsoil is removed from all disturbed areas. TRRC and the selected contractor shall implement these topsoil replacement practices, since a low percentage of topsoil salvage or a less than even and stable replacement of topsoil, especially on steep slopes or southern exposures, could decrease effectiveness of post-reclamation vegetative-cover mitigation measures and could thereby increase sediment erosion in runoff.

Physical Characteristics of the Soil. The physical properties of soil in reclaimed areas may be different from those prior to disturbance. Handling can result in the loss of the natural soil profile, destruction of pore space continuity and soil structure, and a loss of organic matter due to mixing and dilution. These changes could adversely affect soils, and subsequently plants, due to decreased water-holding capacity and aeration. For the approved Four Mile Creek Alternative and the proposed Western Alignment, the moderate amount of coarse fragment present in soils found in the ROW could help to offset these impacts.

Reestablishing disturbed vegetation in affected areas may be difficult due to the decreased water-holding capacity and the relatively low annual precipitation in the region. These factors could contribute to potential adverse impacts on soils and the ability of plants to grow in such soils. The impact would be similar for both the proposed Western Alignment and the approved Four Mile Creek Alternative. Section 4.3.2, "Environmental Consequences – Biological Resources," contains a discussion of mitigation measures designed to promote revegetation and preserve the physical characteristics of the soil.

Soil Biological Activity. Soil biological impacts would occur in most of the areas disturbed by construction activities. Disturbance and subsequent storage of topsoils can decrease the quantity of important soil microorganisms such as bacteria, fungi, and algae, which are essential to soil nutrient cycling (Miller and Cameron 1976). In addition, some favorable components normally found in natural soils would be lost through decomposition during storage. These components include seeds of native plants, rhizomes (underground stems), and other plant parts capable of producing new plants.

The impact of construction on soil biological activity would be similar and unavoidable for both alternatives. SEA believes that mitigation measures discussed in Section 4.3.2, "Environmental Consequences – Biological Resources," adopted by the Board in Tongue River II related to revegetation would ensure that the impact on soil biological activity under either alignment would not be significant.

Saline Soils. Saline and/or sodic (containing salt or sodium) conditions limit the chemical and physical potentials of the soil. These limitations can have negative effects on the vegetation-bearing capability of the soil as well as the capacity to construct within the soils. Where these soils are affected by erosion, compaction, and the mixing of soil layers possessing distinct physical, chemical, and biological properties, the reclamation would be more difficult than on non-saline and non-sodic soils. To ensure plant cover, saline soils would require more maintenance and care than more productive soils. If supplemental programs (e.g., remulching or reseeding) are not implemented, these soils would exist as erosional hazards for many years. In addition, erosion of these soils and transport to nearby streams could lead to increases in total dissolved salt concentrations in the streams, thus negatively affecting water quality.

Most soils in the area of the proposed Western Alignment and approved Four Mile Creek Alternative have low to moderate alkalinity levels and low sodium levels. No saline or sodic soils have been identified in the area, although localized areas could be identified during design phase investigation and/or construction.

The mitigation measures adopted by the Board in Tongue River II do not directly address the construction-period impacts associated with saline and sodic soils. SEA preliminarily recommends the adoption of the following mitigation measure to address potential impacts associated with saline and sodic soils:

> **Mitigation Measure 37 (Saline and Sodic Soils).** TRRC shall, to the maximum extent feasible, avoid saline and sodic soils in its construction of the rail line. Where possible, saline or sodic soils shall be buried, and topsoil more conducive for revegetation left on the finished surface to aid in revegetation efforts and reduce erosion. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that the impacts associated with saline and sodic soils resulting from the construction of the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Slumping. On slopes greater than 25 percent, shallow soils over weathered shale bedrock would have a high potential for slumping, especially when wet. This could result in potentially significant impacts. However, the exact nature of the soils, and the determination whether or not the soils would actually slump, could only be determined by detailed, on-site geologic and engineering tests. It is not possible to conduct these tests at this time because of the limited access to the portion of either ROW that crosses private property. Accordingly, slumping potential could not be precisely determined until final approval to construct and operate the proposed Western Alignment or the approved Four Mile Creek Alternative is obtained and access to these areas is secured. In general, slumping would be more likely to occur along the proposed Western Alignment than the approved Four Mile Creek Alternative due to the greater number of deep cuts associated with the route.

The mitigation measures adopted by the Board in Tongue River II do not directly address the construction-period impacts associated with slumping. SEA preliminarily recommends the adoption of the following mitigation measure to address potential impacts associated with slumping:

Mitigation Measure 38 (Geotechnical Investigations). Prior to beginning construction of this line, TRRC shall conduct geotechnical investigations to identify soils/bedrock in cut areas with the potential for slumping to occur following construction. In areas with a potential for slumping, TRRC shall include, as appropriate, engineering controls such as flattened slopes, adequate drainage, retaining structures, geotechnically designed stabilization techniques, terracing and surface water-runoff control. *[TRRC III, new]*

Mitigation Measure 39 (Slumping). If slumping occurs during construction of this line, TRRC shall institute remedial actions immediately following a slope failure. These actions shall include, as appropriate, implementation of emergency sediment control structures such as furrows, removal of slumped material to a location that will not allow erosion and transport of this material to any waterways, implementation of measures to promote revegetation, and a geotechnical evaluation, if feasible, to determine the best way to prevent additional slumping. Remedial action also may involve, as appropriate, the installation of drains or adding material to the toe of the slump to stabilize it. *[TRRC III, new]*

Mitigation Measure 40 (Erosion). Prior to beginning construction of this line, TRRC shall perform an analysis to determine the potential for erosion (wind and water) at proposed cut and fill locations. The analysis shall compare slope lengths and gradients to determine the optimum gradients and mitigation measures for minimizing erosion at each proposed cut and fill location. *[TRRC III, new]*

Mitigation Measure 41 (Sediment Delivery). Prior to beginning construction, TRRC shall assess the potential for construction and operation of the rail line to generate, transport and deliver sediments to a given body of water. Contributions of sediments shall be measured as "bedload," or material that is transported along the bed of a stream rather than in suspension. Woman pebble counts (woman pebble is a methodology for sampling and categorizing substrate) may be used for sediment data. *[TRRC III, new]*

Mitigation Measure 42 (Soil Survey). Prior to any construction of this line, TRRC shall conduct a soil survey along the alignment, including a review of soil survey data from Big Horn and Rosebud counties. As part of this survey, TRRC shall obtain, query, review, and interpret digital soil survey maps for the area within 300 meters of the rail alignment. Soils with similar characteristics along the route shall be grouped, and detailed descriptions of each grouping shall be prepared. The descriptions shall include information regarding the soil group's distribution, structure, permeability, and erodibility. After completing its survey, TRRC shall prepare a series of reports to be made available to SEA depicting the soils for the entire alignment. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that the impacts associated with slumping soils resulting from the construction of the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

4.3.3.3 Impacts of Operation and Maintenance on Soils and Geology

Impacts on soils and geology would result from the operation and maintenance of the proposed Western Alignment or the approved Four Mile Creek Alternative. Operation-related impacts could include soil erosion and slumping.

SEA consulted EPA and MDEQ and conducted its own analysis to identify impacts on soils and geology arising from the operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative. The result of SEA's analysis is discussed below.

Soil Erosion and Slumping. Soil erosion and slumping could occur during the operation of the proposed Western Alignment from the travel of trains, as it could from the approved Four Mile Creek Alternative. Based on the information available to date, SEA believes that the recommended revegetation plan would minimize the impact from soil erosion during operation of the Tongue River Railroad. (See Section 4.3.2, "Environmental Consequences – Biological Resources.") Furthermore, the mitigation measures identified in the discussion of construction-period soil slumping impacts, such as proper engineering of cuts and fill and the requirement for remedial action if slumping occurs during operation of the rail line, would ensure that impact would not be significant.

4.3.4 Environmental Consequences – Hydrology and Water Quality

4.3.4.1 Summary

The proposed Western Alignment, like the approved Four Mile Creek Alternative, would traverse non-perennial (seasonal) streams and the Tongue River. For both alignments, the primary hydrology and water quality issues are similar and are related to the potential for increased sediment loads in waterways from construction-period erosion.

New Analyses. SEA's analysis of impacts on hydrology and water quality for the approved Four Mile Creek Alternative and the proposed Western Alignment is based on information contained in the EIS in Tongue River II and the Environmental Report for the proposed Western Alignment. SEA reviewed the information and conducted site visits and aerial surveys to verify that the information was accurate and up to date.

Mitigation. As part of this analysis, SEA examined the potential impacts associated with bridge length and identified two new mitigation measures to minimize the impacts of culverts on migrating amphibians and reptiles and 100-year floodplains. SEA also preliminarily recommends clarifying changes to six mitigation measures adopted by the Board in Tongue River II for the approved Four Mile Creek Alternative and recommends that these measures also be made applicable to the proposed Western Alignment, should that route be approved and built.

Conclusion. Based on the information available to date, SEA preliminarily concludes that, with mitigation, the construction and operation of the proposed Western Alignment, like the previously approved Four Mile Creek Alternative, would not result in significant impacts on hydrology and water quality.

4.3.4.2 Construction-period Impacts on Hydrology and Water Quality

SEA determined that temporary impacts on water quality would result from the construction of the proposed Western Alignment (as is also the case for the Four Mile Creek Alternative). Construction-period impacts would include temporary increases in sediment loads and suspended solids due to (1) active construction in waterways during installation of bridges and culverts; (2) changes in surface water patterns and shallow aquifer flow patterns due to topographic and drainage-pattern changes (e.g., cut and fill and the crossing of drainages); and (3) the temporary effects of water consumption for dust suppression. Longer-term impacts, such

as changes in surface water and shallow groundwater patterns, could affect vegetation in small isolated areas along the rail line, but the overall impact would not be significant.

SEA consulted EPA, USFWS, and MDEQ and conducted its own analysis to identify impacts on hydrology and water quality, and to ensure that the information in the EIS in Tongue River II involving the Four Mile Creek Alternative remained accurate and up to date. The results of this analysis are discussed below.

Increase in Sediment Loads and Suspended Solids Due to Erosion. The construction of the proposed Western Alignment, like that of the Four Mile Creek Alternative, would have the potential to increase sediment loads in the Tongue River. To determine and compare how much sediment would reach the Tongue River under the alternative alignments, SEA first assessed the amount of soil erosion that could be expected from construction. (See Section 4.3.3, "Environmental Consequences – Soils and Geology," for this analysis.) SEA's gross soil loss estimates are very conservative and do not reflect erosion control BMPs that would be employed during construction. Furthermore, the estimates assume that the entire affected area would be disturbed at the same time. Since construction progresses over a period of time the amount of exposed acreage at any one time would be less than what is estimated.

If TRRC and the contractor follow mandated erosion control measures set by the agencies identified in Section 4.3.3, only a small percentage of the soil that would be eroded from the disturbed areas under either alignment would actually be delivered to a stream. The amount of soil delivered to a stream would depend on the size of the watershed, the distance between the construction area and the stream, the degree and shape of the slope between the construction area and the stream, the texture of the eroded material, surface roughness, vegetative cover, and other factors. The fraction of the gross amount of eroded soil that would actually reach the stream is known as the sediment delivery ratio. These ratios are estimated for both the proposed Western Alignment and the approved Four Mile Creek Alternative. A corresponding increase in TSS in the Tongue River is estimated from the sediment delivery ratio and the mean annual river flow rate.[33] Table 4-22 presents the results of the analysis.

[33] The annual flow rate of the Tongue River at the Tongue River Reservoir Dam ranges from 212,500 afy to 321,000 afy. The lower flow rate of 212,500 afy assumes that all Tribes and the State of Montana would fully exercise their water rights, thus reducing the average annual flow.

Table 4-22 – Anticipated Annual Increase in Total Suspended Solids, Tongue River

Alignment	Estimated Soil Loss (tons/year)	Sediment Delivery Ratio	Increase in Sediment Load to River (tons/year)	Increase in Average TSS Concentrations (mg/L)
Proposed Western Alignment	18,300 - 28,700	0.37	6,770 - 10,600	16 - 37
Four Mile Creek Alternative[a]	14,600 - 23,800	0.25	3,650 - 6,000	8 - 21

Source: Mission Engineering
Notes: The data reflect the difficulty in determining the erodibility of subsurface soils that would be exposed during construction, and represent best-case to worst-case scenarios. See Section 4.3.3, "Environmental Consequences – Soils and Geology," for a discussion of soil erosion.
[a] Four Mile Creek Alternative estimates are from the Tongue River II Draft EIS.

The worst-case scenario for gross erosion assumes no revegetation of disturbed slopes, and short-term average annual increases in TSS estimated for the Tongue River would range from 8 to 21 mg/L for the approved Four Mile Creek Alternative, to 16 to 37 mg/L for the proposed Western Alignment. In contrast, the average measured TSS concentration at the dam outfall is 29 mg/L. (See Section 4.2.4, "Affected Environment – Hydrology and Water Quality.")

Although the sediment delivery is presented as an annual average, the delivery of eroded sediment to the river actually varies over the course of the year. During base flow conditions or dry periods of the year, when there is no surface runoff occurring, there would be no increase in erosion resulting from the construction of either the proposed Western Alignment or the Four Mile Creek Alternative. During periods of rainfall and snow melt runoff, the TSS levels in the river would tend to be naturally elevated. The construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative during these runoff conditions would further increase TSS levels. A potential impact of this increase in TSS levels above typical runoff conditions could be the deposition of sediment and the formation of sand bars in the river channel near the mouths of the side drainages. This impact may occur during the construction period but could also extend into the operational phase of the project.

Notwithstanding the worst-case scenarios presented above, the use of BMPs and the revegetation process during construction would significantly reduce sediment erosion and delivery. (See Section 4.3.3, "Environmental Consequences – Soils and Geology," for a discussion of mitigation measures adopted in Tongue River II and recommended by SEA in this Draft SEIS.) Sediment delivery is estimated at between 50 and 70 percent; however, following the reestablishment of vegetation, TSS inputs to the Tongue River should return to preconstruction levels. (See Section 4.3.2, "Environmental Consequences – Biological Resources," for a discussion of mitigation measures designed to promote revegetation.) Therefore, with mitigation, the potential impacts would be similar and insignificant for both the approved Four Mile Creek Alternative and the proposed Western Alignment.

Bridge and Culvert Construction. Both the proposed Western Alignment and the approved Four Mile Creek Alternative would cross a number of non-perennial streams, requiring the

placement of fill to the stream's ordinary high-water mark.[34] (See Table 4-23.) At each crossing, a culvert would be placed in the streambed and back-filled with sub-ballast to support the rail line.

Table 4-23 – Stream and River Crossings for the Proposed Western Alignment and the Approved Four Mile Creek Alternative

Impact Category	Proposed Western Alignment	Approved Four Mile Creek Alternative
Number of non-perennial stream crossings	42	40
Number of perennial stream crossings	0	0
Number of river crossings	1	1

Source: Based on an examination of USGS Quadsheets of the area.

The proposed Western Alignment, like the approved Four Mile Creek Alternative, would require one bridge crossing of the Tongue River. The proposed Western Alignment would cross the Tongue River near Milepost 1.0. The approved Four Mile Creek Alternative would cross the Tongue River near Milepost 8.0, at its confluence with Four Mile Creek. Under both the proposed Western Alignment and the approved Four Mile Creek Alternative, fill would be added across the valley bottom to the edge of the riverbank to support the railroad grade across the Tongue River. The river itself would be spanned without placing any piers or other materials within the high-water mark of the river unless riprap or other methods are needed to stabilize the river bank at the crossing.

Recommended geotechnical investigations for the entire rail line would determine the suitability of existing valley materials to support the railroad grade. (See Section 4.3.3, "Environmental Consequences – Soils and Geology," for a discussion of recommended geotechnical investigations.) If the geotechnical investigations determine that existing materials are suitable to support the grade, the fill would be placed on the existing material. In the event that the investigations reveal materials to be unsuitable to support the grade, it would be necessary to excavate the unsuitable materials and replace them with suitable subgrade material, upon which sub-ballast and ballast would be placed to the top of the railroad grade.

In Tongue River II, the Board adopted a mitigation measure to minimize the impacts on water quality resulting from bridge and culvert construction under the Four Mile Creek Alternative. SEA preliminarily recommends a minor modification to this measure in this Draft SEIS:

> **Mitigation Measure 43 (Water Quantity and Quality).** To assure that overall water quantity and quality are not unnecessarily altered or diminished by this project, TRRC shall submit detailed information about its plans and construction, for review and approval, to applicable agencies, including the U.S. Corps of Engineers, local conservation districts, and the Water Protection Bureau of the Montana Department of Environmental Quality prior to

[34] Title 23, Chapter 2, Part 3 of the Montana Codes (23-2-301 MCA) defines "ordinary high-water mark" as "the line that water impresses on land by covering it for sufficient periods to cause physical characteristics that distinguish the area below the line from the area above it."

any construction of this line. *[TRRC II, Hydrology and Water Quality Condition (1), modified to reflect current state agency]*

Bridge Construction. In Tongue River II, the Board adopted mitigation measures to minimize increases in TSS resulting from the construction of the bridge. SEA preliminarily recommends those measures, which would apply either alignment, be modified to read as follows:

> **Mitigation Measure 44 (Streambed Crossings).** During design, TRRC shall consult with and meet the reasonable requests of Montana Department of Natural Resources and Conservation, Montana Department of Environmental Quality, the US Army Corps of Engineers, and the local conservation districts for bridge crossings over the streambed of the Tongue River. *[TRRC II, Hydrology and Water Quality Condition (2), modified to reflect current state agency]*
>
> **Mitigation Measure 45 (Permitting and Bank Stabilization).** TRRC shall consult with the US Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) to implement the Corps' permit requirements under Section 404 of the Clean Water Act and EPA's riverbank stabilization methods at bridge crossings and riprap areas in order to prevent or reduce the impacts of soil erosion and sedimentation loading to area streams and the Tongue River. Appropriate methods may include placing or planting logs, trees, and other vegetative plantings with rock riprap along bridge sites and stream-encroachment areas. To prevent unnecessary degradation of water quality due to erosion, revegetation efforts shall begin as soon as possible after construction is completed in a given area. *[TRRC II, Hydrology and Water Quality Condition (3), modified to provide additional clarity regarding riverbank stabilization methods]*
>
> **Mitigation Measure 46 (Streambed Crossing Construction).** Rail construction activities involving stream crossings, including bridges and culverts and activities requiring stream-bank encroachments (riprap, for example), shall occur during periods of low or no flow in the streams affected. *[TRRC II, Hydrology and Water Quality Condition (6)]*
>
> **Mitigation Measure 47 (Bank Stabilization).** In constructing this line, TRRC shall stabilize banks with naturally occurring trees, shrubs, and grass. Riprap or gabions shall be used only as a supplement where such methods would improve fish habitat, or in cases where engineering requirements so dictate, such as downstream from culverts. *[TRRC II, Vegetation Condition A.9.3.2(1)(d)1, modified for minor edit]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that the impacts associated with increases in TSS in waterways from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant. See Appendix F for additional information on state permit requirements related to water quality.

Alteration of habitat related to bridge construction could occur where the bridge crosses the Tongue River. Typically, bridge spans are supported by building up the edges of the bank and setting the bridge on top. Water flow during a flood event is restricted by the artificially narrowed river bank. This restriction has two effects: (1) flow is backed up behind the bridge and sediments are often dropped in the riverbed, upstream of the bridge, and (2) water flow

speeds up as it passes under the bridge in the narrow channel, which can increase its erosive force downstream of the bridge. These effects can lead to changes in the river channel, increased erosion, and the potential for flooding upstream. Because both the proposed Western Alignment and the approved Four Mile Creek Alternative would require one bridge crossing of the Tongue River, this impact would be similar for both alignments.

By designing the bridge to have a longer than typical span, the bridge would create an underpass for wildlife and would move the construction zone further away from the riverbed (Jackson and Griffin 1998; Clevenger 1998). Increasing the length of the span would reduce the need for fill to support the bridge, could reduce the amount of sediment entering the stream, and could help to maintain the width of the floodplain near the crossing. The cost for a longer bridge span would be somewhat offset by its functioning as an underpass and potentially reducing the number of additional wildlife passage structures needed elsewhere along either of the alignments.

The mitigation measures adopted by the Board in Tongue River II did not directly address the impacts associated with the length of the bridge. Therefore, SEA preliminarily recommends the adoption of the following new mitigation measure to address impacts associated with bridge length, which would apply to either alignment:

> **Mitigation Measure 48 (Tongue River Crossing).** TRRC shall design the crossing of the Tongue River so that it does not require a center abutment, and so that the side abutments are placed outside of the riparian zone. The side abutments shall be located to provide adequate passage for wildlife (10 feet above the ordinary high-water mark). *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that, as mitigated, the impacts resulting from the construction of the bridge over the Tongue River for either the proposed Western Alignment or the approved Four Mile Creek Alternative would be similar and would not be significant.

Culvert Construction. The proposed Western Alignment, like the approved Four Mile Creek Alternative, would require the placement of culverts across non-perennial streams. Short- and long-term impacts on water quality can occur from the improper selection and placement of culverts across non-perennial streams. Specifically, selection of a culvert with inadequate diameter, and/or its placement in a stream during periods of flow, and failure to adequately stabilize fill slopes, can result in short-term impacts on water quality. Thus, improper placement of culverts during construction can create a condition whereby the sediment transport capacity of a particular reach of stream would be altered. This situation, called non-equilibrium, can have a long-term impact on water quality and channel stability. This impact is slightly higher for the proposed Western Alignment than for the approved Four Mile Creek Alternative because the proposed Western Alignment would cross two more non-perennial streams (42) than the Four Mile Creek Alternative (40).

In Tongue River II, the Board adopted a mitigation measure to minimize the impacts from the construction of culverts. SEA preliminarily recommends modifications to this measure, which would apply to both the proposed Western Alignment and the approved Four Mile Creek Alternative:

Mitigation Measure 49 (Culverts). TRRC shall ensure that all culverts and other drainage structures installed at non-perennial stream crossings during construction of this line comply with the design criteria of the American Railway Engineering and Maintenance of Way Association, established in the year 2000. This means that at a minimum, culverts shall be designed to discharge a 25-year flood without static head at entrance and a 100-year flood using the available head at entrance, the head to two feet below base of rail, or the head depth of 1.5 times the culvert diameter/rise, whichever is less. Additionally, TRRC shall incorporate the culverts into the existing grade of the streambed to avoid, to the maximum extent possible, changing the character of the streambed and impacting migrating amphibians and reptiles. *[TRRC II, Hydrology and Water Quality Condition (4), modified to reflect current industry practice and include migrating species]*

Based on the information available to date, SEA preliminarily concludes that, if imposed and implemented, this mitigation measure would ensure that the impacts resulting from the construction of culverts for either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Changes in Surface Drainage Patterns. Construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, should not significantly affect surface drainage patterns. The installation of properly sized culverts and their maintenance (debris clearance) should allow water to follow its normal course. Construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, could cause some water to accumulate at the toe of cut and fill slopes. This impact would be greater for the proposed Western Alignment, due to the greater number of cuts and fills. However, the implementation of BMPs, such as the construction of simple ditches at toe slopes, would be adequate to allow water to drain into the appropriate stream. (See Section 4.3.3, "Environmental Consequences – Soils and Geology," for a discussion of BMPs.)

In Tongue River II, the Board adopted a mitigation measure to minimize the impacts on drainage patterns. SEA preliminarily recommends that this mitigation measure, which would apply to either alignment, be modified as follows:

Mitigation Measure 50 (Perennial Streams). Where possible, TRRC's final alignment shall be designed to avoid the floodplain of perennial streams. Where the railroad grade infringes upon the floodplain, TRRC shall install drainage structures to assure that the grade does not restrict or reroute the 25-year flood. *[TRRC II, Hydrology and Water Quality Condition (5), modified to reflect current Montana Floodplain and Floodway Protection Act (MCA 76-5-401 through 406) requirements]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that the impacts associated with changes in surface drainage from the construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would not be significant.

Changes in Aquifers. Construction of the proposed Western Alignment should not affect groundwater aquifers. The extent of the anticipated construction-related disturbance would be small in comparison to the overall area and volume of the aquifers. In addition, proposed cuts are designed to be above the water table. In the circumstance where a cut did intercept a shallow

or perched aquifer, water in the area immediately surrounding the cut could seep into the cut. Given the well-based assumption that shallow groundwater flow is toward the river, and the river is adjacent to the cut, the only areas impacted by interception of the shallow aquifers would be those located between the cut and the discharge point of the intercepted aquifer.

Based on the information available to date, SEA preliminarily concludes that these impacts would be minimal. This would be verified by the geotechnical studies recommended by SEA. (See Section 4.3.3, "Environmental Consequences – Soils and Geology," for a discussion of recommended geotechnical studies.) These geotechnical studies would be conducted by TRRC during the design phase prior to commencement of construction of the proposed Western Alternative to determine the depth to the groundwater table. There would be no effect on groundwater quality or quantity in the shallow alluvial aquifers under the proposed Western Alignment, and the result would be the same for the approved Four Mile Creek Alternative, for the reasons discussed in the EIS in Tongue River II and above.

Water Consumption During Construction. Water from the Tongue River would be needed for the construction of fills and for dust suppression for both alignments.[35] Table 4-24 presents the estimated water usage for the full construction period of both alignments.

Table 4-24 – Estimated Water Use During Construction of Both Alignments

Alignment	Water Use for Construction (in acre feet)
Proposed Western Alignment	1,564
Approved Four Mile Creek Alternative[a]	854

Source: Mission Engineering
Note: [a] Four Mile Creek Alternative estimate is from the Tongue River II Draft EIS.

As discussed above, the average annual discharge for the Tongue River below the Tongue River Reservoir Dam could range from 212,500 to 321,000 afy (MT DNRC et al. 1996). Even though construction is likely to occur during the same time as irrigation season (May to September), the amount of anticipated construction water use is not considered a significant water withdrawal. TRRC's proposed water usage for the proposed Western Alignment only represents, at most, approximately 0.25 percent of the annual discharge of the dam. TRRC's proposed water use for the Four Mile Creek Alternative would represent, at most, roughly 0.13 percent of the dam's annual discharge. The only time when these levels of use could be considered significant would be during a drought.

In the event of a drought, TRRC could purchase water from several potential sources. One possible source of water is the Northern Cheyenne Tribe, whose water-purchase contract increased from 7,500 afy to 27,500 afy under the Northern Cheyenne–Montana Water Right Compact when dam repairs were completed (Jason Hoitman, MT DNRC, September, 2003). Another source of water could be the Tongue River Water Users Association. The Association has 32,500 afy of stored water rights (Art Hayes, President of Association, September, 2003).

[35] Fills are constructed by mixing predetermined amounts of water with the soil, thereby greatly enhancing the strength of the fill.

During the non-irrigation season, there could also be water available for a temporary water use permit, if flows in the Tongue River exceeded the MT DFWP's instream reservation. SEA therefore does not propose any mitigation measures specific to water consumption during construction.

See Appendix F for information on state permit requirements for temporary water use.

4.3.4.3 Impacts on Hydrology and Water Quality from Operation and Maintenance

River Flood Levels. Both the proposed Western Alignment and the approved Four Mile Creek Alternative would require construction of one bridge over the Tongue River. Given the increased spillway capacity of the reconstructed Tongue River Reservoir Dam, MT DNRC expressed concern about the effect of this bridge across the Tongue River on flooding levels during high flow events and the resulting impact on six inhabited or habitable structures below the dam. (See Figure 4-8 for the location of these sites.) In response, TRRC conducted a Flood Effects Analysis (WESTECH 1999) using the new dam design dimensions with flow events of 60,000 cfs, 100,000 cfs, and 120,000 cfs. SEA reviewed and verified this analysis in 2003.

For the proposed Western Alignment, like the approved Four Mile Creek Alternative, there is only one crossing of the Tongue River that would be within the floodplain and could affect flooding. However, the study indicates that if properly designed, the one river crossing should not alter the 100-year floodplain. The study also indicated that during a 100-year flood event neither alignment would adversely affect any homesites, and no overtopping of the proposed bridge would occur.[36] Appendix F contains the Flood Effects Analysis.

Based on the Flood Effects Analysis conducted by TRRC, the bridge across the Tongue River should not alter the 100-year floodplain of the Tongue River. To ensure that the final design of the bridge does not adversely affect the 100-year floodplain, SEA preliminarily recommends the adoption of the following mitigation measure:

> **Mitigation Measure 51 (Bridge Design).** Prior to beginning construction of this line, TRRC shall prepare an analysis for the Montana Department of Natural Resources and Conservation, documenting that the final design for any bridges constructed over rivers and perennial streams located in a designated 100-year floodplain shall not increase the upstream elevation of the 100-year flood by more than 0.5 feet or significantly increase flood velocities. If TRRC's analysis concludes that any bridge would increase the upstream elevation of the 100-year flood by more than 0.5 feet or significantly increase flood velocities, TRRC shall redesign the bridge to reduce these impacts to a less than 0.5 foot increase in the 100-year flood elevation. *[TRRC III, new]*

[36] At the request of MT DNRC, TRRC conducted an analysis of several extreme flood events were equivalent to storm events approximately representing 2,200-, 5,000-, and 10,000-year return periods (WESTECH 1999). These parameters are considered very conservative, as an analysis of this type is usually performed only for the 100-year storm event. The analysis indicated that the bridge would not be inundated, and that the increase in flood level to homes in the area, as a result of the bridge, would be approximately two to six feet in the event of a 2,200- to 10,000-year flood. In the event of a 100-year flood, the increase in flood level would be approximately six inches.

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts on 100-year floodplains resulting from implementation of the proposed Western Alignment, similar to the approved Four Mile Creek Alternative, would not be significant.

Diesel Fuel Spills. Operation and maintenance activities for the proposed Western Alignment, like those of the approved Four Mile Creek Alternative, could result in diesel fuel spills entering streams. Fueling of locomotives is expected to be done at the Burlington Northern Santa Fe Railroad Company (BNSF) facility at Glendive and not at any point along either alignment. Glendive has a contingency plan to minimize impacts, should a spill occur in its yards. A diesel fuel spill of any significance along either alignment likely would occur only in the instance of a derailment. Should a derailment occur near a stream, and should diesel fuel enter the water, water quality would be affected. The locomotives would use Number Two diesel fuel, which is lighter than water, and would therefore coat and destroy plankton, while its water soluble fractions would be toxic to aquatic life. Considering travel time in flowing streams, the effects of a floating or dissolved substance would be removed from the vicinity of the proposed Western Alignment or the approved Four Mile Creek Alternative within one week. While the potential for derailments along either route is very small, the approved Four Mile Creek Alternative would have a higher potential derailment rate than the proposed Western Alignment due to its longer route. (See Section 4.3.6, "Environmental Consequences – Transportation and Safety," for a description of the possibility of train derailments and associated mitigation measures.)

Coal Spills. Operation and maintenance activities also could result in coal spills into streams. Coal would be hauled on unit trains. Once loaded at the mine, coal would not be rehandled along the ROW. Coal spills of any significance, however, likely would only occur in the event of a derailment. Due to its longer route, the potential for a derailment on the approved Four Mile Creek Alternative is higher than on the proposed Western Alignment. (See Section 4.3.6, "Environmental Consequences – Transportation and Safety," for a description of the possibility of train derailments.)

If coal were spilled directly into a stream, it would remain in place until removed by cleanup activities or transported downstream as part of the stream's sediment load during successive flood events. Chemical water quality would not be significantly affected because coal is insoluble. The coal could interfere with river activities such as fish spawning, if it occurred in a shallow spawning bed. (See Section 4.3.2, "Environmental Consequences – Biological Resources," and Section 4.3.6, "Environmental Consequences – Transportation and Safety," for further description of impacts and mitigation measures pertaining to coal spills.) Impacts would be reduced by prompt removal of the coal from the stream bed.

Herbicides. Operation and maintenance activities for the proposed Western Alignment, like those of the approved Four Mile Creek Alternative, could result in herbicides entering streams. To control noxious weeds, TRRC would be required to spray herbicides. As discussed in Section 4.3.2, "Environmental Consequences – Biological Resources," herbicides would be applied in a manner that would not affect water quality. In the event of an accident or derailment, however, there is the possibility that water quality could be affected. Derailed cars or large quantities of coal could move downslope from the rail line to the river, and in the process, disturb and transport topsoils that have been treated with herbicides. Due to its longer route, the potential for a derailment on the approved Four Mile Creek Alternative is higher;

however under the proposed Western Alignment, the potential for water quality impacts from herbicides would remain high due to the proximity of the proposed alignment and the river. (See Section 4.3.6, "Environmental Consequences – Transportation and Safety," for a description of the possibility of train derailments.)

4.3.5 Environmental Consequences – Cultural and Paleontological Resources

4.3.5.1 Summary

Both the proposed Western Alignment and the approved Four Mile Creek Alternative would traverse mostly undeveloped land. Neither alternative would traverse Native American reservation property. At the rail line's closest point, it is approximately four miles east of the Crow Indian Reservation. For both alignments, the primary cultural and paleontological resource issues would be related to the impacts of disturbing prehistoric, historic, and traditional cultural resources from rail construction and operation. As a result, SEA has conducted a thorough and comprehensive analysis of these impacts, as well as other cultural and paleontological resources-related impacts in both Tongue River II and this Draft SEIS.

New Analyses. SEA's analysis of impacts on cultural and paleontological resources resulting from the construction and operation of the approved Four Mile Creek Alternative and the proposed Western Alignment utilizes information contained in the EIS in Tongue River II and the Environmental Report prepared by TRRC in Tongue River III. SEA reviewed and verified this information and conducted site visits and aerial surveys to ensure that the information in the EIS prepared in Tongue River II involving the approved Four Mile Creek Alternative, and information in TRRC's Environmental Report concerning the proposed Western Alignment, was accurate and up to date.

Mitigation. As part of this analysis, SEA preliminarily recommends modification of one mitigation measure that was adopted by the Board in Tongue River II to reflect that SEA has prepared a revised PA. The content of the PA is discussed below.

Conclusion. The construction and operation of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, could affect paleontological and cultural resources located within the area. To determine the impact on paleontological and cultural resources, SEA identified the range of paleontological and cultural properties in the area that might be eligible for listing in the NRHP. SEA's analysis also included consultation with Native American representatives. (See Chapter 1, Section 1.6.3, "Overview of the Applications – Participating Agencies – Native American Consultation.") To assess impacts on cultural resources, SEA generally used the same methods that were used in Tongue River I and Tongue River II.

To ensure proper identification and treatment of cultural and paleontological resources from the construction and operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative, SEA developed a PA for Tongue River III in consultation with ACHP, MT SHPO, BLM, the Corps, MT DNRC, USDA, the Northern Cheyenne Tribe, the Crow Tribe, and TRRC. The PA sets forth the detailed requirements of how the impacts associated with the construction and operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative would be addressed, including impacts to paleontological, architectural, historic, and cultural properties. The PA guides and regulates the procedures by which the identification and treatment of paleontological and cultural resources would occur. The PA

includes detailed requirements for additional surveys of the entire rail line ROW from Miles City to Decker; identification and evaluation of paleontological, prehistoric, historic, or traditional cultural sites or structures; development of a detailed Treatment Plan in consultation with the parties to the PA and the Native American community; and procedures for reviewing and addressing objections and/or disagreements. The PA developed for Tongue River III would replace the previous PA developed for Tongue River II, and would apply to construction of the entire rail line from Miles City to Decker. The current Draft PA is attached in Appendix G.

SEA also preliminarily recommends the following historic preservation condition (to substitute for Cultural Resources Condition (1) from Tongue River II):

> **Mitigation Measure 52 (Programmatic Agreement).** To protect cultural and historic resources, TRRC shall comply with the provisions of the revised Programmatic Agreement for the entire line entered into for this project. *[TRRC II, Cultural Resources Condition (1), modified to reflect that SEA has prepared a revised Programmatic Agreement]*

Based on the information available to date, SEA preliminarily concludes that with mitigation (specifically, the implementation of the PA), neither the construction nor the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative would result in significant impacts to cultural and paleontological resources.

4.3.5.2 Construction-period Impacts on Cultural and Paleontological Resources

The ROW that would be required for construction and operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative would extend 200 feet from each side of the proposed railroad's centerline. The corridor established for identifying the location of cultural resources and evaluating potential impacts to them extends 1,500 feet from either side of the centerline.[37] The construction of the proposed Western Alignment or the approved Four Mile Creek Alternative could affect cultural resources by removing cultural properties within the 200-foot ROW, by visually or audibly affecting properties beyond the 200-foot ROW but within its 3,000-foot corridor, by indirectly affecting properties through alteration of land patterns, or by increasing public accessibility to previously remote areas. These impacts could also adversely affect Native American cultural resource sites. SEA's assessment of impacts on cultural and resource sites has been conducted in compliance with applicable Federal, state, and local policies, including the American Antiquities Act of 1906, NHPA, NEPA, ARPA, AIRFA, and the Montana State Antiquities Act. These impacts are addressed by the PA, which sets out the process for identifying and mitigating impacts to cultural resources that would result from this project.

Direct Impacts from Construction. A comparison of the cultural resource properties within the proposed Western Alignment and the approved Four Mile Creek Alternative ROW has been developed based on review of existing literature and consultation with Federal and state agencies and Native American representatives. This list is presented in Table 4-25.

[37] The 3,000-foot corridor (1,500 feet on each side of the railroad centerline) was adopted as a MT SHPO standard while conducting field work for Tongue River I. This same approach was used to conduct field work for Tongue River II, and also has been used in Tongue River III.

Table 4-25 – Cultural Resource Properties Within the Proposed Western Alignment and the Approved Four Mile Creek Alternative 200-foot ROW

Site Number/Name	Site Type	NRHP Status	Approved Four Mile Creek Alternative	Proposed Western Alignment
TRR350	Homestead	Unknown	X	
Brewster E. Site Ditch	Ditch	Unknown	X	X
Eagle Nesting Area	TCP	Potentially eligible	X	X
Flying V Ranch Ditch	Ditch	Unknown	X	X
Spring Creek Archeological District	District	Eligible	X	X
Tongue River Road	Road	Unknown	X	X
24BH1553	Road	Not eligible		X
Rosebud to Tongue River Road	Road	Unknown		X
24BH2601	Historic construction cap	Eligible		X
Stage Road to Birney	Road	Unknown		X

Source: Peterson et al. 1995.
Note: TCP = traditional cultural property.

The following discussion presents the findings of the Class I inventory.[38]

Paleontological Resources Within the 200-foot ROW. No paleontological resources are known to exist in rocks or soils that would be disturbed by either the proposed Western Alignment or the Four Mile Creek Alternative. Construction of either alignment could result in potential impacts on currently unknown paleontological resources. Paleontological localities would be identified during detailed pedestrian surveys of the alignment, as required by the PA, that would be conducted prior to the start of construction of either alternative. If any paleontological resources are located during the surveys, mitigation measures would be developed in consultation with the BLM and TRRC in accordance with terms of the PA. Mitigation could include collection and curation of scientifically significant fossils, additional sampling, and/or monitoring of excavation.

Prehistoric Properties Within the Proposed Western Alignment and the Approved Four Mile Creek Alternative 200-foot ROW. The Class I literature inventory and field reconnaissance of the proposed Western Alignment and the approved Four Mile Creek Alternative indicated that neither alignment would affect any previously recorded prehistoric sites. Any prehistoric property types likely to be encountered in the area should be similar in

[38] A Class I inventory is a professionally prepared study of existing cultural resource data from published and unpublished documents, BLM cultural resource inventory records, institutional site files, state and National registers, informant interviews, and other information sources. A Class I inventory generally has prehistoric, historic, and ethnological/sociological elements.

type to those previously recorded in the area: lithic procurement areas, lithic workshops, camp sites, bison kill sites, and rock art sites.

SEA applied the model developed for Tongue River I[39] to predict the number of prehistoric properties and estimated that seven additional prehistoric sites could be found within the ROW of the proposed Western Alignment, and twelve historic sites are expected to be found along the approved Four Mile Creek Alternative. Based on Tongue River I and Tongue River II, an appropriate estimation is that ten percent of sites identified would ultimately be determined to be eligible for the NRHP. Applying this assumption, one site on the proposed Western Alignment and up to two sites on the approved Four Mile Creek Alternative could be eligible for the NRHP. Any cultural resources located during the survey would be addressed in accordance with the PA.

A portion of either the proposed Western Alignment or the approved Four Mile Creek Alternative runs through the eastern portion of the Spring Creek Archeological District, which consists of a 1,000-foot corridor, centered on the existing Spring Creek-Decker railroad line.[40] Approximately 1,000 feet of either alignment at the southern terminus would cross into this corridor, although there are no known contributing elements in the areas where the crossover would occur. (See Figure 4-9 for the location of the Spring Creek Archeological District.)

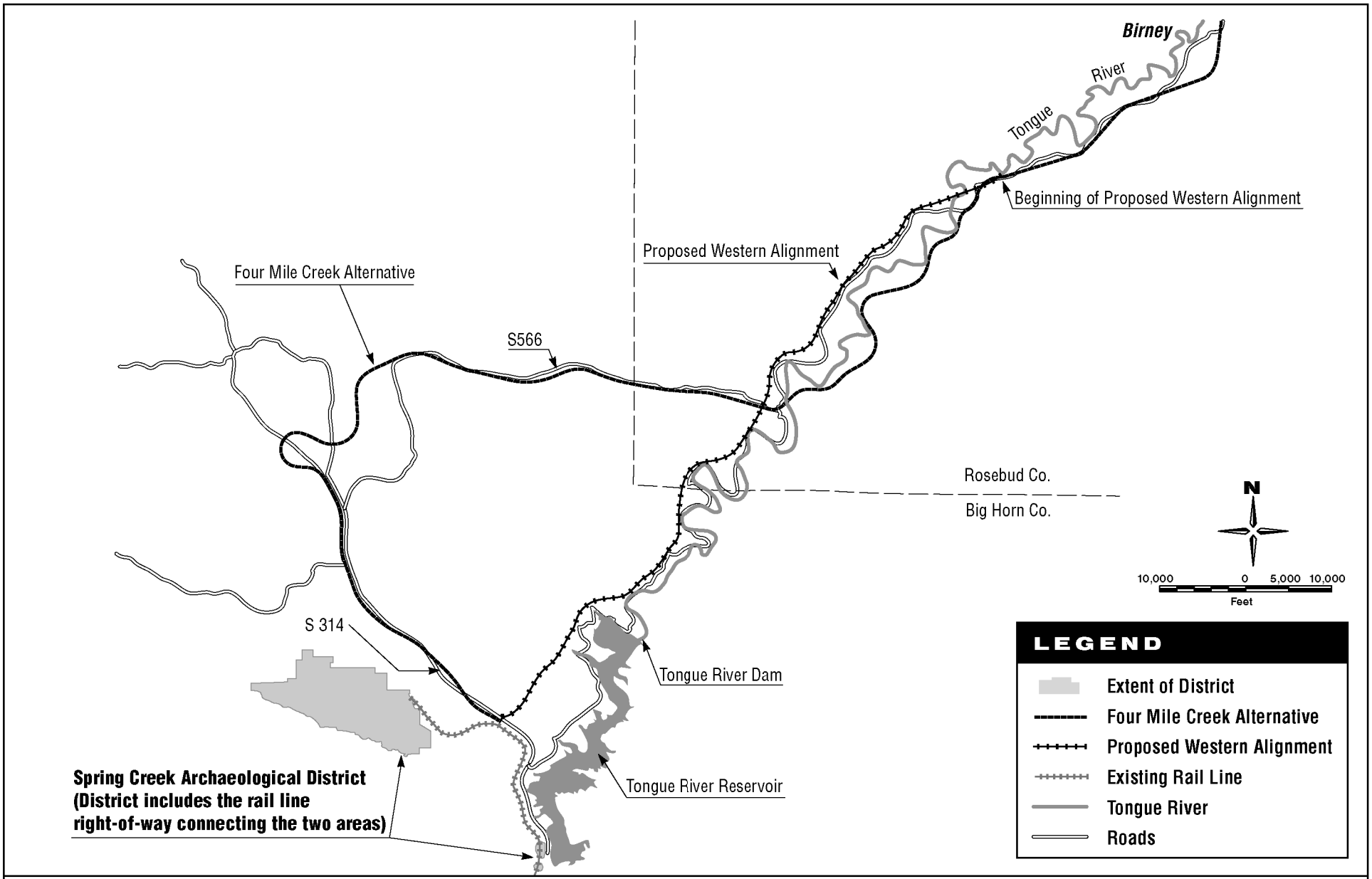
Historic Properties Within the Proposed Western Alignment and the Approved Four Mile Creek Alternative 200-foot ROW. The Class I literature inventory of the proposed Western Alignment and the approved Four Mile Creek Alternative indicated that both alignments would affect two historic ditches and one historic road. The proposed Western Alignment would additionally affect all or parts of two known historic sites (24BH1553 and 24BH2601) and four historic roads. The approved Four Mile Creek Alternative would affect all or parts of one known historic site (TRR350) and one road.

Site 24BH1553 is part of County Road 380, and was originally the State Water Conservation Board road. This site was determined not eligible for listing in the NRHP and therefore would require no further analysis.

Site 24BH2601 is the remains of a settlement or "shanty town" associated with construction of the Tongue River Reservoir Dam. This site was determined eligible for the NRHP and would require avoidance or data recovery.

[39] SEA determined the approximate number of archeological sites that could be impacted by estimating prehistoric site densities based on cultural resource surveys that had been conducted in the Tongue River Basin and near Colstrip. SEA examined 13 reports and extracted from them the acreage of the surveyed lands and the number of cultural sites reported.

[40] The Spring Creek Archeological District is located in the general area of the proposed Western Alignment and the approved Four Mile Creek Alternative, west of the Tongue River. The district was determined eligible for listing to the NRHP on April 9, 1979. The Environmental Assessment and Powder River Resource Area Resource Management Plan states, "Technically, the Spring Creek Archeological District still exists, although all cultural resources within the district have probably been destroyed through mitigation efforts and mining activity. Effects to the district were considered mitigated by the Keeper. The district has little bearing on present or future cultural considerations in the area." (BLM and MT DNRC 2000:3-48)



INDEX OF MAP LOCATION



FIGURE 4-9

THE SPRING CREEK
ARCHAEOLOGICAL DISTRICT

Site TRR350 is a historic ranch complex with some newer buildings. As part of the PA, further work would be required to determine the NRHP eligibility of this site if the Four Mile Creek Alternative were constructed.[41]

The four historic roads were each located on various General Land Office Maps, but, based on site visits, there is no indication that these roads currently exist.

The two historic ditches were identified on the 7.5' quadrangle map. The 7.5' map is the most detailed map produced by the USGS, with one inch on the map representing 2,000 feet on the ground. A 1918 General Land Office map indicated that the Brewster East Side Ditch has been in existence for over 80 years. The Flying V Ranch Ditch is not recorded but has been identified in maps that are over 50 years old.

By applying the model developed for Tongue River I to predict the number of historic properties, SEA estimates that one or two additional historic sites could be found along either of the alignments, and that one of those properties could be eligible for the NRHP. Since all existing historic properties with standing structures have already been located, these additional historic sites are likely to be archeological in nature, i.e., containing only foundations, dumps, or features that are level with or below the ground surface.

Mitigation for all historic properties identified within either ROW would be implemented in accordance with the PA.

Traditional Cultural Properties Within the Proposed Western Alignment and the Approved Four Mile Creek Alternative 200-foot ROW. The construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, has the potential to affect cultural resources of a spiritual nature. SEA conducted a thorough and comprehensive Class I survey and reconnaissance from public roads for the proposed Western Alignment and the approved Four Mile Creek Alternative, but due to the lack of access to private properties, SEA cannot at this time make a determination of the exact number of cultural resources and/or sites that would be affected by the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative. Under the PA, an extensive pedestrian survey (Class III Inventory Survey) of either ROW would be required prior to the beginning of any construction to determine the exact number of TCPs. Any TCPs located during the survey would be addressed in accordance with the PA.

Consultations with the Northern Cheyenne Tribe conducted within or near the proposed Western Alignment, as well as the approved Four Mile Creek Alternative, have identified one site as being of traditional religious and cultural significance: an active "black eagle" nesting area (Nest 03, discussed in the BA) that is located near the common starting point of both alignments. The Northern Cheyenne classification of "black eagles" includes all species of eagles, as well as other birds classified as vultures in the Linnean taxonomic system (Tallbull and Deaver 1991).

[41] Such work on these sites could include archeological test excavation to determine potential yield information significant to history, as well as research of historic records, documents, photos, and possible interviews with informants.

Additional activities conducted by SEA with the Northern Cheyenne as part of Tongue River III included:

- Consultation about the contents and procedures contained in the PA regarding the identification and protection of cultural resources and inclusion of the Northern Cheyenne as a concurring party to the PA.
- Inviting the Northern Cheyenne elders to conduct a field trip of the proposed Western Alignment area to assist in the identification of areas of potential cultural significance to the Tribe(s). To date, the field trip has not taken place.
- Providing the Tribe(s) with maps and other information regarding the proposed Western Alignment to assist in the identification of potential areas of cultural significance to the Tribe(s).

In addition to the Northern Cheyenne and Crow Tribes, who have already agreed, SEA has extended invitations to the Arapaho, Shoshone, and Sioux Tribes to participate in the PA process in Tongue River III and to assist in the identification of potential areas of cultural significance to them. Appendix M contains a chronology of SEA's consultation efforts with the Native American Tribes.

Indirect Impacts from Construction. The construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would require changes in current land use patterns, which could result in access to previously remote areas. In such cases, individuals could affect cultural resources or traditional cultural properties by collecting artifacts. NRHP-eligible sites could be subjected to this type of indirect impact.

A list of the cultural resource properties identified to date within the study areas of the proposed Western Alignment and the approved Four Mile Creek Alternative is included in Table 4-26.

Table 4-26 – Cultural Resource Properties Outside the ROW but Within the 3,000-foot Corridor

Site Number/Name	Site Type	NRHP Status	Approved Four Mile Creek Alternative	Proposed Western Alignment
24BH0509	Prehistoric lithic workshop	Unknown		**X**
24BH1037	Prehistoric lithic workshop	Unknown		**X**
24BH1604	Prehistoric lithic workshop	Not eligible	**X**	**X**
24BH1617	Prehistoric possible medicine wheel (TCP)	Potentially eligible	**X**	
24BH2598	Prehistoric lithic workshop	Not eligible		**X**
24BH2600	Prehistoric lithic workshop	Unknown		**X**
Big Medicine Gathering Area	Historic plant gathering area	Unknown		**X**
Crow/Sioux Battlefield	Historic battlefield	Unknown		**Unknown**
Indian Trail	Prehistoric trail	Unknown		**Unknown**

Site Number/Name	Site Type	NRHP Status	Approved Four Mile Creek Alternative	Proposed Western Alignment
McKinney Ranch	Historic homestead	Unknown		**X**
Ochre Gathering Site	Current paint/mineral source site (probable TCP)	Potentially eligible		**X**
TRR332	Historic ranch complex	Unknown	**X**	**X**
TRR333	Historic ranch complex	Unknown	**X**	**X**
TRR335	Historic ranch complex	Unknown		**X**
TRR336	Historic habitation	Unknown		**X**
TRR337	Historic ranch complex	Unknown	**X**	
TRR339	Historic habitation	Unknown	**X**	
TRR341	Historic farmstead	Unknown	**X**	
TRR343	Historic farmstead	Unknown	**X**	
TRR348	Historic cattle sheds	Unknown		**X**
Two Moons January 1877 Village	Historic Northern Cheyenne camp	Unknown		**Unknown**

Source: Peterson et al. 1995.
Note: TCP = traditional cultural property.

The following discussion presents the findings of the Class I inventory for those areas outside the 200-foot ROW but within the 3,000-foot corridor.

Paleontological Properties Outside the ROW but Within the 3,000-foot Corridor. No paleontological resources are known to exist in rocks or soils in the corridors outside the ROW of the proposed Western Alignment, as is also the case for the approved Four Mile Creek Alternative. Construction of either alignment could result in potential impacts on currently unknown paleontological resources. The PA provides, however, that if any paleontological resources were located during future surveys, mitigation measures would be developed in consultation with BLM and TRRC. Mitigation measures could include, as appropriate, collection and curation of scientifically significant fossils, additional sampling, and/or monitoring of excavation.

Prehistoric Properties Outside the ROW but Within the 3,000-foot Corridor. Prehistoric properties such as lithic scatters and fire rings are typically comprised of materials that are not affected by vibration or noise resulting from trains as they are smaller resources spread out over a single area. Therefore, it is not likely that any of the known prehistoric properties would be adversely affected by vibrations from construction activities or by related audible impacts. Visual impacts on currently unknown properties such as camp sites would need to be evaluated on a case-by-case basis, as required in the PA.

As shown in Table 4-26, five prehistoric properties (one camp site and four lithic workshop sites) are located outside the proposed Western Alignment ROW but within the proposed

Western Alignment's 3,000-foot corridor (24BH0509, 24BH1037, 24BH1604, 24BH2598, and 24BH2600). Two of the workshop sites have been determined as ineligible for listing in the NRHP and thus would not require further evaluation. In accordance with the PA, the other three sites would be evaluated prior to construction to determine their eligibility for listing in the NRHP.

Two prehistoric properties are located outside the approved Four Mile Creek Alternative ROW but within the 3,000-foot corridor. As shown in Table 4-26, these are 24BH1604 and 24BH1617. Only the medicine wheel (24BH1617) is exclusive to this corridor. In accordance with the PA, this site would be evaluated prior to construction to determine the eligibility for listing in the NRHP. The lithic workshop (24BH1604) was determined ineligible for the NRHP. MT SHPO concurred with this determination and would not require further analysis.

Historic Sites Outside the ROW but Within the 3,000-foot Corridor. Historic sites could be affected by vibration, visual, and audible impacts related to construction activities. Thirteen historic sites are located outside the proposed Western Alignment ROW but within the proposed Western Alignment's 3,000-foot corridor. As shown in Table 4-26, these sites consist of three ranch complexes (TRR332, TRR333, and TRR335), a currently occupied historic home (TRR336), and one cattle shed (TRR348).[42] Six historic sites are located outside the Four Mile Creek Alternative ROW but within the 3,000-foot corridor. As shown in Table 4-26, these sites include three ranch complexes (TRR332, TRR333, TRR337), one habitation area (TRR339), and two farmsteads (TRR341 and TRR343).

In accordance with the PA, each of these sites would be evaluated prior to construction to determine eligibility for listing in the NRHP. Historic properties identified within the 3,000-foot corridor but outside the ROW would be subject to mitigation in accordance with the PA.

Both the approved Four Mile Creek Alternative and the proposed Western Alignment begin immediately to the west of the Wolf Mountain Battlefield (also known as the Battle at Belly Butte or Miles' Fight on the Tongue, 24RB787).[43] This site has significant, rare, and irreplaceable historical and cultural value of national significance and was placed on the NRHP in 2001. Neither alignment would directly disturb this site, but both could have a visual effect. Therefore, a method to mitigate the adverse effect of construction of the rail line on this site would be required under the PA.

[42] Historic documents also indicate that three historic sites of Native American origin are located in the vicinity of the proposed Western Alignment's 3,000-foot corridor. These include a trail, a site where the Crow battled the Sioux, and a January 1877 Northern Cheyenne camp. The exact location of these sites is unknown.

[43] On January 8, 1877, Native American and military forces engaged in what is commonly identified as the Battle of Wolf Mountain. The military, under the direction of Colonel Nelson Miles, was attempting to force "hostile" Native American populations back onto reservations. The Cheyenne and Sioux, under the leadership of Two Moons and Crazy Horse, were attempting to free a small group of women and children captured by the military. The battle took place within all or portions of sections 21, 22, 27, 28, 33, and 34, Township 6 South and Range 42 East. The battle lasted several hours with casualties on both sides.

Traditional Cultural Properties (TCPs) Outside the ROW but Within the 3,000-foot Corridor. Two sites of traditional cultural and religious importance to Tribes are located outside the ROW of both alignments, but within the 3,000-foot corridor.[44] One site (24BH1617) was identified as a medicine wheel located along the Four Mile Creek Alternative corridor, near the alignment's terminus. This site is also considered a prehistoric property, and is discussed above under "Prehistoric Properties Outside the ROW but Within the 3,000-Foot Corridor." Another TCP south of Birney is an important paint/mineral source currently used by the Northern Cheyenne Tribe to acquire red ochre and minerals to make paints for the Sun Dance and other ceremonies (Tallbull and Deaver 1991). Offerings are also left there. Both of these properties could be affected by visual or audible impacts caused by the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative.

Any additional TCPs located during the survey would be addressed in accordance with the PA.

4.3.5.3 Impacts on Cultural and Paleontological Resources from Operation and Maintenance

Vibration from passing trains could affect cultural resource properties as a result of the operation and maintenance of the proposed Western Alignment or the approved Four Mile Creek Alternative. Visual and audible impacts, unless buffered by topography or vegetation, could affect the integrity of a property. The properties most susceptible to this type of impact would be prehistoric pictographs, prehistoric petroglyphs, historic properties including standing structures, and religious or sacred properties, such as fasting sites where unobstructed view and quiet are required. While no pictograph or petroglyph properties are known within 1,500 feet on either side of either alignment, there are religious or sacred properties located within 1,500 feet on either side of both the approved and proposed alignments.

Based on information available to date, it appears that battlefields, TCPs, and religious or sacred properties would most likely be affected by the operation and maintenance of either alignment. Impacts associated with operation and maintenance of either the proposed Western Alignment or the approved Four Mile Creek Alternative should not extend beyond the 3,000-foot corridor.

SEA has identified nine potentially historic properties containing standing structures along either the proposed Western Alignment or the approved Four Mile Creek Alternative. The model developed for Tongue River I indicates that approximately 22 percent of these sites (approximately two properties along the proposed Western Alignment and one property along the approved Four Mile Creek Alternative) could be eligible for the NRHP.

All historic properties ultimately identified within the 3,000-foot corridor of either alignment would be evaluated in accordance with the PA. The mitigation measures in the PA also would apply, as appropriate.

[44] This section of the EIS does not address the impacts associated with the portion of Tongue River II that crosses through the Wolf Mountain Battlefield. For a discussion of these effects, see Chapter 5, "Focused Review of Tongue River I and Tongue River II."

4.3.6 Environmental Consequences – Transportation and Safety

4.3.6.1 Summary

The proposed Western Alignment, like the approved Four Mile Creek Alternative, would traverse mostly undeveloped land with very few residents and public roads. For both alignments, the primary transportation and safety impacts would result from a loss of train control, train accidents, and safety at rail crossings.

New Analyses. SEA's analysis of impacts on transportation and safety resulting from the construction and operation of the approved Four Mile Creek Alternative relies on information contained in the EIS in Tongue River II and the Environmental Report for the proposed Western Alignment. Analysis of the proposed Western Alignment relies on information from the Environmental Report. SEA reviewed this information and conducted site visits and aerial surveys to verify that the information was accurate and up to date.

Mitigation. As part of this analysis, SEA identified new mitigation measures to further minimize the risks to safety resulting from loss of train control along either alignment and to address safety impacts resulting from the potential transportation of hazardous materials. SEA also preliminarily recommends revisions to mitigation measures that were adopted by the Board in Tongue River II.

Based on the information available to date, SEA preliminarily concludes that, with mitigation, neither the construction nor the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative would result in significant impacts on transportation and safety.

4.3.6.2 Construction-period Transportation and Safety Impacts

Temporary impacts on transportation and safety would result from the construction of the proposed Western Alignment, as they would from that of the approved Four Mile Creek Alternative. These impacts include an increase in the number of vehicles using local roads in the vicinity of alignments, traffic delays during the construction of road crossings, and safety impacts.

SEA consulted with several agencies and performed its own analysis to identify potential transportation and safety-related impacts arising from the construction of the proposed Western Alignment, and to ensure that the information in the EIS in Tongue River II involving the approved Four Mile Creek Alternative remained accurate and up to date. The agencies contacted included the FRA and the Research and Special Programs Administration (RSPA), both of which are agencies within the U.S. Department of Transportation (USDOT). FRA is the Federal agency primarily responsible for railroad safety matters. RSPA is primarily responsible for the safe transportation of hazardous materials. FRA and RSPA share hazardous materials safety enforcement responsibility. The result of SEA's analysis is shown below.

Traffic and Road Maintenance. During the construction period, roads within the immediate vicinity of the alignment would experience a short-term increase in the amount of traffic. These roads include S566, S314, and C380, which becomes C528 at the Rosebud County line. Impacts would be similar for both the approved Four Mile Creek Alternative and the proposed Western Alignment.

TRRC's use of area roads to transport materials could result in the need for increased road maintenance. The required degree of maintenance would depend on the current road conditions and on the increases in traffic. TRRC plans to transport materials and workers within the railroad ROW as much as possible, thereby reducing the impact on roadways. Plans to disperse construction activities and the work force along either alignment would limit the concentration of TRRC-related activity to a few specific road segments.

In Tongue River II, the Board adopted the following mitigation measures to reduce the potential disruption of local traffic from construction of the Four Mile Creek Alternative:

> **Mitigation Measure 53 (Construction-worker Transportation)**. During construction, TRRC shall encourage its contractors to provide laborers with daily transportation to the work site from a central location. *[TRRC II, Transportation Condition (1)]*
>
> **Mitigation Measure 54 (Access Road).** To the extent possible, TRRC shall confine all construction-related traffic to a temporary access road within the right-of-way (ROW). Where traffic cannot be confined to this access road, TRRC shall ensure that contractors make necessary arrangements with landowners or affected agencies to gain access from private or public roadways. The access road shall be used only during construction of the railroad grade, after which construction shall be confined to the ROW. *[TRRC II, Transportation Condition (2)]*

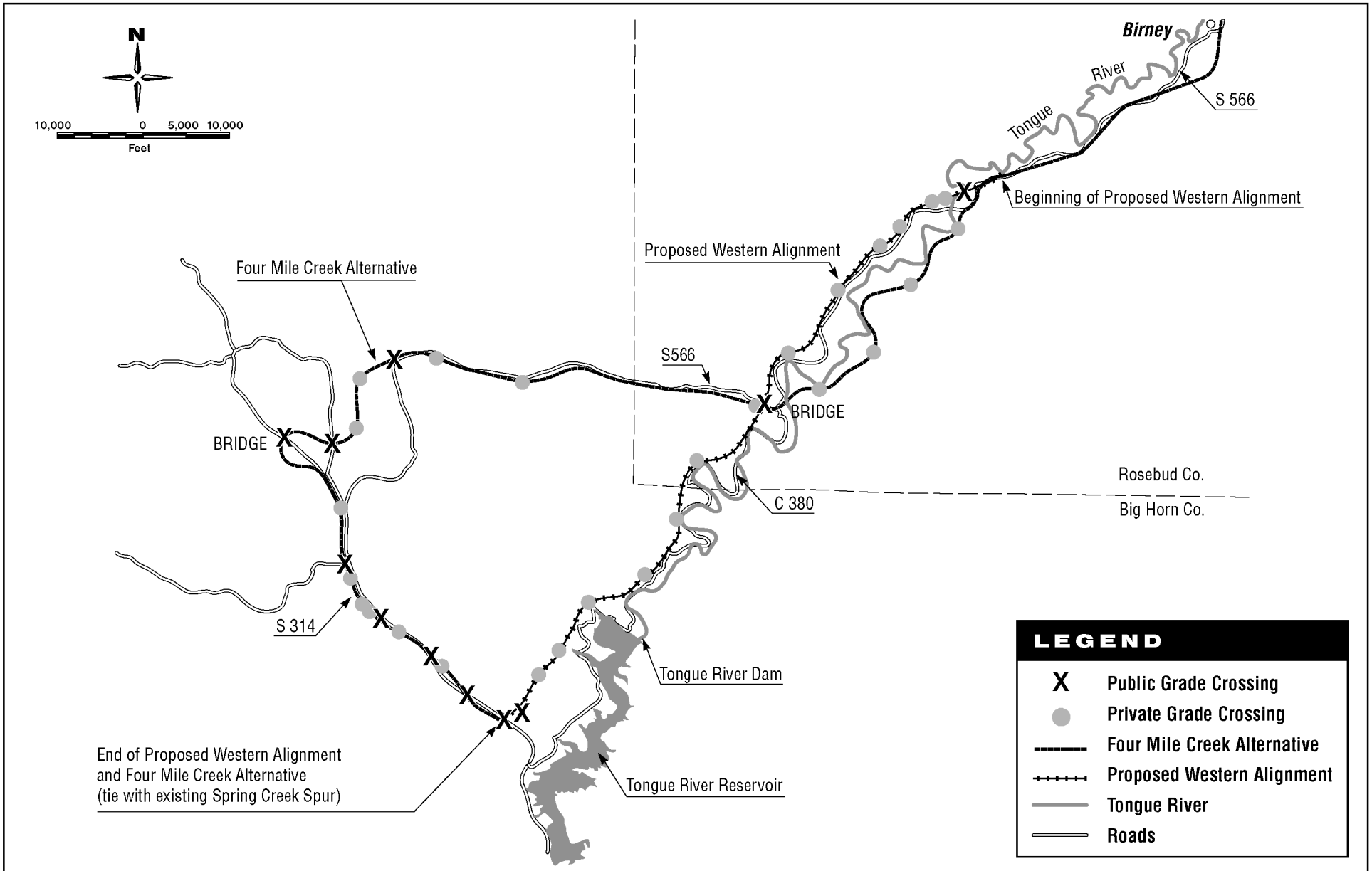
Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures for the proposed Western Alignment would be adequate to ensure that impacts on traffic and roads resulting from construction would not be significant.

Road Crossings. During construction of the proposed Western Alignment, motorists would be temporarily delayed during construction of the 12 private road crossings and the four public road crossings. (See Figure 4-10 for the location of these crossings.) TRRC would need to obtain encroachment permits from the Montana Department of Transportation (MDT) for construction of the railroad/roadway crossings, highway ROW encroachments and road relocations. The permits would be prepared in accordance with the requirements set forth in the Memorandum of Agreement (MOA) between TRRC and MDT.

All of the affected crossings would be at grade level, except the public road crossing of S566 at Four Mile Creek. The proposed Western Alignment would cross Four Mile Creek and S566, roughly where C528 joins S566. At this location, TRRC proposed a grade-separated crossing that would require the construction of a bridge across the Four Mile Creek drainage, as well as the placement of fill adjacent to S566. The proposed bridge type is shown in Figure 4-11.

The existing junction of C528 and S566 has a "Y" configuration that would be rebuilt by TRRC east of S566, resulting in a nearly 90 degree grade-separated crossing. There is a point north of the proposed Western Alignment's crossing of Four Mile Creek where track fill would impact the S566 roadbed. S566 would require reconstruction at this point, the extent of which would be known when final engineering plans become available.

During construction of the Four Mile Creek Alternative, motorists would be temporarily delayed during construction of the 17 private road crossings and the seven public road crossings on the

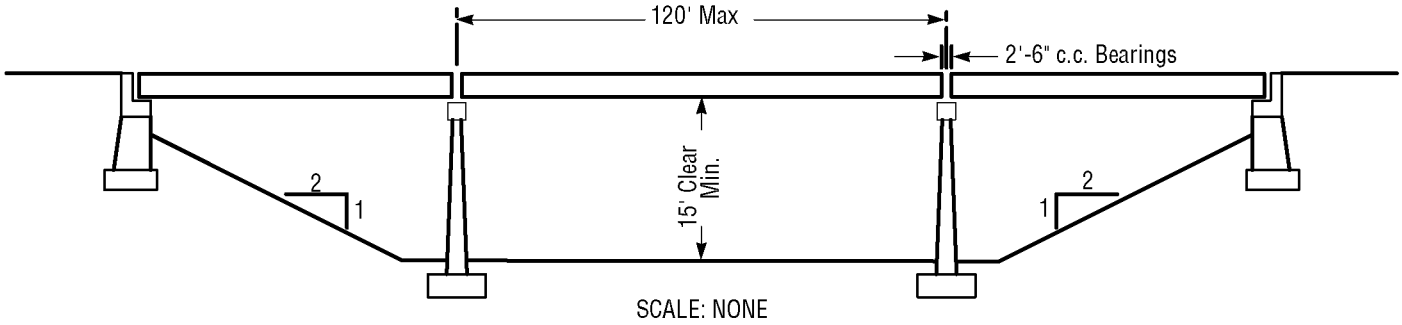


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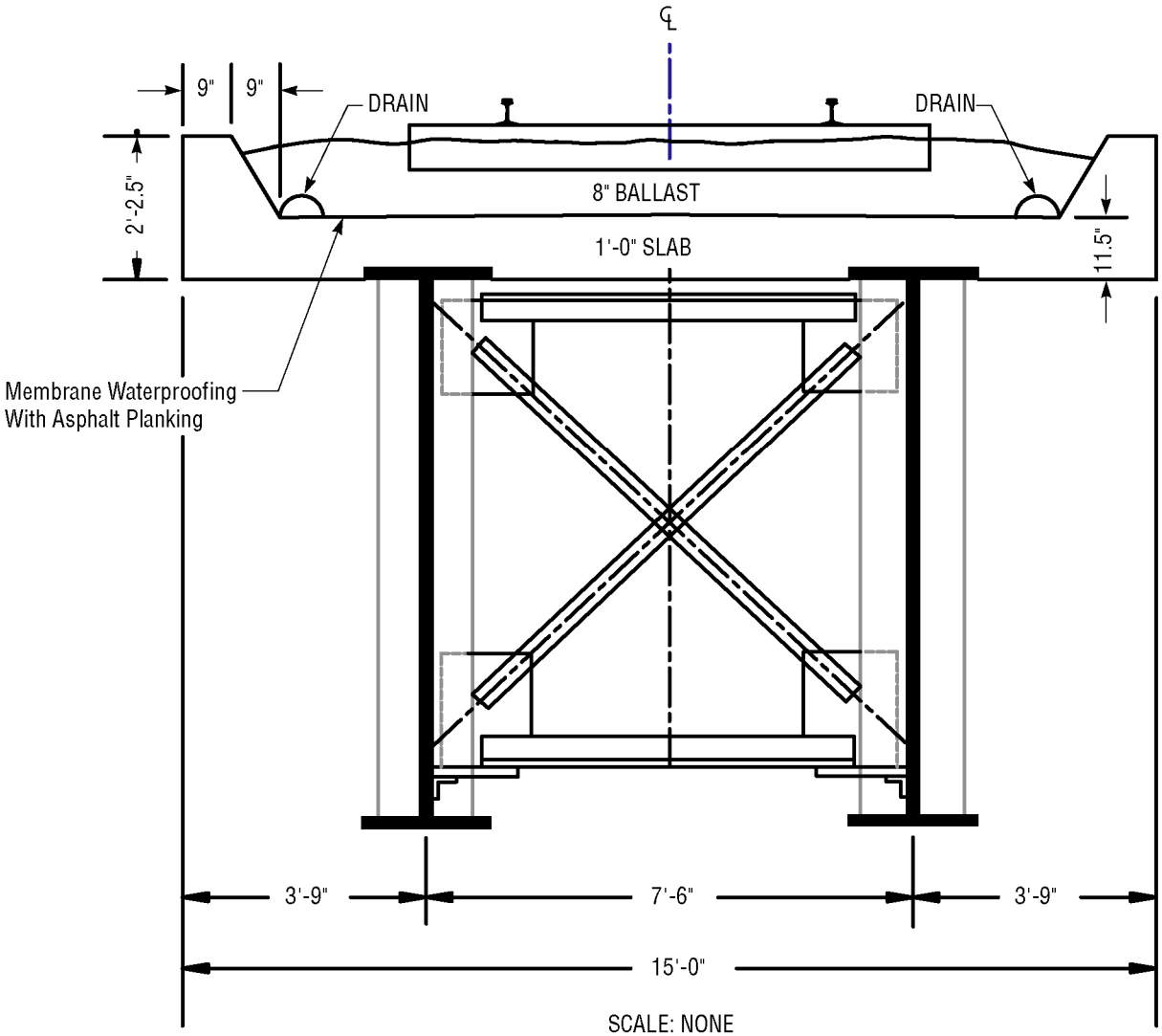


FIGURE 4-10

LOCATION OF RAIL CROSSINGS



SCALE: NONE



SCALE: NONE

INDEX OF MAP LOCATION



FIGURE 4-11

PROPOSED BRIDGE TYPE

Four Mile Creek Alternative. (See Figure 4-10 for the location of these crossings.) The public road crossings include two crossings of S566, three crossings of S314, and two crossings of unnamed county roads. At two of these locations (S314 approximately eight miles from the Spring Creek Spur, and S566/C528 about 19 miles from the Spring Creek Spur), TRRC proposes a grade-separated crossing that would require the construction of a bridge. The proposed bridge type is shown in Figure 4-11.

TRRC would be required to obtain MDT's and the County's approval for any reconstruction of S314 and S566 since these roads are part of the Secondary Highway system. Upon completion of final engineering, TRRC would submit road reconstruction plans to MDT and Rosebud County for review. The State, after considering local comments, would make final recommendations regarding plan modifications. TRRC would be responsible for reconstruction costs.

SEA's recommended mitigation measures to minimize impacts at road crossings, which would apply to construction of either alignment, would read as follows:

> **Mitigation Measure 55 (Memorandum of Agreement).** As agreed to by TRRC and the Montana Department of Transportation (MDT), TRRC shall enter into a memorandum of agreement (MOA) with MDT evaluating project-related safety needs. The MOA shall establish duties and responsibilities of the parties relative to construction of the rail line and possible encroachment on interstate and non-interstate facilities maintained by MDT. The MOA shall also include the evaluation of each crossing for safety needs and potential traffic problems during construction and operation, including passage of emergency vehicles. Based on these evaluations, the MOA will set forth specific safety measures, such as warning signal and devices, and appropriate measures to alleviate any traffic problems, such as grade separations. A construction traffic plan will also be prepared by TRRC for review and approval by MDT. *[TRRC I, Condition 4.3(2) and TRRC II, Transportation Conditions (3 and 5), combined and modified to reflect current state agency and MOA]*
>
> **Mitigation Measure 56 (Tongue River Reservoir Dam).** During construction of the rail line, TRRC shall provide 24-hour-a-day access to the Montana Department of Natural Resources and Conservation for the maintenance of the Tongue River Reservoir Dam either via the construction of temporary roads and/or flagging devices or by other reasonable alternatives. *[TRRC II, Tongue River Dam Reconstruction Condition (1), modified to reflect completion of dam reconstruction]*
>
> **Mitigation Measure 57 (Speed Limits).** All TRRC vehicles and equipment, and vehicles and equipment owned and operated by TRRC contractors working on the project, shall strictly adhere to speed limits and other applicable laws and regulations when operating such vehicles and equipment on public roadways. *[TRRC I, Condition 4.2 (3), modified by minor edits]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that impacts on traffic at road crossings resulting from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Safety. Residents of the area would experience only minimal safety impacts during construction. Most safety concerns would involve construction workers undertaking jobs such as the operation of heavy equipment. Non-hazardous materials to be used or transported during construction of the project would include, but not be limited to, stone and concrete. Hazardous materials that would be used or transported during the construction period would be limited to petroleum products such as gasoline, diesel fuel, lubricating oil (oil), and solvents. These products represent the kinds of hazardous materials usually associated with construction projects.

The maximum amount of petroleum products that is likely to spill into the Tongue River at any one time during construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would be 1,400 gallons. The service trucks have the capacity to transport 1,200 gallons of diesel fuel to fuel heavy equipment and 200 gallons of oil, solvents, and other lubricants for maintaining heavy equipment. These potential effects are similar for both alignments, each of which would require one bridge crossing of the Tongue River.

Apart from potential spills of petroleum products, construction activities could have a variety of effects on natural waters. These potential effects include acute (short-term) toxicity to aquatic life, chronic (long-term) toxicity to aquatic life, and bioaccumulation of petroleum products in fish and the subsequent tainting of fish flesh (Phillips, no date). The acute toxicities to freshwater fish from diesel fuel and common solvents found in diesel fuel are relatively low. Oil spills in open waters often do not result in acute fish kills. Nevertheless, some toxicity of small fishes or invertebrates could occur in shallow shoreline areas, where oils are in close contact with the riverbed. Additionally, small fish are more sensitive to oil and oil products than large fish. Fish sensitivity to oil decreases with length of time of exposure, because fish are able to synthesize the enzymes needed to metabolize and excrete the toxic compounds.

Chronic effects on fish observed after exposure to various oil products include delay in hatching, disruption of feeding behavior, deformed larvae, and an increased rate of respiration, indicating stress (EPA 1976). Tainting of edible fish is another frequently encountered problem related to oil spills. The oils in diesel fuel contain many of the most odorous components of oil and are hence among the most likely to taint flesh (Bax 1987). Timely response to spills of oil and other petroleum products that would be used during construction and operation would reduce the effect of the spill to a less-than-significant level because remedial processes could commence before the significant impacts on the aquatic ecosystem would occur.

In Tongue River II, the Board adopted mitigation measures to address these issues during the construction of the Four Mile Creek Alterative. In this Draft SEIS, SEA preliminarily recommends modifications to these measures for either the proposed Western Alignment or the approved Four Mile Creek Alternative:

> **Mitigation Measure 58 (Traffic Control Devices).** TRRC shall comply with the Montana Department of Transportation's Manual of Uniform Traffic Control Devices for work zone safety. *[TRRC II, Transportation Condition (4), modified to reflect current agency requirement]*
>
> **Mitigation Measure 59 (Safety Meetings).** TRRC shall adhere to applicable Federal and state construction safety regulations and Best Management Practices to minimize the

potential for construction-related accidents. TRRC shall require its construction contractors to conduct safety meetings for their workers to ensure that each person understands safety measures and procedures. *[TRRC II, Safety Condition (1), modified to clarify that TRRC shall use Best Management Practices]*

Mitigation Measure 60 (Emergency Response Plan). Prior to beginning construction of this rail line, TRRC shall develop an internal Emergency Response Plan consistent with Montana State plans required under Title 10, Montana Code Annotated. This plan shall include a roster of agencies and specific persons to be contacted for specific types of emergencies during rail construction, operations and maintenance activities, procedures to be followed by particular rail employees, emergency routes for vehicles, and location of emergency equipment. *[TRRC II, Safety Condition (2), modified for minor edits]*

Mitigation Measure 61 (Emergency Response Coordination). TRRC shall establish cooperative relationships with the Federal, state, and local agencies with responsibility for disaster/emergency response in the area. TRRC shall provide operational plans and copies of the Emergency Response Plan identified above, when it is available in draft form, to all such agencies and incorporate their comments as appropriate in its final Emergency Response Plan. The agencies to be contacted shall include, at a minimum, Disaster and Emergency Services Division of the Department of Military Affairs, Helena; rural fire departments along the route of the entire line; local ambulance and emergency medical services and air evacuation services in Billings and Sheridan; the Montana Department of Environmental Quality, specifically including the Remediation Division; Montana Department of Fish, Wildlife and Parks; Montana Department of Natural Resources and Conservation; the Northern Cheyenne Tribe; the Bureau of Land Management; U.S. Fish and Wildlife Service; and other local agencies or other groups identified by these agencies and entities as key to disaster response. *[TRRC II, Safety Condition (3), modified to clarify that all such agencies shall receive a copy of the plan]*

Mitigation Measure 62 (Spill Prevention). TRRC shall develop, in cooperation with appropriate Federal, state, and local agencies, a plan to prevent spills of oil or other petroleum products (gasoline, diesel fuel, solvents), during construction, operation, and maintenance of this rail line.

TRRC's Spill Prevention Plan shall include measures pertaining to oil spills set forth in the mitigation plan in the Tongue River II DEIS. The plan developed by TRRC shall include conditions that shall be imposed on companies and contractors involved in construction of the Tongue River rail line. The plan shall provide emergency notification procedures, including a priority list of specific names and phone numbers of designated contacts (government and private) that are to be notified in case of events such as a fuel spill, range fire, or medical emergency during construction, operation and maintenance of the rail line. The following items shall be included in the plan:

(1) Procedures for reporting a spill.
(2) Definition of what constitutes a spill.
(3) Methods of containing, recovering, and cleaning up a spill.
(4) A list of equipment needed to remediate a spill and its location.

(5) A list of all governmental agencies and management personnel to be contacted, including but not limited to the following:
   (a) Disaster and Emergency Services Division of the Department of Military Affairs, Helena. (This is the most important contact to develop a coordinated response.)
   (b) Rural fire departments along the route.
   (c) Local ambulance and emergency medical services, as well as air evacuation services in Billings and Sheridan.
   (d) Montana Department of Environmental Quality, especially the Remediation Division.
   (e) Montana Department of Fish, Wildlife, and Parks.
   (f) Montana Department of Natural Resources and Conservation.
   (g) Northern Cheyenne Tribe.
   (h) Bureau of Land Management (BLM) or U.S. Fish and Wildlife Service. BLM would have fire suppression responsibilities on public land for fires handled by Type I Interagency Management Teams and Type II Geographic Area Teams.
   (i) Other local agencies or groups that are identified by the agencies and entities above as key to disaster remediation.

(6) Assurances that techniques and procedures to be employed in cleanup are the best practicable technology currently available. *[TRRC II, Safety Condition (8), which incorporates by reference Sections A.7.3.(1) a, A.7.3(2) a-i, and A.7.3(4), modified (1) to incorporate language of sections referred to and to clarify that the above measures apply to the entire rail line, and (2) to clarify roles of BLM and USFS.]*

Mitigation Measure 63 (Construction Sites). TRRC shall remove all litter, debris, and soils associated with petroleum spills prior to reclamation of construction sites. A state-approved landfill shall be used. *[TRRC II, Vegetation Condition, A.9.3.2(1)(d)2, modified by minor edit]*

Mitigation Measure 64 (Oil and Fuel). Prior to construction of this line, TRRC shall develop appropriate guidelines to be used by individual rail construction contractors, including (1) steps to use during refueling to guard against overflows, (2) storage of fuel in metal storage tanks surrounded by impervious dikes that are capable of containing greater than the capacity of the tank, (3) removal of waste oil to appropriate sites, and (4) maintenance of equipment in good running order during performance of construction and routine maintenance activities. *[TRRC II, Safety Condition (9), modified by minor edit]*

Mitigation Measure 65 (Herbicide Spills). If a herbicide spill occurs, TRRC shall respond by immediately containing the spill, notifying the appropriate Federal, state, and local agencies, and implementing appropriate clean-up procedures. *[TRRC II, Safety Condition (10), modified to provide additional clarity regarding TRRC's actions]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that effects on safety resulting from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant impacts.

4.3.6.3 Transportation and Safety Impacts from Operation and Maintenance

Similar effects on transportation and safety would result from the operation of the proposed Western Alignment and the approved Four Mile Creek Alternative. Potential effects include an

increase in the number of vehicles on roads, traffic delays and accidents at locations where the rail line would cross private and public roads, and other safety issues such as loss of train control, train accidents, and potential effects from spills of hazardous materials.

SEA consulted with MDT and performed its own analysis to identify potential transportation- and safety-related effects arising from the operation of the proposed Western Alignment, and to ensure that the information in the EIS in Tongue River II involving the approved Four Mile Creek Alternative remained accurate and up to date. The result of SEA's analysis is presented below.

Traffic Projections. SEA based traffic projections on current traffic volumes on public roads in the area, adjusted for the future to reflect natural population change in affected communities and the population increases from anticipated coal mine development (Baseline + Impact). Table 4-27 presents the findings of this analysis, as well as traffic projections assuming normal population changes alone (Baseline). SEA's analysis shows that the increases in the daily total of vehicles due to the operation of the proposed Western Alignment, as well as the approved Four Mile Creek Alternative, would have a minimal impact on public road traffic in the area, as the capacity of these roads would continue to greatly exceed traffic volume. For S566 and S314, the existing level of service (LOS) is "A," or very good, and would remain so in 2005 and 2010. MDT does not calculate LOS for the reservation roads.

Table 4-27 – Average Daily Highway Traffic (ADHT)

Public Road	Current Mean ADHT (2002)	Future Estimated ADHT	
		2005	2010
S314			
From junction with S566 southwest to Decker			
Baseline	560	650	830
From Decker south to Sheridan			
Baseline	850	950	1,150
S566			
From Birney south to junction with S314			
Baseline	40	40	40
Northern Cheyenne Reservation Roads[a]			
From Birney Village northeast to Lame Deer			
Baseline	510	520	540

Source: Al Vanderwey, MDT, October 2003.
Note: [a] The calculated increase in traffic for the Northern Cheyenne Reservation road does not include estimates of mine-period trips.

Traffic Delays at Rail Crossings. The method SEA used to calculate vehicular delay at rail and highway crossings is explained below.[45] SEA's calculation includes a determination of the number of vehicles that would be delayed, the percentage of trips that would be delayed, and the average duration of delay[46] for each vehicle. The percentage of trips delayed was determined by dividing the estimated number of vehicles delayed by the ADHT for each crossing. The method is based upon current ADHT figures obtained from MDT.

Under SEA's analysis, the three at-grade public road crossings along the proposed Western Alignment would be blocked for about two to three minutes while a train passes during a typical crossing. This delay estimate assumes that speeds on the proposed Western Alignment would be 45 to 55 mph. Of the five at-grade public road crossings along the approved Four Mile Creek Alternative, four could be blocked for two to three minutes while a train passes. However, at the at-grade crossing with S566, trains would be traveling 10 mph and could block the crossing for up to six minutes. Slower speeds also would be necessary in areas of steeper grades, such as the first crossing of S566.

The vehicles disrupted by train operations along either alignment would be operated primarily by residents traveling to and from jobs and local communities, and mine workers traveling to and from their job sites. Emergency vehicles traveling along S566 or S314 in the vicinity of railway crossings could also be stopped by a TRRC train. However, due to the infrequency with which emergency vehicles utilize these roads, and the infrequency of train crossings, the occasions in which an emergency vehicle would be delayed would be very few.

ICC imposed in Tongue River I mitigation measures to reduce traffic delays and increase safety at rail crossings. SEA preliminarily recommends that these measures be applied to the operation of the entire rail line, from Miles City to Decker, under either the proposed Western Alignment or the approved Four Mile Creek Alternative, and that the mitigation be modified to read as follows:

> **Mitigation Measure 66 (Train Operations).** TRRC shall adhere to all reasonable Federal, state, and local requirements regarding train operations, including requirements that relate to maximum durations of crossing blockage, speed limits within and outside of incorporated areas, and candlepower for train lighting. *[TRRC I, Condition 4.3(3), modified to clarify the intent and responsible parties]*

[45] The methodology uses the equation Expected Delays = Probability of Delay (P) multiplied by the ADHT, where P is the expected blocked-crossing time per day, in minutes, divided by the number of minutes in a day. The expected blocked-crossing time per day is a function of the length, speed, and number of expected daily trains at each crossing, determined by the equation (ADTT) (L + 3000')/S, where ADTT = average daily train traffic; L = train length; S = train speed, in feet per minute; 3000' = typical distance between a crossing and that crossing's signal activation circuits. The information assumed in this equation was derived from the operating plan developed for TRRC (CSI 1990). 6,532-foot long trains were assumed as well as 50 mph speeds. Given the proposed coal haul along both alignments, the ADTT was assumed at seven round trips or 14 trains daily in 2005.

[46] The estimate of the average duration per delay equals one-half of the expected blocked-crossing time per train. Expected blocked-crossing time is based on the previously discussed methodology given for Probability of Delay.

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would reduce impacts associated with traffic delays from the operation of the rail line along the proposed Western Alignment, as well as the approved Four Mile Creek Alternative, to a less than significant level.

Safety. The principal safety concerns would be the potential for loss of train control, train accidents not involving highway-railroad crossings, accidents between trains and vehicles at grade crossings, and accidents involving transportation of hazardous materials.

Loss of Train Control. TRRC proposes the following design criteria to ensure the safe operation of unit coal trains of 115 to 125 cars with design speeds between 45 and 55 mph. These design criteria are as stringent as, or more stringent than, the criteria established by the American Railway Engineering and Maintenance-of-Way Association (AREMA):[47]

- Maximum horizontal curvature of three degrees.
- Minimum tangent distance between horizontal curves of 200 feet.
- Maximum grade against empties of 1 percent, compensated for curvature.
- Maximum grade against loads of 0.50 percent.
- Maximum vertical curvature of 0.05 feet per 100 feet in sags and 0.10 feet per 100 feet at summits.

The proposed Western Alignment meets these design criteria; therefore, a loss of train control would not be likely. From Milepost 28.03, at the Spring Creek Spur connection, to Milepost 26.33, the approved Four Mile Creek Alternative would have adverse grades (against loads) in excess of 1.53 percent. Specifically, loaded coal trains would have to climb 648 feet with varying adverse grades from 0.594 percent to 1.533 percent over a distance of 13.07 miles. After this alignment would reach the top of the Four Mile Creek drainage, it would then descend 828 feet along Four Mile Creek until Milepost 7.7. In this descent between Milepost 11.21 and Milepost 14.39, there would be 3.18 miles of a descending 2.31 percent grade. While the Board found in Tongue River II that the Four Mile Creek Alternative could be operated safely, this steep grade with loaded coal trains would represent a less than optimal situation. Therefore, there would be a greater probability of losing control of the train with the approved Four Mile Creek Alternative than with the proposed Western Alignment.

Operating simulations for the Four Mile Creek Alternative conducted in 1990 determined that it would be necessary to use seven locomotive units, with full dynamic breaking on all units, and a very heavy brake application to hold train speed to no more than 10 mph when descending the grade (CSI 1990). Since the study was conducted in 1990, locomotives with greater dynamic braking capacity have been developed. TRRC plans to use these locomotives on the entire rail line between Miles City and Decker. The use of these locomotives would allow the number of locomotives necessary on the Four Mile Creek Alternative to hold train speed to no more than 10 mph to be reduced from seven to five (Leilich 1998).

[47] AREMA, formerly the American Railway Engineering Association (AREA), is the publisher of the Manual for Railway Engineering.

In recognition of the difficulty of stopping a train on a heavy grade when critical speed is attained, SEA preliminarily recommends the adoption of the following mitigation measure, which would apply to either alignment:

> **Mitigation Measure 67 (Descending Grades).** If a train's speed reaches 5 mph more than the train's maximum authorized speed on descending grades of 2 percent or more, TRRC's trains shall come to a complete stop as quickly as possible, using an emergency application of the train's air brakes.
>
> (1) After the train has stopped, the train shall be secured by applying additional hand brakes, and once secured, the train shall be inspected and no further train movement shall be made until authorized by a designated railroad employee.
>
> (2) TRRC shall conduct an immediate investigation into the cause of any incident in which the train's speed reaches 5 mph more than the train's authorized maximum speed and shall initiate appropriate corrective action.
>
> (3) Event recorder data shall be routinely inspected to ensure full compliance with these requirements. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that impacts associated with loss of train control resulting from the operation of the rail line along either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Train Accidents. The train accident rate established by FRA for rail lines nationwide is 3.81 accidents per one million train miles.[48] This accident rate represents all reportable events where damages to equipment and track exceeds $6,700. SEA estimated the number of accidents that might occur on the proposed Western Alignment or the approved Four Mile Creek Alternative after construction of the entire rail line from Miles City to Decker. The number of accidents is based on the nationwide accident rate and on the number of train miles estimated for each alignment. SEA derived the estimate of train miles by multiplying anticipated daily trains by train miles and by the number of operating days in a year, as shown in Table 4-28. SEA's analysis of the number of accidents projected to occur along either of the alignments is presented in Table 4-29.

Table 4-28 – Anticipated Train Miles for Each Alignment during Operation of the Entire Rail Line from Miles City to Decker

Alignment	Trains per Day (one way trips)	Miles	Operating Days	Estimated Annual Train Miles (in millions)
Proposed Western Alignment	14.0	17.3	365.0	0.088
Approved Four Mile Creek Alternative	14.0	29.4	365.0	0.150

Source: State Transportation Board

[48] The train accident rate is the 2002 national rate from FRA's Office of Safety Assurance and Compliance. This rate includes derailments but does not include highway-rail incidents, which are discussed below under "Safety at Rail Crossings."

Table 4-29 – Anticipated Train Accidents for Each Alignment during Operation of the Entire Rail Line from Miles City to Decker

Alignment	Estimated Annual Train Miles (in millions)	Accident Rate Per One Million Train Miles	Anticipated Annual Train Accidents
Proposed Western Alignment	0.088	3.81	0.34
Approved Four Mile Creek Alternative	0.150	3.81	0.57

Source: State Transportation Board

Based on these projections, the projected frequency of train accidents would be higher for the approved Four Mile Creek Alternative than for the proposed Western Alignment. This difference is based solely on the greater length of the Four Mile Creek Alternative. The steeper grade of the Four Mile Creek Alternative is not factored into the estimate.

The potential for injuries and fatalities from train accidents along both alignments was estimated according to the same procedure used in the EIS for Tongue River I and Tongue River II. This procedure assumed, for both alignments, 0.3 fatalities per accident, based on FRA's preliminary data for January through October 2003. Table 4-30 presents SEA's analysis of the number of injuries and fatalities along both alignments during operation of the entire rail line from Miles City to Decker.

Table 4-30 – Anticipated Injuries and Fatalities from Train Accidents for Each Alignment during Construction of the Entire Rail Line from Miles City to Decker

Alignment	Anticipated Annual Train Accidents	Anticipated Annual Injuries (at 0.3 injuries per accident)
Proposed Western Alignment	0.34	0.102
Approved Four Mile Creek Alternative	0.57	0.171

Source: State Transportation Board

These figures suggest that less than two fatalities would occur in a ten-year period of operations along the approved Four Mile Creek Alternative. This estimate is derived by multiplying the anticipated annual train accidents by the estimated number of fatalities per accident to arrive at the anticipated annual fatalities. This fraction, when divided by one, yields the estimated number of years in which a single injury would occur. The difference is based on the greater length of the approved Four Mile Creek Alternative; for the proposed Western Alignment, approximately one fatality would occur in a ten-year period. Any fatalities that might occur during a train accident would most likely involve TRRC employees, because both alignments traverse mostly unpopulated areas.

It is estimated that a train accident would result in an average of approximately $299,100 (in 2003 dollar values) in property damage. This estimate reflects the equipment and track damage in an accident involving 10 to 20 train cars (CSI 1990).

FRA's 2002 estimate of 3.76 train accidents per one million miles is based on nationwide rail line information. The train accident rate along either the proposed Western Alignment or the

approved Four Mile Creek Alternative is expected to be lower than the national average due to the following design and operation practices agreed to by TRRC:

- New track, new material, new alignment, and new grade.
- Good equipment maintained to high standards.
- A high level of employee training and safety awareness.
- Frequent track inspections.
- A single type of train operation (e.g., empty unit trains operating in one direction and loaded unit trains operating in the other direction).
- The installation of guard rails (e.g., additional rails in the center of the track to keep derailed wheels in line) on railroad bridges (CSI 1990).

Accordingly, SEA preliminarily concludes that the number of impacts associated with train accidents as a result of construction and operation of the proposed Western Alignment and the approved Four Mile Creek Alternative would not be significant and that no additional mitigation measures would be necessary.

Safety at Rail Crossings. Ensuring safety at at-grade crossings is always an important consideration in railroad construction cases. Of the four public road crossings required for the proposed Western Alignment, three would be at-grade crossings. Of the seven public road crossings required for the approved Four Mile Creek Alternative, five would be at-grade crossings. More information is provided below.

Proposed Western Alignment. The proposed Western Alignment would cross S314 at two locations west of the Tongue River Reservoir. These crossings are in very close proximity to the Spring Creek Spur tie-in. Sight distance at these crossings is excellent in both directions, as the proposed Western Alignment would approach the highway over open country at nearly a 90 degree angle. Trains traveling south to the S314 crossings would be highly visible. Likewise, trains departing either the Decker or the Spring Creek mines on the Spring Creek Spur and traveling north along the proposed Western Alignment would also be highly visible, since the Spring Creek Spur parallels S314.

Just north of the point where S566 crosses the Tongue River, near the McKinney Ranch, the proposed Western Alignment would cross S566 at an acute angle near the crest of a hill. Vehicles traveling south from Birney would have excellent sight distance at this crossing, since the alignment would parallel S566 for at least a mile before the actual crossing. Vehicles traveling north from the S566 bridge would have limited sight distance approaching the crossing. It could be necessary to either install active warning signals or recontour S566, or both. Pursuant to MDT regulations, an agreement would be finalized with MDT that provides for MDT review and approval of rail features encroaching on public roadways prior to construction and based on final engineering designs. A diagnostic review team from MDT would determine the best course of action after final engineering plans become available and would establish safety requirements accordingly. TRRC would be required to comply with MDT requirements.

In Tongue River II, the Board adopted a mitigation measure to minimize safety risks at rail crossings. SEA preliminarily recommends modifications to this measure to reflect current regulations as contained in Mitigation Measure 55.

Four Mile Creek Alternative. The first at-grade crossing of S314, about one mile from the Spring Creek Spur, would occur in relatively flat terrain. Trains approaching this crossing from either direction would be readily visible because the Four Mile Creek Alternative roadbed and the surface road would be at approximately the same level. The second at-grade crossing of S314, about three miles from the Spring Creek Spur, also would occur in relatively flat terrain. Again, trains approaching this crossing from either direction would be readily visible because the Four Mile Creek Alternative roadbed and the surface road would be at approximately the same level.

The next at-grade crossing, about five miles from the Spring Creek Spur, would occur at an unnamed county road that enters the Spring Creek watershed from a "T" intersection with S314. Trains approaching this crossing would be readily visible.

The next at-grade crossing, about 8.5 miles from the Spring Creek Spur, would occur at an unnamed county road at nearly a right angle. The line-of-sight would be limited because the approach from both directions would be on a curve and in a cut. Train-activated warning devices could be required at this crossing because of the sight distance. TRRC would have to comply with safety requirements established by an MDT diagnostic review team.

The Four Mile Creek Alternative would then cross S566 at grade, about 11 miles from the Spring Creek Spur. Since this is relatively flat terrain just before the summit of this alignment, the line-of-sight in either direction would be satisfactory.

Implementation of Mitigation Measure 55 would maximize safety at locations where the approved Four Mile Creek Alternative would cross public roads.

Collision Rates. To calculate potential railroad and vehicle collisions at grade crossings, SEA uses an equation developed as part of the National Cooperative Highway Research Program.[49] The equation is based on three factors: daily train traffic assumed for the analysis period, daily vehicle traffic projected to occur on affected roadways throughout the analysis period, and the effectiveness of various warning devices planned for the various crossings.[50] The variables in the equation are constant for all the rail and roadway crossings analyzed.[51] SEA estimates that

[49] The National Cooperative Highway Research Program (NCHRP) is an objective national highway research program employing modern scientific techniques. The NCHRP was initiated in 1962 and is supported on a continuing basis by funds from the member states in American Association of State Highway and Transportation Officials (AASHTO) and receives the full cooperation and support of the Federal Highway Administration (FHWA), USDOT.

[50] The equation is EA = (A)(B)(ADTT), where EA = expected annual accidents at a crossing; A = an empirically derived factor, associating traffic volumes with accident frequency; B = an empirically derived factor, representing the relative effectiveness of various types of crossing-warning devices; and ADTT = average daily train traffic.

[51] The only factor that potentially could differ from crossing to crossing is ADHT, which, in the case of the three public crossings considered for the proposed Western Alignment and the seven public crossings considered for the approved Four Mile Creek Alternative, is translated to only one value under the list of "A" factors. See "a" below. The values of the remaining two factors in the equation are discussed under "b" and "c" below.

a. The "A" Factor: All the ADHT figures are below 250 and, according to Report Number 50 from the NCHRP, would translate to an A factor of 0.000347.

train speeds would be between 45 and 55 mph for the proposed Western Alignment. Train speeds for the approved Four Mile Creek Alternative would vary from 10 mph to 55 mph.

The results of SEA's analysis, assuming two different types of crossing-warning devices, are reported in Table 4-31. SEA determined that accidents for both the proposed Western Alignment and the approved Four Mile Creek Alternative would occur at a rate of not more than one every 50 years at the crossings equipped with either crossbucks or stop signs.[52]

Table 4-31 – Projected Accident Rates for the Proposed Western Alignment and the Approved Four Mile Creek Alternative for the Year 2005

I. Stop Sign Crossing (A = 0.000347, B = 4.51)	
ADTT (seven round trips)	14
Estimated Accidents per Year	0.021
II. Crossbucks Crossing (A = 0.000347; B = 3.89)	
ADTT (seven round trips)	14
Estimated Accidents per Year	0.018

Source: State Transportation Board

The MDT priority index is used to rate each public at-grade railroad crossing to determine the sequence in which public at-grade crossings will be considered for active control devices. According to Section 18.6.301-315 of the Montana Code Annotated, Railroad Administrative Rules, each public at-grade crossing would be placed on a priority index, after review by a MDT diagnostic team. According to MDT, the diagnostic review would occur after final engineering drawings are available for the crossing locations (Lewis 1998).

Mitigation Measure 55 addresses the design of at-grade crossings to maximize safety at locations where the approved Four Mile Creek Alternative would cross public roads. Based on the information available to date, SEA preliminarily concludes that this mitigation measure would also be adequate to ensure that impacts associated with safety risks at rail crossings resulting from the operation of the rail line along the proposed Western Alignment would not be significant.

Transportation of Hazardous Materials. TRRC anticipates that coal would be the only commodity hauled on the rail line. Hazardous materials that would be transported for operation and maintenance of the railroad would include diesel fuel, solvents, oils, and lubricants, and other chemicals used for ROW maintenance, such as herbicides for weed control.

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b. The "B" Factor: Given the two possible locations of crossing-warning devices at TRRC crossings, the equation was worked using two values, as presented in Report Number 50: the maximum value of 4.51 for "stop signs, highway volume less than 500 per day" (with no adjustment) and the value of 3.89 for "crossbucks, highway volume less than 500 per day."

c. In the year 2005, ADTT is equal to seven round trips or 14 trains daily.

[52] Crossbucks are passive signs comprised of an upright with a pair of arms crossed at 90 degrees and bearing the words "Railroad Crossing."

In the event that a derailment occurred near a waterway, water quality could be temporarily affected by coal or the aforementioned hazardous materials and chemicals.

If coal were spilled directly into a stream, it would remain in place until removed by cleanup activities or transported downstream as part of the stream's sediment load during successive flood events. Chemical water quality would not be significantly affected because coal is insoluble. The coal could interfere with river activities such as fish spawning and flow rates if it occurred in a shallow spawning bed. Impacts to the river would be reduced by prompt removal of the coal from the stream bed. Spills in deeper, faster-moving water would be allowed to dissipate naturally.

In Tongue River II, the Board adopted mitigation measures requiring TRRC to develop a spill prevention plan, as described in Mitigation Measure 62 above. SEA preliminarily recommends the adoption of the following mitigation measure to address safety impacts resulting from the potential transportation of hazardous materials:

> **Mitigation Measure 68 (Hazardous Materials Transport).** In the event that TRRC should transport hazardous materials, TRRC shall comply with the requirements of the Hazardous Materials Transportation Act (49 USC 1080 et seq.) and its governing regulations. TRRC shall also comply with the Federal Railroad Administration (FRA) hazardous materials regulations for rail transport (including 49 CFR 174), along with FRA's general rail safety regulations (49 CFR 209 to 236). *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts associated with the transport of hazardous materials along the proposed Western Alignment would not be significant.

4.3.7 Environmental Consequences – Air Quality

4.3.7.1 Summary

The proposed Western Alignment and the approved Four Mile Creek Alternative would both traverse mostly undeveloped land with limited sources of air pollution. The primary air quality issues are related to dust and combustion emissions. SEA conducted a thorough and comprehensive analysis of these effects, as well as other air quality-related effects.

New Analyses. SEA's analysis of impacts on air quality resulting from the construction and operation of the proposed Western Alignment or the approved Four Mile Creek Alternative utilizes information contained in the EIS in Tongue River II, the Environmental Report prepared by TRRC and an Air Quality Impact Analysis Update prepared which analyzes both alignments.

Mitigation. As part of this analysis, SEA did not identify the need for any new mitigation measures, other than the mitigation measures approved in Tongue River I or Tongue River II (which SEA recommends be applied to either the approved Four Mile Creek Alternative or the proposed Western Alignment).

Conclusion. Based on the information available to date, SEA preliminarily concludes that, with mitigation, neither the construction nor the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative would result in significant impacts on air quality.

Furthermore, SEA's analysis shows that the air quality-related impacts from railroad operations on either alignment would not adversely affect the Northern Cheyenne Reservation, which is a protected Class 1 area.

SEA's analysis did not address emissions from slash burning, which is the burning of cleared trees and brush, because it would not be utilized during the construction of either alignment. SEA also determined that blasting, if needed, would be infrequent and of limited duration, and therefore would not significantly affect air quality and is not addressed in this Draft EIS.

4.3.7.2 Construction-period Impacts on Air Quality

Temporary emissions would result from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative. Construction-related emissions would primarily include fugitive dust from construction activities and combustion emissions from construction equipment. Another source of fugitive dust would be the increased volume of vehicles on unpaved roads.

Fugitive Dust Emissions. Fugitive dust is defined as PM_{10} that enters the atmosphere without first passing through a stack or duct designed to direct or control its flow. Construction activities would result in fugitive dust emissions that are generally of short duration and are limited to the immediate area of construction. Table 4-32 compares the amounts of fugitive dust emissions that would be produced by the construction of the proposed Western Alignment and the approved Four Mile Creek Alternative. The analysis utilized EPA formulas to estimate fugitive dust emission.[53] As shown in the table, the proposed Western Alignment would not exceed Federal Prevention of Significant Deterioration (PSD) threshold PM_{10}. The dust emissions shown in Table 4-32 represent a worst-case scenario, because they do not account for the application of typical construction-dust suppression measures.

SEA's analysis determined that the proposed Western Alignment would result in higher construction-dust emissions per mile than the approved Four Mile Creek Alternative (assuming no application of construction BMPs). This is because more earth-moving activity, such as cut and fill, would be necessary for the proposed Western Alignment. The approved Four Mile Creek Alternative would result in more total construction-dust emissions, because it is a significantly longer route that would take longer to build.

[53] AP-42 General Construction Emission Factor for PM, January 1995, is the EPA document used in this analysis.

Table 4-32 – Construction-period Fugitive Dust Emissions

Alignment	Emissions of PM_{10} in Tons/Mile/Year
Federal PSD Threshold	15.0
Proposed Western Alignment (17.3 miles)	13.3[a]/0.44[b]
Approved Four Mile Creek Alternative (29.4 miles)	10.06[a]/0.26[b]

Source: CH2MHill 2004.
Notes: PSD = prevention of significant deterioration.
[a] Includes PM emissions from diesel combustion in construction equipment.
[b] Includes PM emissions from constructed railroad, wind-blown dust from sailcars in transit, and PM emissions from diesel combustion in locomotive engines.

In Tongue River II, the Board adopted mitigation measures to minimize the impacts of fugitive dust. SEA believes that these mitigation measures should also be made applicable to the proposed Western Alignment and that the implementation of these mitigation measures would be adequate to ensure that impacts of fugitive dust emissions from the construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would not be significant.

Mitigation Measure 69 (Fugitive Dust). When vegetation is removed from the right-of-way, TRRC shall clear the smallest possible amount of cover to minimize impacts of wind erosion and fugitive dust. *[TRRC II, Air Quality Condition (2), modified to clarify the intent of the measure]*

Mitigation Measure 70 (Revegetation). Where devegetation has taken place, TRRC shall begin revegetation as soon as possible. Where immediate revegetation is not possible, TRRC shall implement alternative stabilization measures such as matting and mulching. *[TRRC II, Air Quality Condition (3)]*

Mitigation Measure 71 (Site Watering). TRRC shall suppress dust at all work areas by using water trucks, and shall make water available to local landowners, governmental agencies, or associations for the purposes of dust suppression. TRRC shall conduct dust suppression activities regularly and frequently during the dry periods. *[TRRC II, Air Quality Condition (4)]*

Mitigation Measure 72 (Open Burning). TRRC shall conduct any open burning in strict accordance with local or other applicable regulations, and shall obtain all necessary permits and observe all necessary safety precautions. *[TRRC II, Air Quality Condition (5)]*

Combustion Emissions. Heavy-duty construction equipment such as scrapers, dozers, and spades produce air pollutant emissions. SEA's analysis of combustion emissions on the proposed Western Alignment and the reanalysis of the approved Four Mile Creek Alternative utilized November 2002 EPA emission standards to estimate construction-related fugitive

combustion emissions.[54] An analysis of emissions for locomotives was used because, like heavy-duty construction equipment, railroad locomotives are primarily diesel powered and emit similar products of combustion. SEA's analysis represents a worst-case scenario in that it assumes all construction activities would involve the use of diesel-fueled scrapers, which, in contrast to the other types of vehicles that would be used during project construction, produce the greatest volume of air pollutant emissions. Table 4-33 compares the combustion emissions that would be generated by the construction of the proposed Western Alignment and the approved Four Mile Creek Alternative.

SEA's analysis concluded that the proposed Western Alignment would result in higher construction-related combustion emissions per mile than the approved Four Mile Creek Alternative, despite being significantly shorter in length. This is because the proposed Western Alignment would require more earth-moving activity. The proposed Western Alignment likewise would result in higher total construction-related combustion emissions even though it would take less time to build than the longer Four Mile Creek Alternative. Nevertheless, SEA's analysis indicates that the impact of construction-period combustion emissions of the criteria pollutants for the proposed Western Alignment would be relatively minor, and would not cause significant impacts on ambient air quality because the amount of emissions (in tons per mile) of combustion emissions (carbon monoxide, nitrogen oxides, particulate matter, sulfur dioxide, and volatile organic compounds), although greater than the approved Four Mile Creek Alternative, would still be far below the Federal PSD standard for air quality.

Table 4-33 – Construction-period Combustion Emissions

	Emissions in Tons/Mile/Year				
	CO	**NO_x**	**PM_{10}**	**SO_2**	**VOC**
Federal PSD Threshold in Tons/Year	100.0	40.0	15.0	40.0	40.0
Proposed Western Alignment (17.3 miles)	1.49	0.26	13.3[a]/0.44[b]	1.28	0.08
Approved Four Mile Creek Alternative (29.4 miles)	0.88	0.15	10.06[a]/0.26[b]	0.75	0.05

Source: CH2MHill 2004.
Notes: PSD = prevention of significant deterioration; CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in size; SO_2 = sulfur dioxide; VOC = volatile organic compounds.
[a] Includes PM emissions from diesel combustion in construction equipment.
[c] Includes PM emissions from constructed railroad, wind-blown dust from sailcars in transit, and PM emissions from diesel combustion in locomotive engines.

In Tongue River II, the Board adopted the following mitigation measure to minimize the impact of combustion emissions:

> **Mitigation Measure 73 (Inspection and Maintenance).** TRRC shall subject all heavy equipment and vehicles used in the construction, operation, and maintenance of the railroad to a regular inspection and maintenance schedule to ensure that operation complies with

[54] Exhaust and Crankcase Emissions Factors for Non-road Engine Modeling - Compression-Ignition, November 2002, is the document used for this analysis.

manufacturer's specifications and that equipment is running as cleanly and efficiently as possible. *[TRRC II, Air Quality Condition (1)]*

Based on the information available to date, SEA preliminarily recommends that Mitigation Measure 73 also be made applicable to the proposed Western Alignment and that, with this mitigation measure, impacts of combustion emissions from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

4.3.7.3 Impacts on Air Quality from Operation and Maintenance

Emissions would be generated by the operation of trains along the proposed Western Alignment, as they would for the approved Four Mile Creek Alternative. Operation-related emissions could include wind-blown dust from the ROW and combustion emissions from locomotive engines.

Fugitive Dust Emissions. Operation of the proposed Western Alignment, like the approved Four Mile Creek Alternative, would result in fugitive dust emissions. Emissions would include wind-blown soils within either ROW and fugitive coal dust from traveling coal cars.

Wind-blown Dust. Devegetation in either ROW would result in exposed soils that could cause an increase in particulate emissions. When estimating wind-blown dust, SEA conservatively assumed that approximately ten percent of either ROW would have exposed soils during operation. Table 4-34 compares the amounts of fugitive dust emissions that would be generated from the ROW during operation of the proposed Western Alignment and the approved Four Mile Creek Alternative. To estimate the amount of fugitive dust, SEA's analysis utilized July 1998 EPA emission factors, which estimate volumes of fugitive dust created by operating locomotives.

SEA's analysis showed that the proposed Western Alignment would result in higher operation-related dust emissions per mile than the approved Four Mile Creek Alternative. This is due to the wider ROW needed for the proposed Western Alignment because of the larger cuts and fills that would be needed to construct this alignment. The approved Four Mile Creek Alternative would result in more total dust emissions per year of operation, because it is a longer route.

SEA's analysis also included a review of PM_{10} levels in ambient air quality and state and Federal standards for $PM_{10.}$ As discussed in Section 4.2.7.2, with the exception of Lame Deer, EPA has designated all areas in the Tongue River Valley as either attaining the NAAQS or as non-classified in the early 1990s. Background PM_{10} measurements conducted during 1992 through 1993 at the Spring Creek Coal Mines detected an average annual PM_{10} concentration of 13 $\mu g/m^3$. The Federal and state annual average standard is 50 $\mu g/m^3$. Based on these measurements and the estimated PM_{10} emissions shown in Table 4-34, SEA preliminarily concludes that the impact of operation-related PM_{10} emissions for the proposed Western Alignment, like the approved Four Mile Creek Alternative, would not have significant impacts on ambient air quality and would not result in state or Federal standards being exceeded. Therefore, SEA does not propose any mitigation to reduce operation-related fugitive dust emissions, although the implementation of dust suppression and other BMPs would reduce the contribution of PM_{10} emissions to the project area.

Table 4-34 – Fugitive Dust Emissions in the ROW of the Proposed Western Alignment and the Approved Four Mile Creek Alternative

	Emissions of PM_{10} in Tons/Mile/Year
Proposed Western Alignment (17.3 miles)	1.4
Approved Four Mile Creek Alternative (29.4 miles)	1.8

Source: CH2MHill 2004.
Note: The area that could contribute to wind-blown dust is assumed to be ten percent of the total ROW.

Coal Dust from Traveling Coal Cars. Dust from rail cars in transit was determined to be negligible based on other railroad proposals that have addressed the issue of coal dust blowing from rail cars and the potential impact on airsheds. In other projects, SEA concluded that fugitive coal dust would not present a significant environmental concern based on two important physical characteristics unique to Powder River Basin coal: high moisture content, which produces less dust than other types of coal, and high clay content, which forms a crust over the exposed coal, thereby significantly reducing fugitive dust. Anecdotal evidence, including observation of loaded rail cars leaving the Powder River Basin with no signs of fugitive dust, lack of coal accumulating on or along the existing rail lines, and lack of public complaints concerning coal dust, has also been reported in other proposals before the Board. Also, most fugitive coal dust is larger than 10 microns in size and dust particles of that size fall out of the air in a relatively short distance and are not carried high into the atmosphere or for long distances, as would be necessary to contribute to regional visibility degradation. Therefore, SEA did not conduct a quantitative analysis of these emissions.

Combustion Emissions. Railroad locomotives are primarily diesel powered and emit pollutants as a result of combustion. The locomotives that would operate on the proposed rail line would be diesel fueled. Pollutant concentrations from diesel engines would be highest directly adjacent to either alignment and would decrease rapidly as distance from the line increased. SEA's analysis of potential combustion emissions utilized emission standards for locomotives released by EPA in December 1997. These new emission standards were developed to reduce emissions from locomotives nationwide.

SEA estimated locomotive combustion emissions based on fuel use along the entire rail line from Miles City to Decker. (See Table 4-35.)

SEA's analysis determined that the approved Four Mile Creek Alternative would result in a higher level of annual emissions, because it has steeper grades that require more fuel use, and because it is longer than the proposed Western Alignment. Nevertheless, SEA preliminarily concludes that operation-related combustion emissions are well under national standards for both the proposed Western Alignment and the approved Four Mile Creek Alternative, and that neither would have significant impacts on ambient air quality.

Table 4-35 – Emissions from Operation of Locomotives by Alignment (Tons per Mile per Year as Compared to Federal PSD Thresholds)

Scenario	Emissions in Tons/Mile/Year				
	CO	**NO_x**	**PM_{10}**	**SO_2**	**VOC**
Federal PSD Threshold in Tons/Year	100.00	40.0	15.00	40.00	40.00
Miles City to Decker via the Proposed Western Alignment	5.0	22.9	1.4	4.1	1.4
Miles City to Decker via the Approved Four Mile Creek Alternative	6.9	31.2	1.8	5.6	2.0

Source: CH2MHill 2004.
Notes: PSD = prevention of significant deterioration; CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in size; SO_2 = sulfur dioxide; VOC = volatile organic compounds.

As part of the Air Quality Analysis Update, operational emissions were also calculated by county. Table 4-36 illustrates emissions for both Rosebud and Big Horn counties and also shows the differences between the proposed Western Alignment and the approved Four Mile Creek Alternative for each criteria pollutant and county.

Table 4-36 – Operational Emissions by County (Tons per Mile per Year)

	Emissions in Tons/Mile/Year				
	CO	**NO_x**	**PM_{10}**	**SO_2**	**VOC**
Rosebud County					
Miles City to Decker via the Proposed Western Alignment	1.1	5.0	0.4	0.9	0.3
Miles City to Decker via the Approved Four Mile Creek Alternative	2.1	9.5	0.6	1.7	0.6
Difference	*-1.0*	*-4.5*	*-0.2*	*-0.8*	*-0.3*
Big Horn County					
Miles City to Decker via the Proposed Western Alignment	3.9	17.8	1.0	3.2	1.1
Miles City to Decker via the Approved Four Mile Creek Alternative	4.8	21.7	1.2	3.9	1.4
Difference	*-0.9*	*-3.9*	*-0.2*	*-0.7*	*-0.3*

Source: CH2MHill 2004.
Notes: CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in size; SO2 = sulfur dioxide; VOC = volatile organic compounds.

As shown in the table above, operation of the proposed Western Alignment would result in fewer emissions than the approved Four Mile Creek Alternative for each criteria pollutant. When compared to the EPA's project significance thresholds, it is apparent that neither alternative exceeds the 100-tons-per-year definition that could trigger extensive analysis of NAAQS, PSD increments, air quality-related values, visibility, and deposition.

In Tongue River II, the Board adopted Mitigation Measure 73, discussed above, to minimize the impact of combustion emissions. Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that impacts of combustion emissions from the operation of the rail line along the proposed Western Alignment, like the approved Four Mile Creek Alternative, would not be significant.

4.3.8 Environmental Consequences – Noise and Vibration

4.3.8.1 Summary

Both the proposed Western Alignment and the approved Four Mile Creek Alternative would traverse mostly undeveloped land with relatively few noise sources and receptors. For both alignments, the primary noise and vibration issues are related to the impacts of construction-period and operations-related noise on sensitive receptors. As a result, SEA conducted a thorough and comprehensive analysis of these impacts, as well as other noise- and vibration-related impacts.

New Analyses. SEA's analysis of noise and vibration impacts of the approved Four Mile Creek Alternative resulting from construction and operation utilizes information contained in the EIS in Tongue River II and the Environmental Report for the proposed Western Alignment. The analysis of the proposed Western Alignment utilizes information from the Environmental Report for the proposed Western Alignment. SEA reviewed the information and conducted site visits and aerial surveys to verify that the information was accurate and up to date.

Mitigation. As part of this analysis, SEA identified two new mitigation measures to minimize the impacts resulting from construction-period vibration on the Tongue River Reservoir Dam as well as the implementation of a quiet zone.

Conclusion. Based on the information available to date, SEA preliminarily concludes that, with mitigation, the construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would not result in significant impacts from noise and vibration. The approved Four Mile Creek Alternative would result in adverse noise impacts to five residences due to the mandatory sounding of train horns at public at-grade crossings. As explained in more detail below, sounding a train horn is a deliberate noise intended to promote safety, however new legislation may establish quiet zones to preserve the quiet to which communities are accustomed.

4.3.8.2 Construction-period Noise and Vibration Impacts

Temporary noise- and vibration-related impacts would result from the construction of the proposed Western Alignment, as they would from the approved Four Mile Creek Alternative. These impacts are analyzed below.

Impacts on Sensitive Receptors. SEA's established threshold for noise impact analysis[55] is as follows: a 3 dBA increase is used as a criterion to identify the number of sensitive receptors either already within a 65 dBA contour from existing noise sources or put into a 65 dBA contour by the construction or operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative.

[55] SEA's noise thresholds are specified in 49 CFR 1105.7.

SEA's analysis of potential noise impacts included identification of sensitive receptors along either the proposed Western Alignment or the approved Four Mile Creek Alternative. A sensitive receptor is defined as a residence, school, hospital, or recreation area. The analysis reviewed USGS maps, and included field verification. For the area in close proximity to the centerlines for both alignments, the sensitive receptors are rural residences and a church.

For both alignments, sensitive receptors that would experience construction-period noise are presented in Table 4-37. The proposed Western Alignment would affect fewer sensitive receptors than the approved Four Mile Creek Alternative.

Table 4-37 – Anticipated Construction-period Noise Impacts on Sensitive Receptors Along the Proposed Western Alignment and the Approved Four Mile Creek Alternative

	Construction Contours
	Within 65 dBA L_{dn} (500 feet) noise contour and experiencing at least 3 dBA increase.
Proposed Western Alignment	
Residences	1
Churches	0
Schools	0
Approved Four Mile Creek Alternative	
Residences	3
Churches	1
Schools	0

Source: Surface Transportation Board, 2004.
Note: L_{dn} are day-night levels, used to reflect a 10 dBA noise penalty for sounds measured between 10 p.m. and 7 a.m.

Sensitive receptors would be affected by the operation of heavy machinery during construction of either alignment, which would temporarily increase noise levels in the construction area. Using a worst-case assumption that all construction equipment would be operating at the same time, the 65 dBA L_{dn} corridor for construction would extend out 500 feet. The noise from construction would range between 62 and 74 dBA at a 500-foot distance, and between 54 and 67 dBA at a 2,000-foot distance.[56] The noise generated would be similar for both alignments, however the approved Four Mile Creek Alternative would affect more receptors (four) than the proposed Western Alignment (one).

[56] The noise levels are based on the assumption that on a one-mile segment there would be 13 scrapers, seven bulldozers, four graders, four rollers, four trucks, one backhoe, and a vibratory tamper and that all machinery would operate at full load with no attenuation. See Tongue River I: A6-1 and A6-15 and ICC, Draft Environmental Impact Statement, Somerset Railroad Corporation, Construction and Operation of a Line of Railroad in Niagara County, New York, Washington, D.C., September 5, 1980, pp. IV-40 through 50.

In Tongue River II, the Board adopted the following mitigation measure to minimize disturbance from noise:

> **Mitigation Measure 74 (Construction Timing).** To the extent practicable, TRRC shall schedule major noise-producing construction activities during the weekday and daylight hours to limit disturbances during more sensitive times of day. *[TRRC II, Noise Condition (1)]*

In addition to the mitigation measure adopted in Tongue River II, ICC imposed in Tongue River I a mitigation measure to reduce construction noise from equipment. SEA preliminarily recommends that this measure be applied to the construction of the entire rail line from Miles City to Decker, including the proposed Western Alignment and the approved Four Mile Creek Alternative.

> **Mitigation Measure 75 (Construction Equipment).** All equipment used for construction shall comply with all reasonable Federal, state, and local noise regulations and ordinances. *[TRRC I, Condition 6.1(3), modified to clarify that all equipment used in construction shall comply with reasonable noise regulations]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that impacts resulting from noise during the construction of the proposed Western Alignment, like the approved Four Mile Creek Alternative, would not be significant.

Vibration Impacts on the Tongue River Reservoir Dam. Vibration from construction could potentially affect the integrity of the Tongue River Reservoir Dam (Wetzel 1998). MT DNRC, during discussion with TRRC representatives, requested that TRRC notify MT DNRC if any blasting were to occur within two miles of the dam. The approved Four Mile Creek Alternative is located more than two miles to the southwest of the dam. As a result of being further from the dam, the approved Four Mile Creek Alternative should have no vibration-related impacts on the dam.

The greatest potential vibration from construction of the proposed Western Alignment would be from blasting. Blasting would only be necessary where soils are encountered that cannot be excavated with conventional equipment. During construction, sandstone deposits would be the material most likely to require blasting. Blasting could be used to create several 50- to 100-foot-deep cuts along the proposed Western Alignment, located approximately 1.0 to 1.5 miles to the west and northwest of the western abutment of the Tongue River Reservoir Dam. To what extent blasting would be necessary is not known at this time. Detailed geotechnical investigations would be conducted along the proposed Western Alignment (if it is approved by the Board) prior to beginning construction. The same would be true for the approved Four Mile Creek Alternative. These investigations would determine whether blasting would be necessary. It would not be possible to conduct the necessary geotechnical investigations at this time because of limited access to the portion of the ROW that crosses private property.

The Board, in Tongue River II, adopted a mitigation measure (Tongue River Dam Reconstruction Condition 2) to minimize the impacts resulting from construction-period vibration on the dam. The dam rehabilitation project was completed in 1999. SEA preliminarily

recommends that for either alignment, the following mitigation measures replace the mitigation measure approved in Tongue River II:

> **Mitigation Measure 76 (Dam Vibration).** Prior to construction of the Western Alignment, TRRC shall conduct a seismic analysis based on local geology and specific blasting plans to quantify the risk of construction-related activities to the Tongue River Reservoir Dam. TRRC shall consult with Montana Department of Natural Resources and Conservation during the development of the geotechnical-drilling/blasting plans for construction of those portions of the Western Alignment located within two miles of the dam, to limit peak particle velocity and minimize vibration impacts that may occur. *[TRRC III, new]*
>
> **Mitigation Measure 77 (Speed Limits).** During operation, TRRC shall minimize speed of trains in incorporated areas and in the unincorporated community of Ashland, to minimize noise. *[TRRC I, Condition 6.1(4), modified to provide additional clarity]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that impact of vibration on the Tongue River Reservoir Dam resulting from the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

4.3.8.3 Noise and Vibration Impacts from Operation and Maintenance

SEA preliminarily concludes that the operation of the rail line along the proposed Western Alignment would not result in adverse impacts from noise and vibration. However, operation of the rail line along the Four Mile Creek Alternative would result in noise impacts to five residences due to the mandatory sounding of train horns at public at-grade crossings.

Sounding a train horn is a deliberate noise intended to promote safety, however new legislation may establish quiet zones to preserve the quiet to which communities are accustomed. In December 2003, FRA issued an Interim Final Rule (49 CFR Parts 222 and 229 Use of Locomotive Horns at Highway-Rail Grade Crossings) regarding the use of locomotive horns at highway-rail crossings. The rule requires that locomotive horns be sounded as a warning to highway users at public highway-rail crossings. In accordance with a legislative requirement, the rule will not take effect until one year following the date of its publication. Until December 18, 2004, the sounding of the locomotive horns at crossings will remain subject to applicable state and local laws.

The rule provides exemptions for the creation of community quiet zones. In order to determine whether an area or community is eligible for an exemption, the TRRC would coordinate with the FRA to create a risk index by which a prospective quiet zone could be rated. If an exemption is granted, supplementary safety measures may be required to minimize the use of the horn.

Impacts on Sensitive Receptors. The Board examines noise impacts to sensitive receptors when noise levels exceed 65 dB and would increase by at least 3 dB. This analysis requires the calculation of a noise contour. A noise contour establishes the maximum distance from an alignment's centerline that would experience a specified decibel reading. Because L_{dn} measurements account for the increased sensitivity to noise at night, the L_{dn} value is used to

calculate the noise contour. SEA's analysis included review of USGS maps and field verification.

SEA delineated the noise contour for both alignments based on typical ambient noise levels for rural areas as shown in Figure 4-12. These levels range from 20 to 40 dBA. Assuming the operation of seven round-trip trains per day along the entire rail line from Miles City to Decker,[57] two 65 dBA L_{dn} contours would occur for each alignment, one on either side of the rail line.

These contours would be at 250 feet from the track centerline for the proposed Western Alignment and at 247 feet for the approved Four Mile Creek Alternative, except in the vicinity of public at-grade road crossings, as discussed below. Table 4-38 includes information on how SEA determined noise contours.

Table 4-38 – Input Data for Noise Calculations

	Proposed Western Alignment	Approved Four Mile Creek Alternative
Trains per Day	14	14
Locomotives	4	5
Average Cars per Train	113	113
Average Speed	42 mph	37 mph
Width of 65 L_{dn} Contour	250 feet	247 feet
Width of 65 L_{dn} Contour in the Vicinity of Public At-grade Crossings[a]	737 feet	903 feet

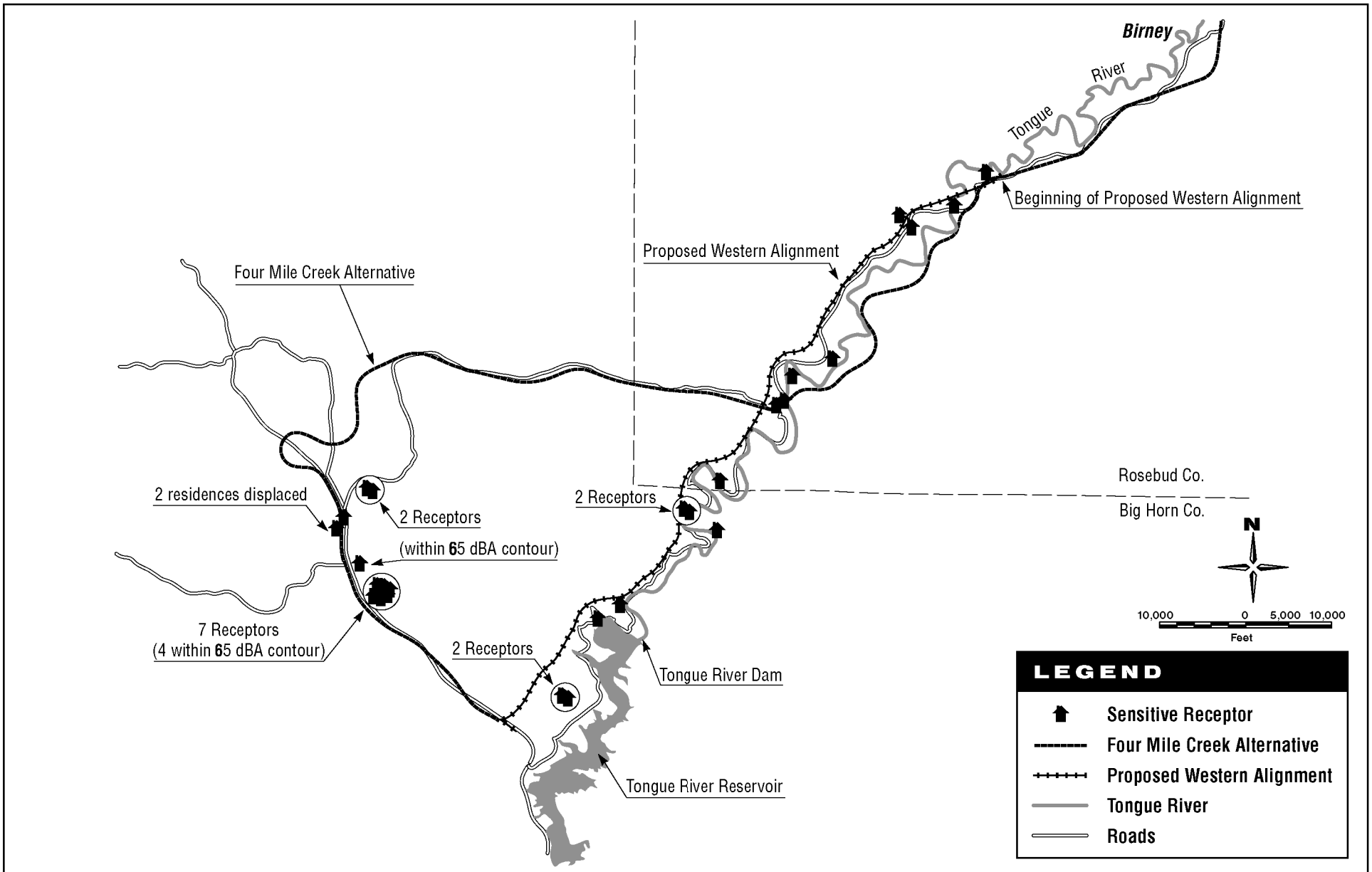
Source: Surface Transportation Board 2004.
Note: [a] This width contour would be applicable on either side of public at-grade crossings. The length for which this contour is applicable would be 2,057 feet for the proposed Western Alignment and 2,223 feet for the approved Four Mile Creek Alternative.

In addition to determining noise corridors for train operation, SEA determined noise corridors in the vicinity of public at-grade road crossings, where locomotive horns are required to be sounded by FRA regulations. Private road crossings were not considered because train horns are not required to be blown there.

To calculate the impact resulting from horn use at at-grade crossings, SEA modified the predictive expression for railroad noise at public road crossings by increasing the number of locomotives by a factor of ten. This method is recommended by HUD in its noise guidance for assessing the impact of transportation-related noise sources (such as railroads) on residential inhabitants.[58] Through this method, SEA determined that the 65 L_{dn} noise contour encircling at-

[57] The contours are based on seven round-trip trains per day, which was determined by TRRC to be the greatest number of trains during operation, which is expected to occur in approximately the year 2008.

[58] The Noise Guidebook, A Reference Document for Implementing the Department of Housing and Urban Development's Noise Policy.



INDEX OF MAP LOCATION

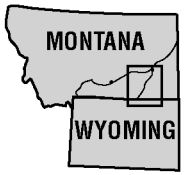


FIGURE 4-12

LOCATION OF SENSITIVE RECEPTORS
RELATIVE TO 65 dBA NOISE CONTOURS

grade crossings as a result of horn blasts would be 737 feet for the proposed Western Alignment and 903 feet for the approved Four Mile Creek Alternative.[59] The State of Montana requires locomotives to sound their horns at a point at least 1,320 feet before reaching public at-grade crossings, and sound continually until the crossing is reached (Wayne Budt, Montana Public Service Division, Transportation Division, 2003). Based on this requirement, SEA conservatively determined that the expanded, horn-influenced noise corridor would extend, on either side of public at-grade road crossings, approximately 2,057 feet for the proposed Western Alignment and 2,223 feet for the approved Four Mile Creek Alternative.[60]

Sensitive receptors located within each of these contours were then counted. (See Figure 4-12 for the location of sensitive receptors within the vicinity of both the proposed Western Alignment and the approved Four Mile Creek Alternative ROW.) The results of the analysis of noise impacts on sensitive receptors are shown in Table 4-39.

Table 4-39 – Operation-period Noise Impacts on Sensitive Receptors Along the Proposed Western Alignment and the Approved Four Mile Creek Alternative

	65 dBA L_{dn}[a] Operating/Maintenance Contour
Proposed Western Alignment	
Residences	1
Churches	0
Schools	0
Approved Four Mile Creek Alternative	
Residences	6
Churches	0
Schools	0

Source: Surface Transportation Board 2004.
Notes: [a] See Table 4-37 for the 65 dBA L_{dn} noise contour.

SEA identified one new sensitive receptor within the 65 dBA contour for operation of the proposed Western Alignment. SEA identified six residences within the 65 dBA contour for operation of the Four Mile Creek Alternative. All six residences are located between 214 and 774 feet from the Four Mile Creek Alternative, outside the 65 dBA contour for train operations but within the 65 dBA contour for train-horn noise. As explained above, this signifies that an adverse noise impact would result from the sounding of train horns but not from other operation-

[59] The width of the horn-related noise contour is based on the number of horns blown, which is one per locomotive on the train. As the approved Four Mile Creek Alternative would use five locomotives, the noise contour is wider on this alignment than on the proposed Western Alignment, which would use four locomotives (only two of which would be used to power the train along the proposed Western Alignment). SEA's estimates of noise are conservative in that SEA assumes that all locomotives on the train would sound their horns. It is possible that only one locomotive per train would be required to sound its horn.

[60] This determination is conservative because it presumes horns would always be first blown 1,320 feet from public at-grade road crossings, although they could be blown again as close as 825 feet.

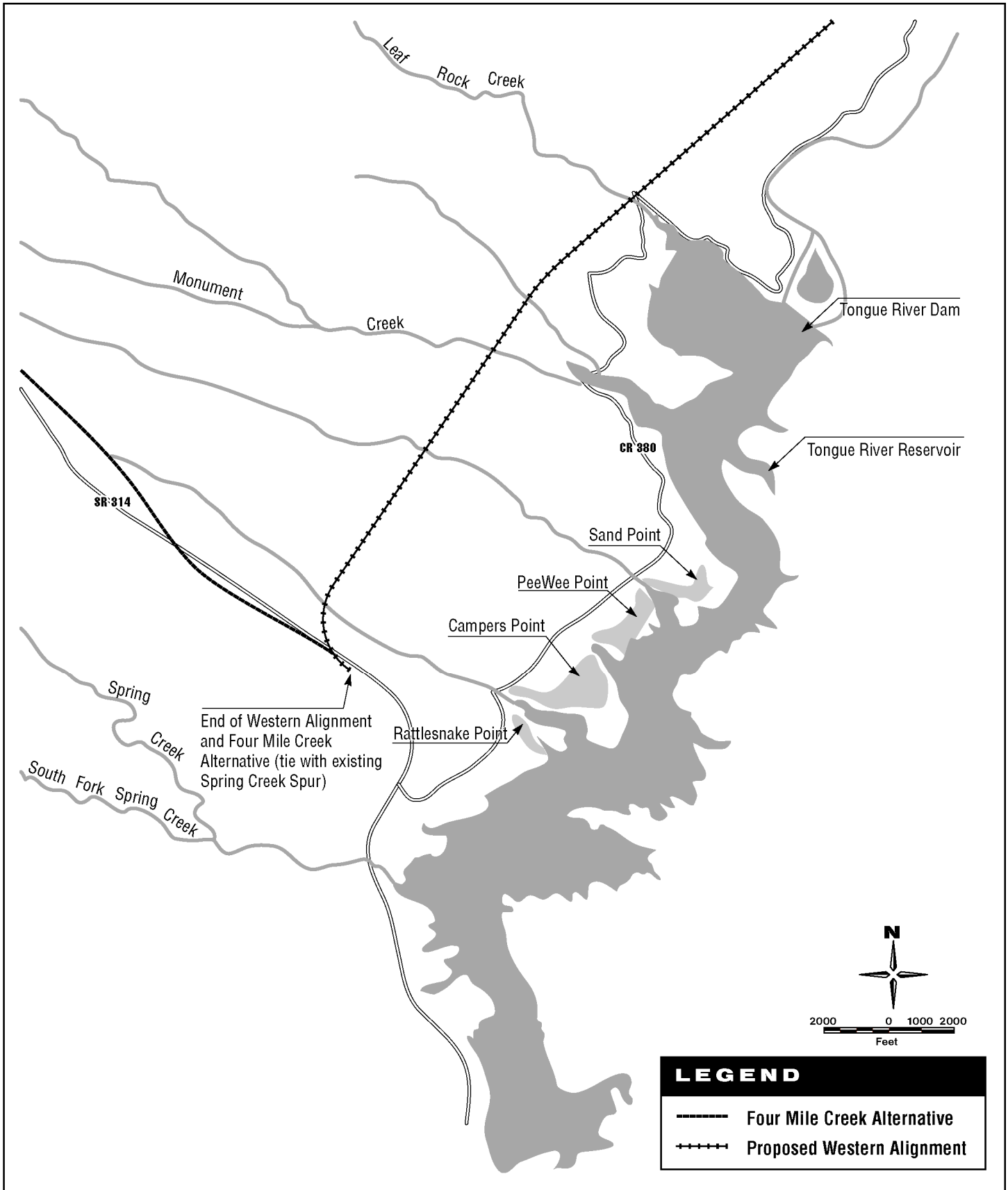
related noise. Unlike other potentially adverse environmental impacts, train-horn noise is deliberately created and imposed to enhance safety.

The mitigation measures adopted by the Board in Tongue River II do not directly address the noise impacts of train horns. SEA preliminarily recommends the adoption of the following mitigation measures to address potential impacts associated with train horns:

> **Mitigation Measure 78 (Quiet Zone)** TRRC shall consider establishing a community quiet zone for the proposed project corridor, if the Secretary of Transportation determines that the creation of a community quiet zone and the cessation of the use of train horns at rail crossings would not present a significant risk with respect to loss of life or serious personal injury. This measure shall be based upon the rules outlined in the Federal Register, Department of Transportation Federal Railroad Administration *Use of Locomotive Horns at Highway-RailGrade Crossings; Interim Final Rule* (December 18, 2003). *[TRRC III, new]*
>
> **Mitigation Measure 79 (Schools).** In the case of schools in the Ashland area, including the St. Labre school, where activities during the normal school day could be interrupted by construction or maintenance noise, TRRC shall make every attempt to consult with school officials to schedule its construction and maintenance activities in a manner most acceptable to those who would be impacted. This could include scheduling weekend or evening rail construction or maintenance work in some cases. *[TRRC I, Condition 6.1(2), modified by minor edits]*
>
> **Mitigation Measure 80 (Recordation of Noise Contours).** In order to prevent unintentional development within the 65 dBA contour, TRRC shall provide a copy of a map to each county and city planning department with jurisdiction along the proposed rail line, depicting the 65 dBA contour. The planning departments can make this information available to landowners so that they can make informed decisions about future development. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that the implementation of these mitigation measures would be adequate to ensure that impact of train horns on sensitive receptors resulting from the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Impacts on Tongue River Reservoir State Park. The Tongue River Reservoir State Park is located along the western shore of the Tongue River Reservoir. As a part of the Tongue River Reservoir Dam rehabilitation project, new and improved camp sites were developed. (See Section 4.3.10, "Environmental Consequences – Recreation," Figure 4-13, showing these camp sites and the county road leading to them.) The vast majority of visitors to the park congregate at these camp sites for swimming, boating, picnicking, fishing, and camping. The area from Sand Point north to the dam receives the highest boating use and seasonally the highest amount of fishing pressure. The area from Sand Point to the dam is where the reservoir is the widest, allowing more room for boaters and fishermen. Therefore, these sites are the areas that would be most sensitive to noise intrusion from either the proposed Western Alignment or the approved



INDEX OF MAP LOCATION



FIGURE 4-13

TONGUE RIVER RESERVOIR STATE PARK & CAMPING AREAS

Four Mile Creek Alternative. However, neither alternative would result in significant noise impacts to the sites.

As shown on Figure 4-13, both the proposed Western Alignment and the approved Four Mile Creek Alternative would be, at their closest points, approximately 1.25 miles west of these sensitive areas, which is well outside of the 65 dBA noise contour (see Table 4-37) for either alignment. Therefore, SEA preliminarily concludes these recreational areas would not experience any significant noise impacts as a result of trains operating along the proposed Western Alignment; the same applies to the approved Four Mile Creek Alternative.

Effect of Train Vibration on Dam Stability. The approved Four Mile Creek Alternative is located approximately 2.5 miles west of the Tongue River Reservoir Dam. Because of the distance, no vibration impacts on the dam from rail operations along the approved Four Mile Creek Alternative are expected. At the nearest point, the proposed Western Alignment would be located approximately one mile from the Tongue River Reservoir Dam. In order to determine if vibration from the operation of the proposed Western Alignment would result in any impact on the integrity of the dam, TRRC conducted a review of other existing dams that have operating rail lines near them. The Boysen Dam on the Big Horn River and the Glendo Dam on the North Platte River in Wyoming are located much closer to rail lines than the Tongue River Reservoir Dam would be to the proposed Western Alignment. No vibration problems have been reported for either the Boysen or Glendo Dams.

Furthermore, in the EIS in Tongue River II, SEA presented results from the U.S. Bureau of Reclamation's study of a desalination plant and dam near Yuma, Arizona. In that study, a strong sensing system was installed within 50 feet of a railroad track to determine the structural responses of dams to trains. In that study, the instrument was never triggered by any of the numerous passing trains. Based on this study, and information regarding the Boysen and Glendo Dams, SEA preliminarily concludes that the operation of trains along the proposed Western Alignment, which, though nearer than the approved Four Mile Creek Alternative, still would be over 500 feet away, would not affect the structural stability of the Tongue River Reservoir Dam.

4.3.9 Environmental Consequences – Socioeconomics

4.3.9.1 Summary

The construction and operation of the rail line along the proposed Western Alignment, like the approved Four Mile Creek Alternative, would affect an area with an agriculture- and mining-based economy. The potential socioeconomic impacts are related to the impacts of construction and operation on low-income and minority residents in the five-county area surrounding the proposed rail line from Miles City to Decker, which SEA assessed for this Draft SEIS.

New Analyses. SEA's analyses of impacts on socioeconomics utilizes information contained in the EIS in Tongue River II and the Environmental Report prepared by TRRC for Tongue River III. SEA reviewed and verified this information and conducted site visits and aerial surveys to ensure that the information in the EIS prepared in Tongue River II involving the Four Mile Creek Alternative, and information in TRRC's Environmental Report regarding the proposed Western Alignment, was accurate and up to date.

Mitigation. As part of this analysis, SEA preliminarily recommends modification of one mitigation measure that was adopted by the Board in Tongue River II to clarify that TRRC is the party responsible for consulting with the county and local governments for the purpose of assisting impacted communities in addressing the problems they face.

Conclusion. SEA evaluated the potential socioeconomic impacts of construction and operation of the entire rail line via the proposed Western Alignment and compared them to the socioeconomic impacts of constructing and operating the entire rail line via the approved Four Mile Creek Alternative. This section draws on the socioeconomic impact evaluation conducted for the five-county area in Tongue River II and provides more specific analyses for the proposed Western Alignment and the approved Four Mile Creek Alternative.

Based on the information available to date, SEA preliminarily concludes that, with mitigation, the construction and operation of the entire rail line from Miles City to Decker via the proposed Western Alignment, like the approved Four Mile Creek Alternative, would not result in significant adverse impacts on socioeconomics. SEA also preliminarily concludes that construction and operation of the entire rail line from Miles City to Decker via either the proposed Western Alignment or the approved Four Mile Creek Alternative could provide some socioeconomic benefits to the area.

4.3.9.2 Construction-period Socioeconomic Impacts

The construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would have positive socioeconomic impacts on the region through the creation of construction jobs, through the purchase of equipment and material from local vendors, and indirectly through the creation of secondary jobs. The construction-labor requirements, however, could result in a temporary (two- to three-year) spike in demand on already limited local services (i.e., hotels and restaurants). This could temporarily limit the local population's ability to acquire services from local merchants and vendors.

In Tongue River I, ICC imposed a mitigation measure to facilitate the interaction between TRRC and impacted communities. SEA preliminarily recommends that this measure be applied to the construction of the entire rail line from Miles City to Decker, so that it would apply to either the proposed Western Alignment or the approved Four Mile Creek Alternative:

> **Mitigation Measure 81 (Community Issues).** TRRC shall appoint a representative to consult with the affected county and local governments for the purpose of assisting impacted communities in addressing potential social and economic problems. To accomplish this, TRRC shall provide all practical assistance to the government planning agencies involved. *[TRRC I, Condition 3.1, modified to clarify TRRC as the party responsible for this measure]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that socioeconomic impacts on communities affected by the construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not be significant.

Direct Employment. According to TRRC, construction of the Tongue River Railroad from Miles City to Decker via the proposed Western Alignment, like the approved Four Mile Creek Alternative, would last approximately three years. The construction work would proceed year

round, weather permitting. It is assumed that most construction would occur over a seven-month period (April through October) of each year. Table 4-40 shows the estimated demand for labor requirements for both the proposed Western Alignment and the approved Four Mile Creek Alternative.

Because of the large amount of earthwork required, the construction labor requirements for the proposed Western Alignment would be greater than what would be required for the approved Four Mile Creek Alternative.

Table 4-40 – Estimate of Average Construction Labor Requirements by Year and by Alignment

	Proposed Western Alignment (Number of Workers Required)	Approved Four Mile Creek Alternative (Number of Workers Required)
First Year	480	413
Second Year	530	466
Third Year	480	423

Source: Mission Engineering 1998.
Note: These estimates are for construction of the entire rail line from Miles City to Decker.

For planning purposes, TRRC assumes that about half of the workforce would come from the five-county region and Billings, although this figure could be higher, depending upon local labor availability. TRRC estimates that a portion of the 70 workers required to operate the highly specialized tracklaying equipment might not be available locally. The great majority of the remaining workers could easily be trained for their responsibilities.

Table 4-41 shows potential employment by community, assuming that approximately 50 percent of the peak labor force (265 persons) would be local and also assuming community-specific estimates of labor pool contributions. The projection indicates that the proposed Western Alignment would result in approximately 30 more local hires than the approved Four Mile Creek Alternative.

It is anticipated that most locally hired employees would commute from their homes each day. This is especially true for commute times between 60 and 90 minutes (i.e., the approximate time it takes to travel between Sheridan and Ashland, or the approximate time it takes to travel between Ashland and Miles City). These workers would have the option of receiving travel allowances for their commute, or living in one of the two construction camps. The primary camp would be located in or near Ashland and the other would be located near the south end of the line with trailer hookups, shower, laundry, and commissary facilities. The workers that would be hired from outside the local area would most likely elect to live in either of the two planned construction camps, although they would have the option of lodging in Miles City or Sheridan, where available housing exists.

Table 4-41 – Estimate of Area Construction Employment (Peak Demand) by Community

	Regional Labor Pool Percentage	Proposed Western Alignment	Approved Four Mile Creek Alternative
Miles City	25	66	58
Sheridan/Decker	25	66	58
Billings	10	27	23
Broadus	10	27	23
Forsyth	10	27	23
Hardin	10	27	23
Lame Deer/Crow Agency	5	13	12
Ashland	5	13	12
Total	**100**	**265**	**233**

Source: Mission Engineering 1998.

In Tongue River II, the Board adopted the following mitigation measure to encourage employment of members of the Northern Cheyenne Tribe:

> **Mitigation Measure 82 (Northern Cheyenne Tribe).** TRRC shall appoint a liaison between TRRC management and the Northern Cheyenne Tribe to ensure that tribal members receive an equal opportunity to apply for and secure temporary construction and full-time operational jobs with the railroad. *[TRRC II, Social and Economic Condition (2)]*

Based on the information available to date, SEA preliminarily concludes that this mitigation measure should be imposed in Tongue River III to ensure that members of the Northern Cheyenne Tribe have an opportunity to obtain railroad-related employment if the proposed Western Alignment is approved and built.

Impacts of Construction Camps. TRRC's construction camps would be self-contained, thus minimizing impacts on local areas. The locations of the camps would be determined once a route is finalized. The construction camps would supply laundry, bathing, and food-service facilities, and would have their own water, power, and waste facilities. TRRC would be required to construct sufficient housing, trailer, and support facilities prior to the commencement of construction activities, and to maintain them throughout all phases of construction. All wastes would be disposed of off site in permitted sanitary wastewater and refuse-disposal facilities. Because these camps would be removed and the land restored following construction, the environmental impacts of the camps would be minimal and temporary. The facilities would comply with all applicable state and local regulations. See Section 4.3.1, "Environmental Consequences – Land Use," for a discussion of mitigation measures designed to reduce the temporary impacts associated with the construction camps.

Impacts on the Local Economy. TRRC estimates that the cost of construction would be $112 million for the proposed Western Alignment and $93.6 million for the approved Four Mile Creek Alternative. These costs include engineering and design, local and out-of-area labor, locally

purchased and out-of-area construction materials, and acquisition of the ROW. The greater cost for the proposed Western Alignment would be due to the greater amount of earthwork required. (See Section 4.3.3, "Environmental Consequences – Soils and Geology," for a discussion of earthwork.)

At an average monthly salary of $4,150,[61] the annual construction wages during the second (peak) year of construction for the entire line are estimated to be $28.9 million for the proposed Western Alignment, compared to $25.4 million for the approved Four Mile Creek Alternative. Based on the assumption that half of the construction work force would be supplied locally, approximately half of these wages would go to local workers. Table 4-42 estimates the distribution of annual wages among various communities by alignment selection.

The influx of a large number of non-local workers could create some economic dislocations, such as the temporary shortage of goods and services. On an area-wide basis, however, non-local construction workers are unlikely to alter the local economy markedly, due to their residence in the self-contained construction centers. The increased demand for local labor could create a short-term reduction in the ranch labor pool. Not only could the availability of labor be reduced, but the cost of obtaining labor could increase because ranchers might be forced to pay higher wages to compete with the wages offered by the railroad-construction companies.

Table 4-42 – Distribution of Local Annual Construction Wages among Communities (in Millions of Dollars)

	Proposed Western Alignment	Approved Four Mile Creek Alternative
Miles City	$3.595	$3.159
Sheridan/Decker	$3.595	$3.159
Billings	$1.471	$1.253
Broadus	$1.471	$1.253
Forsyth	$1.471	$1.253
Hardin	$1.471	$1.253
Lame Deer/Crow Agency	$0.708	$0.653
Ashland	$0.708	$0.653
Total for Local Workers	**$14.489**	**$12.636**

Sources: Hadley 1999.
Note: Assumes labor hiring figures from Table 4-41 and a $54,469 average annual construction wage at Year 2 average employment levels. $54,4469 is the updated average wage used for both alignments.

Construction activities would provide an additional economic stimulus to the region through the purchase of goods and services from local vendors. Table 4-43 provides an estimate of the

[61] TRRC estimates that the average monthly pay for a construction worker would be $4,150 exclusive of benefits and travel/lodging pay. Given an additional 75 percent for these benefits, and assuming that this pay would only be sustained for a period of 7.5 months because of limiting weather conditions, the average annual gross pay of a construction worker is assumed to be $54,469.

percentage and total dollar value of materials purchased from the three local communities capable of providing these supplies: Billings, Miles City, and Sheridan. These data are for the proposed Western Alignment. As shown in Table 4-43, all trackage materials and some bridge materials would have to be purchased out of the region because they are not available locally. However, approximately 60 percent of the materials would be purchased in the region. To a large extent, supplies and materials would be purchased from the nearest location. Therefore, more fuel and building supplies would be purchased from Sheridan than from Miles City for the southernmost segment of the proposed rail line. Table 4-43 estimates non-labor construction costs for the proposed Western Alignment only (e.g., excludes that portion of the railroad north of Milepost 0.0, south of Birney). The non-labor costs of constructing the approved Four Mile Creek Alternative ($28.9 million) would be higher than the proposed Western Alignment ($25.6 million) due to the greater length of the alignment.

Table 4-43 – Projected Railroad Non-Labor Construction Expenditures by Location of Expenditure for the Proposed Western Alignment

Construction Item[a]	Billings		Miles City		Sheridan		Out of Region		Total
Movement of Existing Utilities	10%	$32,109	20%	$64,218	70%	$224,765	0%	$0	**$321,092**
Earthwork (fuel only)	20%	$738,239	20%	$738,239	60%	$2,214,719	0%	$0	**$3,691,197**
Major Structures – Bridges	40%	$609,650	5%	$76,206	15%	$228,619	40%	$609,650	**$1,524,125**
Minor Structures – Cattle Passes, Culverts, and Vehicle Underpasses	80%	$4,198,043	5%	$262,377	5%	$262,377	10%	$524,755	**$5,247,552**
Signals and Communications	2%	$73,498	2%	$73,498	8%	$293,993	88%	$3,233,932	**$3,674,921**
Track Materials	5%	$352,024	2%	$140,809	2%	$140,809	91%	$6,406,848	**$7,040,490**
Fencing, Signs, Slope Protection, Seeding and Mulching	20%	$133,911	30%	$200,866	50%	$334,777	0%	$0	**$669,554**
Cattle Guards	20%	$30,825	30%	$46,237	50%	$77,062	0%	$0	**$145,124**
Contingencies	20%	$1,164,150	10%	$582,075	40%	$2,328,299	30%	$1,746,224	**$5,820,749**
Total		**$7,332,449**		**$2,184,525**		**$6,105,420**		**$12,521,409**	**$28,143,803**

Source: Hadley 1999, adjusted for inflation to year 2003.
Notes: These "Non-labor Construction Expenditures" are assumed to be material costs, which are 65 percent of the total for a particular construction item. For the remaining 35 percent of total cost, it is assumed that 20 percent goes to labor, while 15 percent goes to other equipment, the costs of which are not reflected in this table.
[a] Only construction items that have a material component are included in this table. For example, final engineering design costs and ROW acquisition expenditures are not included in this table.

In addition to direct employment, the construction of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would indirectly generate employment as a result of increased spending in the local communities by TRRC for materials and supplies, and also by construction workers for food, entertainment, clothing, and fuel for personal vehicles (see Table 4-44). It is estimated that there would be approximately 20 persons hired from the local

area to help with cooking, cleaning, maintenance, and operation of the primary construction camp in Ashland. A few additional people could also be hired for operations and maintenance of the trailer camp near the southern end of the line. Typically, a multiplier effect of 50 percent (e.g., one indirect job for every two direct jobs) would apply to a large multi-year construction effort (Montana Department of Labor and Statistics). Given the high degree of self-containment in the construction camps, and the assumed 50 percent non-local hiring, a multiplier of 35 percent might be more reasonable for indirect employment stimulation.

Table 4-44 – Direct and Indirect Employment Due to Construction of the Proposed Western Alignment or the Approved Four Mile Creek Alternative

Alignment	Direct (Peak Year)	Indirect[a]	Total New Employment
Proposed Western Alignment	530	186	716
Approved Four Mile Creek Alternative	466	163	629

Source: Hadley 1999
Note: [a] Assumes 35 percent multiplier.

For the construction of either alignment, the increased direct and indirect employment and the purchase of materials and supplies would benefit population centers throughout the region (including Billings). However, for part-time residents (seasonal and recreational), the economic benefits would be mixed. The loss of range land, the inconvenience of severed parcels, and the reduced short-term availability and higher cost of ranch laborers (who may elect to work on railroad construction) would result in a negative economic impact, as would the reduced real estate value of the few homes directly adjacent to the railroad. TRRC payments to landowners for the purchase of ROW, the possible purchase of water rights for use in construction, and the lease of land for construction centers and equipment-laydown areas could offset the latter negative impact. In addition, the possibility of reduced property taxes to property owners as tax revenues shift to the railroad and new coal mine operators could be beneficial.

Demand for Services. The limited services and infrastructure in the region—particularly in small towns like Ashland and Lame Deer—could be strained by the influx of hundreds of new temporary residents. The strain could occur if a large portion of the demand for direct and indirect employment was satisfied by individuals and families from outside the region. The region's high unemployment levels, particularly on the Northern Cheyenne Indian Reservation, along with the fact that employees from outside the region would be housed in two self-contained construction centers, would mitigate this potential impact.

The proposed Western Alignment would require a larger number of employees than the approved Four Mile Creek Alternative, and would therefore generate a higher potential for employment-related impacts. For the proposed Western Alignment, approximately 90 percent (240) of the 265 out-of-region hires would reside in construction centers. It is assumed that the remaining 25 persons would seek rental apartments or homes in Sheridan or Miles City. Of those that would not live in construction centers, approximately 20 persons would bring their families with them. Assuming one spouse and two children, the new temporary population resulting from direct employment would be 80 people, with most living in Miles City or

Sheridan.[62] Some of the indirect employment demand might be met by newcomers to the community (indirect employment is discussed below). These indirect jobs would, however, probably pay less and would be more likely to be filled by those seeking part-time service jobs, such as teenagers. It would therefore be unlikely that the short-term increases in indirect employment would attract many newcomers to the community. The total increase in new population for the region is estimated to range from 92 for the approved Four Mile Creek Alternative to 100 persons for the proposed Western Alignment. Table 4-45 shows the estimated population increases for each alignment.

Table 4-45 – Predicted Temporary Increase in Regional Population as a Result of Construction of the Proposed Western Alignment and the Approved Four Mile Creek Alternative

	Proposed Western Alignment	Approved Four Mile Creek Alternative
Outside Construction Workers Residing in Construction Centers	240	210
Outside Construction Workers Seeking to Locate in the Region	25	23
Dependent Family Members of Outside Construction Workers Seeking to Locate in the Region	75	69
Total (outsiders temporarily moving into local communities)	**100**	**92**

Source: TRRC and Granite Engineering 1998.

The estimated 100-person increase in population in the region represents less than 0.2 percent of the five-county regional population, which is expected to exceed 35,000 in the year 2005. It is unlikely that this incremental increase of 100 new persons would aversely affect the infrastructure and social conditions in the region.

The five-county region has pockets of high unemployment and also has average family incomes that total half of the average construction pay projected for the entire rail line between Miles City and Decker. As a result, it is clear that the socioeconomic benefits of the construction of the Tongue River Railroad outweigh any adverse impacts from increased demands on local services. The proposed Western Alignment would have a greater net benefit than the approved Four Mile Creek Alternative because of the proposed Western Alignment's higher labor requirements.

Cumulative Impacts on Labor Demands. A cumulative impact is an impact from a project or activity that is separate from the project being evaluated, but could act to magnify project impacts. In the EIS in Tongue River II, concern was noted regarding labor demands for the construction of the entire rail line from Miles City to Decker, and resulting strains on local services and infrastructure. Specifically, because of simultaneous demand for labor for the

[62] TRRC and its construction consultant, Granite Engineering, believe that it is unlikely that the out-of-region construction workers would bring their families with them. This estimate is therefore high (conservative) for purposes of impact assessment.

rehabilitation of the Tongue River Reservoir Dam, there was concern that any such strains would be exacerbated. However, delays in construction of the railroad and the completion of the dam rehabilitation have now eliminated this as a potential concern. In fact, the timing of the two projects is now considered a positive socioeconomic impact because the railroad project provides some measure of continuity in construction work for local workers.

4.3.9.3 Socioeconomic Impacts from Operation and Maintenance

For either alignment, the long-term socioeconomic impacts of the operation of the Tongue River Railroad would be based primarily on two factors: the net effect on area and regional employment and wages, and the fiscal impacts in terms of revenues to local governments, which fund education and basic services.

In Tongue River I, ICC imposed a mitigation measure (81, discussed previously) to facilitate the interaction between TRRC and impacted communities. SEA preliminarily recommends that this mitigation measure be applied to the operation of the entire rail line from Miles City to Decker, so that the mitigation measure would apply to either the proposed Western Alignment or the approved Four Mile Creek Alternative.

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that socioeconomic impacts on communities affected by the operation of the rail line along the proposed Western Alignment, like the approved Four Mile Creek Alternative, would not be significant.

Impacts on Employment and Wages. This section examines the impacts of rail operations based on two factors: (1) the alignment that is ultimately built, and (2) whether or not BNSF and TRRC reach an operating agreement governing use of the Tongue River Railroad. SEA analyzed the potential impact of the Tongue River Railroad on area employment and wages, using two potential operating scenarios. Under the first, TRRC would transport coal on the rail line between the Decker area and Miles City using its own locomotives and crews. Under the second, BNSF would transport coal over the rail line between the Decker area and Miles City using BNSF locomotives and crews, according to terms of an agreement negotiated between BNSF and TRRC. As of December 2003, TRRC and BNSF representatives are discussing, but have not yet entered into, an operating agreement.

Employment Changes. Under either scenario, there would most likely be a reduction in the use of BNSF crews, because the rail line via either the proposed Western Alignment or the approved Four Mile Creek Alternative would be much shorter than the current alignment from Decker to Sheridan, Huntley, and east to the Midwest, which is currently the most likely market for this coal. The largest reduction in BNSF crew requirements would occur under the first scenario, where no operating agreement between the two companies is reached and TRRC would transport coal using its own locomotives. BNSF crew reductions are likely to be less if BNSF is allowed to operate over the entire rail line from Miles City to Decker, as existing BNSF crew would presumably be transferred to work on the Tongue River Railroad. Indeed, BNSF has entered into labor agreements with the Brotherhood of Locomotive Engineers and the United Transportation Union, which provide for protection of employees in the event that BNSF and TRRC agree on operating or trackage rights (Siegle 1998), although they have not done so to date. Therefore, the first scenario represents the worst case regarding potential BNSF job losses. The net effect of this scenario is expressed by comparing the number of new jobs that would be

created by TRRC to the number of existing BNSF jobs that would be lost. The same method was used to calculate wage gain and loss.

SEA analyzed anticipated employment changes in the initial year of operation of the entire rail line from Miles City to Decker, since this is when BNSF job losses would primarily occur. In the initial year of operation, it is estimated that the entire rail line from Miles City to Decker would employ 80 full-time employees. TRRC estimated breakout by job category, as shown in Table 4-46, which assumes operation over the proposed Western Alignment. The number of new jobs would be higher for the approved Four Mile Creek Alternative (91 vs. 80) because of its longer distance and also because its steeper grade conditions would require more locomotives, and therefore more crew.

Table 4-46 – Number of Permanent New Jobs Created in Initial Year of Operation of the Entire Tongue River Railroad from Miles City to Decker via the Proposed Western Alignment, Assuming TRRC-operated Trains

Position	Number of Employees
Train Crew Members	38.5
General Manager	1.0
Supervising Trainmasters	2.0
Administrative	
Administrative Assistants	2.0
Clerical and Office Staff	6.0
Equipment Maintenance	
Foreman and Assistant	2.0
Diesel Mechanics	2.0
Electricians	2.0
Welder	1.0
Mechanic Helper	2.0
Carmen/Inspectors	5.5
Signal/Communication Technician	1.0
Maintenance of ROW (Miles City)	
Track Supervisor	1.0
Foreman	2.0
Crew	4.0

Position	Number of Employees
Maintenance (Ashland)	
Section Foreman	1.0
Section Gang	5.0
Track Inspectors	2.0
Total	**80**

Source: Leilich 1998.

Table 4-47 examines the net change in regional jobs due to the construction of the entire proposed rail line from Miles City to Decker. Table 4-47 shows that the total estimated loss of BNSF crew member jobs in the first year of TRRC operations for the proposed Western Alignment would be 87. This loss would occur because the savings in time and distance afforded by using the entire rail line from Miles City to Decker, versus the existing BNSF routing. If BNSF were to operate its own locomotives and crews over the entire rail line from Miles City to Decker, the number of job losses would be much lower.

Table 4-47 – Change in Regional Jobs Due to the Construction of the Proposed Western Alignment or the Approved Four Mile Creek Alternative

	Proposed Western Alignment	Approved Four Mile Creek Alternative
BNSF crew member job losses	87	87
New TRRC jobs created	80	91
Net change in regional railroad jobs	-7	+4

Source: Leilich 1998.

As the table shows, it is estimated that a total of 87 BNSF crew member jobs would be lost in the first year of TRRC operations for the proposed Western Alignment.[63]

SEA believes that this estimate of net job change underestimates the amount of new jobs the entire rail line from Miles City to Decker would create regionally, because it does not take into account that train crew jobs would increase as TRRC begins to move tonnage from new mines in the Ashland area that are unlikely to be opened in the absence of the rail line via either the proposed Western Alignment or the approved Four Mile Creek Alternative. SEA's estimates also do not take into account the fact that significant new job opportunities would become

[63] This estimate assumes four working days per week per employee, and is calculated with the following formula: (total crew size x trains per day x days in a week) ÷ days worked.

- For the Gillette area coal mines, total crew size is 5 (by segment: Sheridan-Huntley=2, Return Huntley-Sheridan=2, ½ Helper=1), trains per day is 1.04: (5 x 1.04 x 7) ÷ 4=9.
- For the Decker area coal mines, total crew size is 8 (by segment: Sheridan-Huntley=2, Return Huntley-Sheridan=2, Mine Turn=2, Helper=2), trains per day is 4.23: (8 x 4.23 x 7) ÷ 4=59.
- For the Glendive based crews, total crew size is 2 (by segment: Sheridan-Huntley=1, Return Huntley-Sheridan=1), trains per day is 5.3: (2 x 5.3 x 7) ÷ 4=19.
- Summing over the three areas, 9 + 59 + 19 = 87.

available at any new surface mines in the Ashland area. (See Chapter 6, "Cumulative Effects," for a discussion of potential regional job increases.) Therefore, the estimate of net job change is conservative.

Direct Wages. The estimated average annual salary per BNSF crew member is $91,888 (including benefits). The estimated average annual salary per TRRC employee would be $42,740 (including benefits).[64] Based on these figures, the total wage loss (including benefits) to the region due to the operation of the proposed Western Alignment would amount to $4.3 million, while total wage loss (including benefits) to the region due to the operation of the approved Four Mile Creek Alternative would amount to $3.8 million. As noted above, the regional wage creation and economic stimulation resulting from Ashland area mine development would likely more than offset the loss in BNSF wages and associated economic activity.

Population Changes. An estimate of the change in population resulting from the initial year of operation of the entire rail line from Miles City to Decker is presented in Table 4-48. The estimated loss to the regional population of approximately 31 persons as a result of the operation of the proposed Western Alignment represents less than 0.2 percent of the existing population. In comparison, the estimated gain to the regional population of approximately 18 persons as a result of the operation of the approved Four Mile Creek Alternative represents less than 0.1 percent of the existing population in the region.

Table 4-48 – Estimate of One-time Population Changes Resulting from Operation of the Entire Tongue River Railroad from Miles City to Decker via Either the Proposed Western Alignment or the Approved Four Mile Creek Alternative

	Net Direct Employment Changes	Net Indirect Employment Changes	Total Employment Changes	Total Population Changes
Proposed Western Alignment	-7.0	-3.5	-10.5	-31.5
Approved Four Mile Creek Alternative	+4.0	+2.0	+6.0	+18.0

Source: Leilich 1998.
Note: Calculations assume 0.5 new indirect jobs for each new direct job, 1.5 persons leaving the community for each job lost, and three persons per household.

The population loss resulting from the operation of the entire rail line via the proposed Western Alignment would be more than offset by the job creation from the development of Ashland area coal mines. If this development is not properly planned for, however, it could negatively impact the level of service local governments are able to provide their constituents.

In Tongue River II, the Board adopted the following mitigation measure to facilitate local governments' planning for the development of Ashland area coal mines:

[64] The salaries are based on 1999 figures, inflated to 2002 levels (2003 data are not yet available). The disparity between the two salaries is partially due to the fact that most BNSF crew members are train operators, while TRRC employees include maintenance and office staff. The difference also reflects the higher union pay scales over non-union pay scales.

Mitigation Measure 83 (Mine Development). TRRC shall make available to local governments and to the Northern Cheyenne Tribe all public data and studies that it is aware of concerning the facilities and services that may be required as a result of mine development in the area. *[TRRC II, Social and Economic Condition (1)]*

Based on the information available to date, SEA preliminarily concludes that the implementation of this mitigation measure would be adequate to ensure that local governments can adequately plan for the development of Ashland area coal mines in the event that the proposed Western Alignment is approved and built.

Regional Fiscal Impacts from Taxes. SEA analyzed fiscal impacts of the construction and operation of the entire rail line from Miles City to Decker via either the proposed Western Alignment or the approved Four Mile Creek Alternative on state and local taxation jurisdictions. In 1999, the Montana Taxpayers Association performed an analysis of anticipated tax benefits to local communities from the construction of the entire rail line from Miles City to Decker. The analysis assumed a total construction cost of $314 million for the rail line from Miles City to Decker via the proposed Western Alignment, in comparison to the $296 million estimated construction cost for the rail line from Miles City to Decker via the approved Four Mile Creek Alternative. The analysis excludes spur trackage along the alignments.

Fiscal revenues from TRRC property taxes (assuming a tax classification of 6.76 percent, yielding taxable value of $21.25 million) from the construction of the rail line from Miles City to Decker via the proposed Western Alignment would include annual collections of $144,437 for the University Levy and $2,286,074 for School Equalization. The construction cost estimate does not include corporate license taxes nor does it include secondary effects due to new employment, such as residential property taxes, or motor fuel taxes paid by employees. Tables 4-49 and 4-50 summarize fiscal revenues from property taxes to county governments and school districts in Rosebud and Custer counties generated from the construction of the rail line from Miles City to Decker via either the proposed Western Alignment or the approved Four Mile Creek Alternative. As the routes are identical through these counties the taxable revenues are the same for either alignment. Table 4-51 shows a comparison of fiscal revenues from property taxes in Big Horn County, where the routes differ. The increased taxable revenues to local governments and school districts could have major positive socioeconomic benefits.

Localized fiscal impacts of the proposed Western Alignment on towns along the existing BNSF line through Huntley would be minimized, because that line would continue to carry a considerable number of non-coal freight traffic and some coal trains, particularly those servicing the Sarpy Creek, Big Sky, and Western Energy mines.

Table 4-49 – Rosebud County Fiscal Revenues from TRRC Property Taxes on the Tongue River Railroad via Either the Proposed Western Alignment or the Approved Four Mile Creek Alternative

Entity	Increase in Taxable Value	Percent Increase over Current Value
Rosebud County	$12.5 million	6.6
Ashland Elementary School District	$7.31 million	511.3
Birney Elementary School District	$6.72 million	1710.6
Rosebud Elementary School District	$126.61 thousand	8.5
Lame Deer High School District	$14.42 million	748.3

Sources: MTA 1998; MTA 1999.
Note: The 1999 updated MTA values are based on an increase proportionate to the increase in construction cost of the project. The 1998 analysis was based on 1997 assessments and levies.

Table 4-50 – Custer County Fiscal Revenues from TRRC Property Taxes on the Tongue River Railroad via Either the Proposed Western Alignment or the Approved Four Mile Creek Alternative

Entity	Increase in Taxable Value	Percent Increase over Current Value
Custer County	$8.86 million	50.0
Miles City Elementary School District	$3.56 million	34.2
Kircher Elementary School District	$2.96 million	124.5
Foster Creek School District	$2.36 million	511.9
Custer County High School District	$8.86 million	50.0
Miles City Community College District	$8.86 million	50.0

Sources: MTA 1998; MTA 1999.
Note: The 1999 updated MTA values are based on an increase proportionate to the increase in construction cost of the project. The 1998 analysis was based on 1997 assessments and levies.

Table 4-51 – Big Horn County Fiscal Revenues from TRRC Property Taxes on the Tongue River Railroad via the Proposed Western Alignment and the Approved Four Mile Creek Alternative

Entity	Increase in Taxable Value	Percent Increase over Current Value
Big Horn County		
Proposed Western Alignment	$1.35 million	4.6
Approved Four Mile Creek Alternative	$3.23 million	12.9
Hardin Elementary School District		
Proposed Western Alignment	$0.0	0.0
Approved Four Mile Creek Alternative	$1.64 million	12.7

Entity	Increase in Taxable Value	Percent Increase over Current Value
Decker Elementary School District		
Proposed Western Alignment	$1.35 million	14.0
Approved Four Mile Creek Alternative	$1.03 million	11.4
Hardin High School District		
Proposed Western Alignment	$1.35 million	5.4
Approved Four Mile Creek Alternative	$2.66 million	11.5

Sources: MTA 1998; MTA 1999.
Note: The 1999 updated MTA values are based on an increase proportionate to the increase in construction cost of the project. The 1998 analysis was based on 1997 assessments and levies.

SEA's analysis determined that the operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative would result in relatively few newcomers to the area, and therefore few new students. SEA therefore preliminarily concludes that the net increases in tax revenues would be a significant source of financing for the education of future students and could result in a reduction in property taxes for all taxpayers.

4.3.9.4 Environmental Justice

Summary. Construction of the proposed Western Alignment and the approved Four Mile Creek Alternative would traverse through areas that include low-income and minority populations in the five-county area surrounding the proposed rail line from Miles City to Decker. SEA has conducted analyses of the potential impacts to these populations.

New Analyses. Executive Order 12898 was signed by President Clinton in February 1994, and requires that NEPA documents analyze environmental effects on racial minorities and low-income populations living near a proposed project. Its objective is to avoid imposing disproportionately high and adverse human health and environmental impacts on these groups. As the environmental analysis of the Four Mile Creek Alternative was conducted prior to the signing of Executive Order 12898, an Environmental Justice analysis was not included in prior reports.

The definitions of low-income and minority populations are explained in final USDOT Order 5610.2 on Environmental Justice, issued in the April 15, 1997 Federal Register. In addition, EPA defined minority populations as areas where racial minorities exceed 50 percent or where the percentage is "meaningfully greater than the minority population in the general population" in its September 1997 report, Interim Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. To define low income, a variety of criteria including Census Bureau poverty rates are utilized.

SEA conducted an analysis of environmental justice as part of its environmental review of construction applications.

The 2000 Census identified three census tracts, comprising 3,669 people, in the Tongue River area. Census tract 4 falls in Big Horn County and includes the town of Decker. Census tract 9404 includes the towns of Ashland, Birney, and Lame Deer, and is located within Rosebud

County. Census tract 2, block group 2 is located in Rosebud County and parallels the Tongue River on the east. The town of Ashland is the closest community to the proposed Western Alignment.

In the State of Montana, 14.6 percent of the population is living below the poverty line. Census tract 9404, which encompasses a portion of the Northern Cheyenne Reservation, offers the greatest contrast to the state average, with a total of 45.6 percent of residents living below the poverty line.

As noted earlier in this chapter, the economic benefits associated with construction and operation of the entire rail line from Miles City to Decker are more likely to benefit the unemployed and the underemployed through the creation of new jobs—particularly during construction. A mitigation measure adopted as part of Tongue River II (Mitigation Measure 82, discussed previously) requires TRRC to appoint a liaison between TRRC management and the Northern Cheyenne Tribe to assist in ensuring that tribal members receive an equal opportunity to secure temporary construction and full-time operational jobs with TRRC. This measure is appropriate because the unemployment rate for Native Americans is higher than the statewide average.

Based on the increase in local job opportunities associated with the construction and operation of the rail line, SEA determined that the construction and operation of the Tongue River Railroad would have beneficial socioeconomic impacts.

Mitigation. SEA has not identified any potentially significant Environmental Justice impacts and therefore does not recommend the adoption of Environmental Justice-related mitigation measures.

Conclusion. Based on the information available to date, SEA preliminarily concludes that the entire rail line from Miles City to Decker does not appear to impose disproportionately high or adverse impacts on racial minorities or low-income populations.

4.3.10 Environmental Consequences – Recreation

4.3.10.1 Summary

The proposed Western Alignment and the approved Four Mile Creek Alternative would traverse mostly private land with limited public recreational opportunities. The greatest potential impact of either alignment on recreational resources is related to recreational activities occurring at the Tongue River Reservoir State Park. SEA conducted a thorough and comprehensive analysis of potential impacts to Tongue River Reservoir State Park, as well as other recreation-related impacts.

New Analyses. At the request of BLM, recreational facilities have been analyzed for this Draft SEIS. Impacts of the approved Four Mile Creek Alternative and the proposed Western Alignment on recreation have not been analyzed in previous reports.

Mitigation. SEA has not identified any potentially significant recreation-related impacts, and therefore does not recommend the adoption of any recreation-related mitigation measures.

Conclusion. Based on the information available to date, SEA preliminarily concludes that neither the construction nor the operation of the proposed Western Alignment or the approved Four Mile Creek Alternative would result in significant impacts on recreation.

4.3.10.2 Construction-period Impacts on Recreation

Recreational Fishing. The proposed Western Alignment and the approved Four Mile Creek Alternative would each require one bridge crossing of the Tongue River. The proposed Western Alignment crossing would be located just north of the existing county-road crossing of the Tongue River, while the approved Four Mile Creek Alternative crossing would be located closer to the Tongue River Reservoir Dam, near the mouth of Four Mile Creek. The construction of either bridge crossing could temporarily increase turbidity and degrade the quality of recreational fishing downstream from the construction site. Construction activities could temporarily deter fish movement through the construction zone. Construction activities could also affect spawning habitat for northern pike. Impacts would be greater for the proposed Western Alignment because of the greater amount of sediment that would reach the Tongue River. (See Section 4.3.4, "Environmental Consequences – Hydrology and Water Quality," for a discussion of sediment levels.)

Tongue River Reservoir State Park. Construction of the approved Four Mile Creek Alternative would have no impact on the Tongue River Reservoir State Park, as it would be located several miles to the west of the park. The proposed Western Alignment would have some minimal impacts, because portions of cut and fill slopes necessary to construct the proposed Western Alignment would be visible from the park. SEA believes, however, that this potential impact would be mitigated by the revegetation measures adopted in Tongue River II and the additional measures recommended by SEA in this Draft SEIS, all of which would make the cut and fill slopes less visible from the park. (See Section 4.3.2, "Environmental Consequences – Biological Resources.") Potential construction-period impacts on water quality in the reservoir, and associated impacts on biological resources, would be reduced to less-than-significant levels by mitigation measures designed to control erosion. (See Section 4.3.4, "Environmental Consequences – Hydrology and Water Quality.")

Block Management Areas. BMAs are lands where hunters are granted free access to public and private lands in Montana. The ROW required for construction activities would restrict access to portions of BMAs in Custer and Rosebud counties. However, due to the size of the BMAs (the smallest of seven is 1,800 acres) and the acreages that would be required for construction, hunters would not be restricted from any one area entirely.

4.3.10.3 Impacts on Recreation from Operation and Maintenance

The proposed Western Alignment would be located between one and two miles from camping areas at the Tongue River Reservoir State Park. (See Figure 4-13 for the locations of these camping areas.) While the project would change the existing visual and (background) noise conditions at the park, these changes would not diminish the park's unique attributes or its purpose as a valuable regional resource for active and passive recreation. The 65 dBA noise contour for the proposed Western Alignment is 250 feet. (See Section 4.3.8, "Environmental Consequences – Noise and Vibration," for a full discussion of how noise impacts are determined.) At the nearest point, the approximate distance between the proposed Western Alignment and campgrounds and activity centers is 1.25 miles, which is well beyond the 250-foot 65 dBA contour. As a result, no adverse noise impacts would occur. Cars traveling on the

park's access road and other noises such as boat engines would continue to be the dominant noise sources within the park.

The existing visual environment would change from certain viewpoints due to the introduction of tracks and passing trains. This would not result in significant visual impacts on the park because the trains would be traveling between one and two miles to the west of campgrounds and other recreational-use areas within the park, portions of the line would be shielded by hillsides, and trains would only be traveling intermittently.

The approved Four Mile Creek Alternative alignment is located farther from the Tongue River Reservoir State Park than the proposed Western Alignment, and therefore would have less potential to affect recreational activities.

Access to BMAs for recreational hunting would not be precluded as a result of project operation. While portions of the rail line would be built within BMA acreages, recreational hunting would still be permitted on BMA lands adjacent to the rail line.

In general, all of the ROW will be fenced for purposes of public safety and security. In areas where the topography would create a natural barrier, fencing may not be required. Access gates would be provided to landowners at private grade crossings. It would be up to the individual landowners to determine who may utilize the crossings. At this point, only TRRC personnel would have access to areas within the proposed ROW.

4.3.11 Environmental Consequences – Aesthetics

4.3.11.1 Summary

The proposed Western Alignment, like the approved Four Mile Creek Alternative, would traverse mostly undeveloped land with natural visual resources. For the proposed Western Alignment, the potential aesthetics impacts would be related to the changes in the natural landscape resulting from construction and operation. The same is true for the approved Four Mile Creek Alternative.

New Analyses. SEA's analysis of impacts on aesthetics resulting from the construction and operation of the proposed Western Alignment and the approved Four Mile Creek Alternative utilizes information contained in the EIS in Tongue River II and the Environmental Report prepared by TRRC in Tongue River III. SEA reviewed and verified this information and conducted site visits and aerial surveys to ensure that the information in the EIS prepared in Tongue River II involving the approved Four Mile Creek Alternative, and information in TRRC's Environmental Report concerning the proposed Western Alignment, was accurate and up to date.

Mitigation. SEA has not identified any potentially significant aesthetics-related impacts, and therefore does not recommend the adoption of any aesthetics-related mitigation measures.

Conclusion. Based on the information available to date, SEA preliminarily concludes that the construction and operation of the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would not result in significant impacts on aesthetics.

4.3.11.2 Construction-period Impacts on Aesthetics

Construction of either the proposed Western Alignment or the approved Four Mile Creek Alternative would be visible from public roads. Because of its overall length and proximity to S314 and S566, construction activities (e.g., workers, equipment, cut and fill slopes) associated with the approved Four Mile Creek Alternative would be more visible from public roads than those of the proposed Western Alignment, but would not be visible from the Tongue River Reservoir State Park. Conversely, construction of the proposed Western Alignment would be less visible from public roads than that of the approved Four Mile Creek Alternative, but portions of the alignment would be visible from the park and the access road leading to it.

Much of the proposed Western Alignment would be constructed in cuts, most of which would be deep enough to hide the locomotives and rail cars from public-roadway view. However, the construction of fills across drainages would be clearly visible to motorists traveling along C528, which becomes C380 at the Big Horn County line. SEA believes that this potential impact would be mitigated by adopting for the proposed Western Alignment the same mitigation measures adopted in Tongue River II for the approved Four Mile Creek Alternative and additional measures recommended by SEA in this Draft SEIS that would establish a process for the revegetation of disturbed slopes. These measures would make disturbed slopes less visible and blend in with adjacent undisturbed areas. (See Section 4.3.2, "Environmental Consequences – Biological Resources," for a discussion of the revegetation plan.)

4.3.11.3 Impacts on Aesthetics from Operation and Maintenance

Aesthetics in the area would be affected by operation of the rail line through the visibility of passing trains. Impacts would be less noticeable than those described for construction, as operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative would not require any additional physical disturbance of the natural environment. In addition, revegetation of cut and fill slopes would return some slopes to a more natural-looking state.

Trains operating on the proposed Western Alignment would be less visible from public roadways than trains operating on the approved Four Mile Creek Alternative. This is because hills and vegetation located between the proposed Western Alignment and public roads would shield views of much of the proposed Western Alignment from public roadways. Trains traveling along the proposed Western Alignment would be visible from C528 where they cross fills that would be created across drainages that lead to the Tongue River. However, passing trains would not significantly affect the aesthetic quality of the area as trains are not permanently visible.

Trains operating along the approved Four Mile Creek Alternative would be visible from public roads, as this alignment would parallel S314 and S566 for much of its length into the Decker area.

Operation of the proposed Western Alignment would have an adverse impact on areas of the Tongue River Canyon where the railroad would border the western edge of the Canyon, resulting in a change of the rural character of those areas. However, this impact would not be significant because the railroad would not be visible for most of the Tongue River Canyon corridor. Along most of the Canyon, the tracks would be located approximately one mile to the west of C380.

4.3.12 Environmental Consequences – Energy

4.3.12.1 Summary

The construction and operation of the rail line along the proposed Western Alignment, like that of the approved Four Mile Creek Alternative, would require the use of a large quantity of energy in the form of diesel fuel. The primary energy issues involve an analysis of both the energy requirements for construction and the potential energy savings that would result from the use of the Tongue River Railroad.

New Analyses. SEA's comparison of impacts on energy resulting from the construction and operation of the proposed Western Alignment and the approved Four Mile Creek Alternative utilizes information contained in the EIS in Tongue River II and the Environmental Report for the proposed Western Alignment. SEA reviewed this information and conducted site visits and aerial surveys to verify that the information in the EIS prepared in Tongue River II involving the approved Four Mile Creek Alternative, and information in TRRC's Environmental Report for the proposed Western Alignment, was accurate and up to date.

Mitigation. SEA has not identified any potentially significant energy-related impacts, and therefore does not recommend the adoption of any energy-related mitigation measures.

Conclusion. Based on the information available to date, SEA preliminarily concludes that both alignments would have beneficial effects on the use of energy in the area.

4.3.12.2 Construction-period Impacts on Energy

SEA's estimate of energy consumption focused on fuel that would be consumed by earthwork activity. The consumption of fuel by heavy equipment was assumed to be 0.15 gallons of diesel fuel per cubic yard of material moved, using the methodology adopted in Tongue River II. Converted to British Thermal Units (BTUs), one gallon of diesel fuel equals 138,700 BTUs.

TRRC estimates that the construction of the proposed Western Alignment would involve moving 17,309,000 cubic yards of material. Estimating 0.15 gallons of diesel fuel per cubic yard of material moved, the fuel consumption associated with the proposed Western Alignment would be 2,596,350 gallons. Converted to BTUs, the figure would be 360,113,745,000 ($0.36\ 10^{12}$) BTUs.

In comparison, TRRC estimates that the construction of the approved Four Mile Creek Alternative would involve moving 10,360,000 cubic yards of material. Estimating 0.15 gallons of diesel fuel per cubic yard of material moved, the fuel consumption associated with the approved Four Mile Creek Alternative would be 1,554,000 gallons. Converted to BTUs, the figure would be 215,539,800,000 (0.22×10^{12}) BTUs.

The construction of the approved Four Mile Creek Alternative would therefore require 1,042,350 gallons (0.14×10^{12} BTUs) less than the proposed Western Alignment.

4.3.12.3 Impacts on Energy from Operation and Maintenance

The majority of energy used by the Tongue River Railroad would be the combustion of diesel fuel by locomotives. Estimates of diesel fuel use by locomotives were developed for the entire rail line from Miles City to Decker via the proposed Western Alignment and the approved Four

Mile Creek Alternative. SEA then compared that data to the fuel use of locomotives using the existing BNSF route (Leilich 1998). Figure 2-1 contains a map of all of these routes. SEA's analysis is summarized below.

The Tongue River Railroad would serve the existing mines of the Decker/Spring Creek areas in Montana and the Powder River Basin, near the city of Gillette, WY. Coal extracted from these mines is currently hauled by BNSF. BNSF operates approximately 25 round trips per week between the Decker/Spring Creek area in Montana to Sheridan, WY (62 miles round-trip) and approximately eight round trips per week between the cities of Gillette and Sheridan (196 miles round trip).

TRRC anticipates the use of the Tongue River Railroad for all coal trains currently operating on both the Decker/Spring Creek-Sheridan and the Gillette-Sheridan segments. At full buildout, TRRC anticipates that there would be a total of seven round-trip trains per day originating from either the Decker/Spring Creek area mines or Gillette area mines. Trains originating at Decker/Spring Creek would be diverted north along the Tongue River Railroad to Miles City. The Upper Midwest-bound trains presently operating between Gillette and Sheridan would be diverted at Dutch, WY, the connection just east of Sheridan. They would then run on the BNSF line to Decker/Spring Creek and finally on the proposed TRRC rail line to Miles City.

Presently, all of the trains, including those originating at Decker/Spring Creek and those originating at Gillette, travel from Sheridan northwest to Huntley and then northeast to Miles City, a distance of nearly 300 miles. A train consumes roughly 8,000 gallons of diesel fuel on the approximately 600-mile round trip along the BNSF segment from Decker/Spring Creek to Sheridan to Huntley to Miles City (CSI 1990).

The amount of fuel currently consumed by BNSF trains to transport coal from Decker/Spring Creek and Gillette to Miles City would be reduced if the proposed rail line were available. Specifically, each loaded coal train traveling across the Tongue River rail line via the proposed Western Alignment (south to north) would consume 930 gallons of diesel, while each unloaded train returning would require 896 gallons. These trains would be powered by two 4,000-horsepower (HP) locomotives and two 3,000-HP helper locomotives. The total fuel consumption by a round-trip train would be 1,826 gallons on the approximately 240-mile round trip between Decker and Miles City utilizing the proposed Western Alignment.

Each loaded coal train traveling across the entire proposed rail line from Miles City to Decker via the approved Four Mile Creek Alternative would consume 1,759 gallons of diesel, while each unloaded train returning would use 1,039 gallons of diesel. To climb the long, steep grades, each coal train would require two 4,000-HP locomotives and three 4,000-HP helpers. The total fuel consumption by a round-trip train would be 2,798 gallons on the approximately 260-mile round trip between Decker and Miles City utilizing the approved Four Mile Creek Alternative.

Based on these calculations, the proposed Western Alignment would require 972 gallons (134,816,400 BTUs) fewer per round trip than the approved Four Mile Creek Alternative. On an annual basis (assuming seven round trips per day, 365 days a year), the proposed Western Alignment would require 2,483,460 gallons, or 0.34×10^{12} BTUs less energy to operate than the approved Four Mile Creek Alternative.

Table 4-52 presents a comparison of the energy that would be saved by the use of either the proposed Western Alignment or the approved Four Mile Creek Alternative instead of the existing BNSF line. The table assumes seven round-trip trains per day, 365 days per year, over the entire line.

Table 4-52 – Estimate of Annual Fuel Consumption Savings after Full Buildout of the Entire Tongue River Railroad from Miles City to Decker

Alignment	Diesel Use (gallons)	Alignment	Diesel Use (gallons)
Decker-Miles City via the Existing BNSF line	8,000 per train	Decker-Miles City via the existing BNSF line	8,000 per train
Decker-Miles City via the Proposed Western Alignment	1,826 per train	Decker-Miles City via the approved Four Mile Creek Alternative	2,798 per train
Savings from Use of the Proposed Western Alignment for Trains Emanating from Decker	6,174 per train	Savings from use of the approved Four Mile Creek Alternative for trains emanating from Decker	5,202 per train
Gillette-Miles City via the Existing BNSF line[a]	7,473 per train	Gillette-Miles City via the existing BNSF line[a]	7,473 per train
Gillette-Miles City via the Proposed Western Alignment	2,353 per train	Gillette-Miles City via the approved Four Mile Creek Alternative	3,325 per train
Savings from Use of the Proposed Western Alignment for Trains Emanating from Gillette	5,120 per train	Savings from use of the approved Four Mile Creek Alternative for trains emanating from Gillette	4,148 per train
Average Fuel Savings per Year[b]	11,703,560	Average fuel savings per year[b]	9,749,840

Source: Leilich 1998.
Notes: [a] Calculations are actually from Dutch Junction, WY, which is the point at which trains originating in Gillette would be capable of taking the Tongue River Railroad or the existing BNSF.
[b] Assumes a ratio of two trains from Decker to every one train from Gillette and a total of 2,010 trains annually.

Based on the calculations in Table 4-52, operations via the proposed Western Alignment to haul coal from existing mines would save 11,703,560 gallons annually, or 1.623×10^{12} BTUs annually. In comparison, the energy required to construct the proposed Western Alignment would be approximately 2,596,350 gallons, or 0.36×10^{12} BTUs.

Also, based on the calculations in Table 4-52, operations via the approved Four Mile Creek Alternative to haul coal from the existing mines would save 9,749,840 gallons per year, or 1.352×10^{12} BTUs annually. In comparison, the energy required to construct the approved Four Mile Creek Alternative would be approximately 1,554,000 gallons or 0.22×10^{12} BTUs.

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5.0 FOCUSED REVIEW OF TONGUE RIVER I AND TONGUE RIVER II

5.1 INTRODUCTION

This chapter presents the results of SEA's focused review of the EISs prepared for both Tongue River I and Tongue River II. Approximately 21 miles of Tongue River II is located north of the proposed Western Alignment, which is analyzed in detail in Chapter 4 of this SEIS. This 21-mile portion of Tongue River II is referenced throughout this chapter. As explained in the scope, SEA determined that additional analysis of Tongue River I and Tongue River II was needed in the following areas: (1) where environmental circumstances[1] or requirements[2] have changed in a manner warranting the updating and augmenting of analyses for Tongue River I and Tongue River II; (2) where there have been refinements to the alignment previously considered in the EISs for Tongue River I and Tongue River II requiring additional environmental analysis because they might result in significant environmental impacts not addressed in those previous EISs; and (3) where further environmental analysis is appropriate to assist other agencies in expeditiously fulfilling their regulatory responsibilities and functions, as specifically requested by these agencies.

SEA issued a Notice of Intent to prepare a Supplemental EIS in Tongue River III in July 1998, and an Amended NOI in March of 2003. These NOIs requested comments from interested parties on the scope of the environmental issues associated with the proposed construction and operation of the Western Alignment. In response, TRRC submitted information indicating that the alignment of the railroad between Miles City and the proposed start of the Western Alignment has been refined somewhat from that analyzed in Tongue River I and Tongue River II. The changes proposed by TRRC would result in the rail line being approximately 3 miles shorter (as a result of straightening out curves in the rail line) and having an overall flatter grade.

The following additional analyses were conducted for this Draft SEIS:

- An Initial Analysis of Waters of the U.S. and a Conceptual Habitat Mitigation Plan prepared at the request of the Corps, and in consultation with Corps staff. The analysis involved delineating wetlands and waters of theU.S. along the entire rail line from Miles City to Decker, including creek and river crossings, and involved the development of conceptual mitigation in the form of replacement of wetlands and waters of theU.S. affected by construction of the rail line. This analysis, conducted by SEA and provided to the Corps, is presented in Appendix D.

- A Biological Assessment (BA) prepared at the request of, and in consultation with, USFWS. The BA identifies threatened and endangered species and their habitat in the Tongue River Valley, identifies the potential impacts of construction and operation of the entire rail line from Miles City to Decker on those species and their habitat, and proposes

[1] Changes in environmental circumstances are defined as changes that have occurred in the physical character of the project area since the analyses for Tongue River I and Tongue River II were conducted.

[2] Changes in environmental requirements are defined as changes in Federal, state, or local regulations and laws that pertain to environmental issues or resources.

mitigation measures to reduce the environmental impacts. The BA was prepared by SEA and provided to USFWS. (See Appendix L).

- A new Programmatic Agreement[3] (PA) developed by SEA in consultation with MT SHPO, ACHP, BLM, MT DNRC, the Corps, USDA, TRRC, the Board, and the Northern Cheyenne and Crow Indian Tribes, which requires additional cultural surveys and the development of a Treatment Plan prior to beginning construction of any portion of the rail line. The PA applies to the entire rail line from Miles City to Decker. (See Appendix G.)

- Additional analysis of the water quality of Otter Creek and the upper and lower Tongue River conducted by TRRC and reviewed and verified by SEA. The analysis was conducted in response to a request by MT DNRC, and comments from the Northern Cheyenne and NPRC, due to the fact that Otter Creek and the upper and lower Tongue River had recently been designated as impaired water bodies by the State of Montana. The results of this analysis are presented in this chapter and Chapter 4 of this Draft SEIS.

- An evaluation of the effects of construction and operation of the entire rail line on BLM property, covering the areas of wildlife habitat, vegetation, riparian/wetlands, livestock grazing, soil, water, air, cultural resources, recreation, socioeconomic issues, access, wilderness, and environmental justice. This evaluation was conducted by TRRC at the request of BLM, and was reviewed and verified by SEA. This evaluation is presented in Appendix E.

- As required by the State of Montana, when a project crosses or incorporates state-administered lands, an alternatives analysis must be conducted. This analysis, completed in accordance with MT DNRC, is included in Appendix E.

- Studies of the effects of construction and operation of the rail line on the operation of the Miles City Fish Hatchery (MCFH). These studies were conducted by TRRC at the request of MT DNRC and analyzed potential vibration impacts, geotechnical concerns, and coal and dust emissions and their potential impacts on the operation of the MCFH. These studies, reviewed and verified by SEA and provided to MT DNRC, are contained in Appendix F. In its evaluation of the studies prepared by TRRC, the State indicated concerns and a difference of opinion about some of the conclusions. The State's letter in response to the studies and the State's suggested mitigation language is also in Appendix F.

5.2 PRELIMINARY RESULTS OF SEA'S FOCUSED REVIEW OF TONGUE RIVER I AND TONGUE RIVER II

SEA preliminarily concludes that the proposed refinements to the alignment analyzed in Tongue River I and Tongue River II would not significantly alter SEA's conclusions presented in the EISs for Tongue River I and Tongue River II. Furthermore, SEA preliminarily concludes that

[3] A draft Programmatic Agreement was developed in Tongue River II but never executed. As a result, SEA developed a new PA as part of Tongue River III.

changes and additions to Federal, state, and local regulations and laws pertaining to environmental issues and resources would not significantly alter SEA's conclusions presented in Tongue River I and Tongue River II. (See Appendix H for SEA's complete analysis of changes in Federal, state, and local regulations and laws that have occurred since Tongue River I and Tongue River II.)

With regard to mitigation measures, SEA preliminarily concludes that the mitigation measures adopted in Tongue River I and Tongue River II, as well as new and revised mitigation measures identified in Tongue River III and presented in Chapters 4 and 7 of this Draft SEIS, would reduce the environmental impacts associated with the proposed realignment of the previously approved line. Chapter 7 presents SEA's complete list of preliminary recommended mitigation measures for the entire rail line from Miles City to Decker (Tongue River I through Tongue River III), via either the previously approved Four Mile Creek Alternative or the proposed Western Alignment. The preliminary recommended mitigation measures include some measures from Tongue River I and Tongue River II that remain unchanged, some refinements to measures adopted in Tongue River I and Tongue River II, and new and modified measures that are being recommended as a result of the analysis conducted in this Draft SEIS for Tongue River III.

SEA preliminarily concludes that new impacts resulting from either changes in the physical environment or as a result of the proposed realignment can be effectively mitigated, and that SEA's conclusions in Tongue River I and Tongue River II do not change. Section 5.3, "Analysis of Proposed Refinements in Tongue River I and Tongue River II that Warrant Further Environmental Review," contains a more detailed discussion supporting these conclusions.

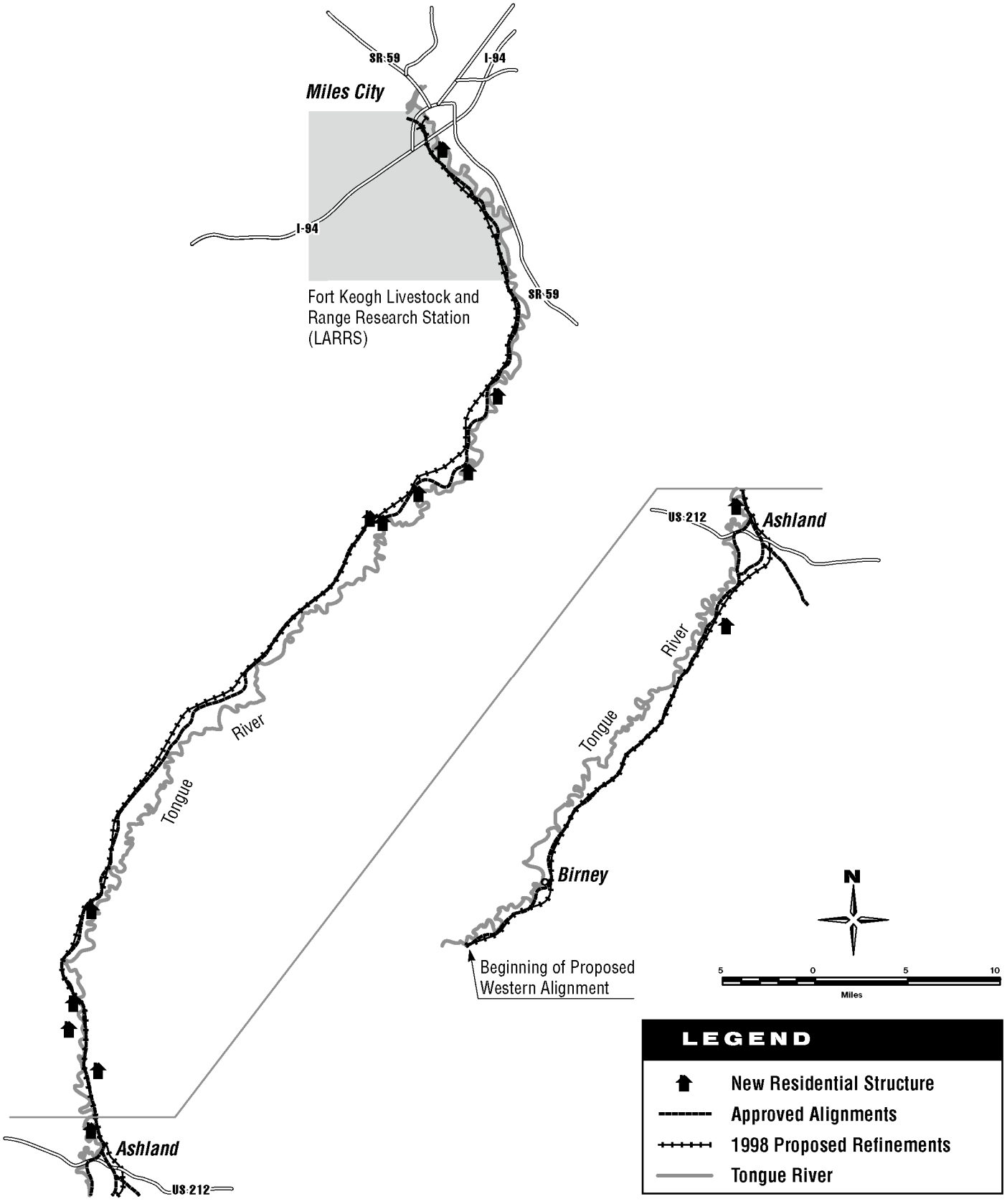
5.3 ANALYSIS OF PROPOSED REFINEMENTS IN TONGUE RIVER I AND TONGUE RIVER II THAT WARRANT FURTHER ENVIRONMENTAL REVIEW

5.3.1 Land Use

There has been one change in Federal regulations pertaining to the land use analysis in Tongue River I and Tongue River II. This change is related to the criteria for determining prime farmland in Montana. (See Appendix H.) Although this change in Federal regulations would have the general effect of reducing the amount of farmland designated as prime, none of the prime farmlands located along the Tongue River I or Tongue River II alignment would be affected by this change.

SEA reviewed aerial photographs of the 52,690 acres in the Tongue River I study area to determine if changes in land use have occurred since 1985. SEA determined that 807 acres, or approximately 1.5 percent of the study area, has undergone a change in land use between 1985 and 1997. The aerial photographs indicated that the primary change was from one form of agricultural use to another (e.g., conversion of undeveloped pasture land to irrigated hayfield and crop land). Other land use changes include modifications to existing facilities and conversion of native habitats to agriculture or residential use.

SEA's analysis revealed that 12 new residences have been constructed since 1985 along the Tongue River I route. Figure 5-1 shows the locations of these residential structures (Sites 1



INDEX OF MAP LOCATION



FIGURE 5-1

LOCATION OF NEW RESIDENTIAL STRUCTURES FROM MILES CITY
TO THE BEGINNING OF THE WESTERN ALIGNMENT

through 12) and their respective distances from both the alignment approved in Tongue River I and the proposed realignment of Tongue River I.

Of the 12 residential sites identified in Figure 5-1, eight would not be affected by construction or operation of the proposed Tongue River I realignment because they are located a sufficient distance from the railroad (at least 1,900 feet). The four remaining sites would result in new land use impacts not considered in Tongue River I, as described below:

- Site 9 – A new residence (mobile home) has been located at a point where the proposed Tongue River I realignment would be located. This residence would need to be acquired or moved as part of the ROW for the proposed rail line.
- Site 10 – A new residence has been constructed on a point located within the ROW of the alignment analyzed in the EIS for Tongue River I. The residence would be located approximately 1,200 feet west of the proposed Tongue River I realignment.
- Site 11 – A new residence, including two houses and five outbuildings, would be located approximately 1,800 feet west of the proposed Tongue River I realignment.
- Site 12 – A new residence (mobile home) has been located approximately 1,700 feet west of the proposed Tongue River I realignment.

The proposed realignment would reduce the overall length of the rail line approved in Tongue River I, and would also move the rail line farther from the Tongue River Valley floor where prime farmlands occur. Shortening and moving the rail line farther from the valley floor would reduce the proposed rail line's effect on agricultural lands. SEA's conclusion in Tongue River I that the rail line would result in the unavoidable loss of prime farmland would not change, however.

SEA's analysis of aerial photographs of the general area of Tongue River II determined that one new residence has been constructed within a half-mile of Tongue River II. SEA determined, however, that due to the distance between the residence and the rail line, no new significant impacts would occur.

The proposed Tongue River II realignment deviates very little from the previously approved Tongue River II alignment with the exception of one location south of Birney. At this location, the proposed Tongue River II realignment would shift the railroad farther away from the Tongue River, and farther away from structures and homes in the Birney area. This shift would avoid several historic structures, would remove the need for a crossing of a USFWS road, and would reduce impacts on irrigated crop lands in the area.

In Tongue River I, the ICC imposed a mitigation measure that requires TRRC to negotiate compensation with individual landowners for any direct impacts associated with construction. (See mitigation measure 2.1.1(1) from Tongue River I.) In Tongue River II, the Board adopted a similar, but more specific, measure. (See Land Use Condition (2) from Tongue River II.) SEA preliminarily recommends that the mitigation measure from Tongue River II be applied to the entire line from Miles City to Decker, superseding the mitigation measure imposed in Tongue River I. (See Mitigation Measure 1 in Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker.") SEA preliminarily concludes that this mitigation would adequately address the land use effects of the proposed realignment.

Miles City Fish Hatchery

Since Tongue River I, the MCFH has expanded its operation with the construction of new ponds and the addition of new research activities associated with the pallid sturgeon. In 1985, a total of ten ponds and two intake/settling ponds were in use at the site. In 2003, a total of 48 ponds and two intake/settling ponds were in use. A second water-intake line has been added to augment the existing line drawing water from the Tongue River. The new water line draws from the Yellowstone River and is the primary water line for the facility. The original line drawing water from the Tongue River is now used as a back-up.

TRRC is proposing changes to the alignment approved in Tongue River I where it crosses the MCFH. In Tongue River I, two alternatives for crossing the MCFH property were evaluated. One alternative connected to the Chicago, Milwaukee, St. Paul, and Pacific railroad facility. The second, the Burlington Northern and Santa Fe alternative, involved the creation of a new yard and facilities depot on the MCFH property, including the area occupied by Branum Lake.

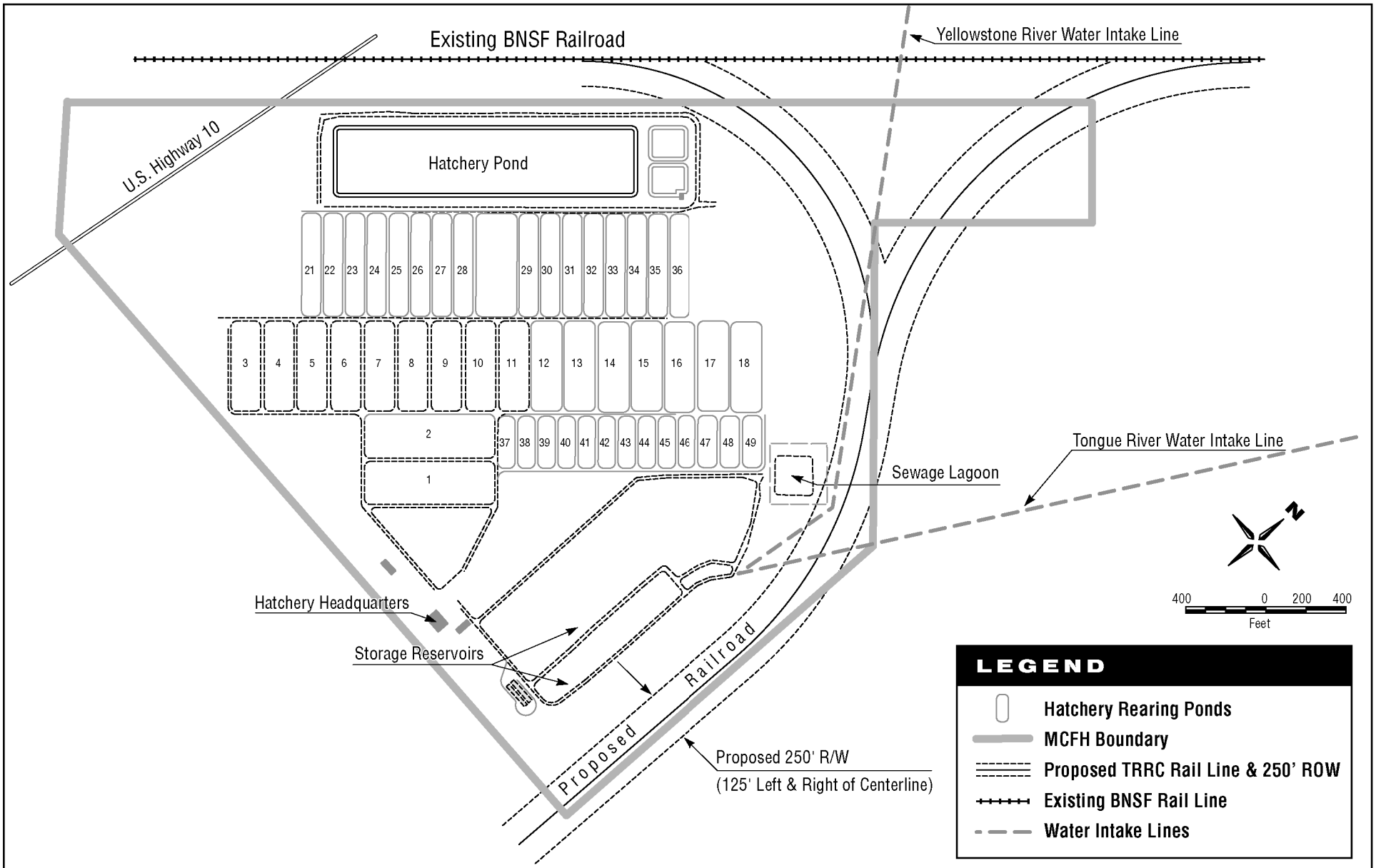
TRRC now proposes to move the staging yard and necessary facilities to a location south of Interstate 94, and to construct a "wye" track to connect the proposed rail line to the existing BNSF line. Figure 5-2 depicts TRRC's current proposal for crossing the MCFH property.

TRRC has been consulting with both MT DNRC and MT DFWP regarding the proposed alignment across the MCFH. MT DNRC and MT DFWP have raised several concerns about the proposed alignment including the following:

- Potential impacts to both the primary and secondary water supply lines which the proposed alignment would cross;
- Vibration from train operations affecting the production of fish as well as the infrastructure and maintenance of the hatchery;
- Herbicide use to control weeds along the proposed railroad corridor that could adversely affect fish at the hatchery; and
- Coal dust from the train cars that could adversely affect fish at the hatchery.

In response to these concerns, TRRC has conducted a number of investigations and studies including geotechnical investigations and monitoring of vibration levels at the MCFH and proposed measures to address some of these concerns. (See Appendix F.)

In February 2004, TRRC met with MT DFWP to discuss ways to address these concerns and reached agreement on mitigation measures to ensure protection of the water pipelines serving the MCFH and weed control in areas adjacent to the MCFH. The agreements reached are reflected below in SEA's proposed mitigation measures for the MCFH. It is also SEA's understanding that concerns regarding coal dust and its effects on fish at the hatchery were also discussed and that MT DFWP determined that the potential for coal dust to adversely affect fish hatchery operations was minimal because of the slow speeds trains would be traveling when crossing the MCFH property as the trains connect with, or depart from, the BNSF line.



INDEX OF MAP LOCATION



FIGURE 5-2

The Miles City Fish Hatchery

TRRC and MT DFWP continue to discuss the issue of train vibration and its potential to adversely affect the MCFH. TRRC has conducted additional geotechnical and vibrations studies, as well as a soil chemical analysis at the MCFH. TRRC's investigations point out that trains traveling on the existing BNSF mainline, which passes as close if not closer than TRRC's proposed route, produce low levels of vibration at the hatchery but do not appear to affect the hatchery's ability to produce fish. MT DFWP continues to be concerned about potential vibration impacts on the hatchery and recommends that additional baseline studies be conducted to more fully understand the potential long-term effects vibration may have on the fish, infrastructure, and operation of the MCFH.

Additional background information on the MCFH facility and its economic value can be found in Appendix F. This discussion also includes an assessment, provided by MT DNRC, of potential impacts to the facility as a result of project construction and operation.

Based on the analyses conducted to date, SEA preliminarily concludes that construction and operation of TRRC's proposed route across the MCFH is feasible. SEA believes it is appropriate to update the mitigation measures adopted in Tongue River I to reflect current discussions. While this update would supersede mitigation measures imposed by the ICC in Tongue River I relating to the MCFH (mitigation measures 2.3(1) and (2) from Tongue River I), these measures, both new and updated, are generally consistent with the intent of the mitigation measures adopted in Tongue River I.

Mitigation Measure 84 (Protection of MCFH Water Supply Pipelines). As agreed to by TRRC and the Montana Department of Fish, Wildlife and Parks, TRRC shall relocate, as necessary, portions of the water supply pipelines from the Yellowstone River and Tongue River so that each pipeline crosses the rail right-of-way at a right angle or perpendicular to the rail alignment. To ensure structural integrity of the water supply pipelines, the portion of each pipeline lying perpendicular beneath the rail alignment shall be encased in a reinforced concrete pipe (RCP). The RCP shall be of sufficient size to allow for inspection and maintenance of the water supply pipelines. Access to the pipelines beneath the rail alignment shall be provided by installation of reinforced concrete manholes, located on each side of the rail alignment. The RCP manholes shall meet or exceed the American Railway Engineering and Maintenance of Way Association's standard specifications for installation of utilities underneath railway embankments. The design plans for the relocated section of the water pipelines and all associated elements shall be prepared by TRRC and provided to Montana Department of Fish, Wildlife, and Parks for review and approval prior to being constructed. *[TRRC III, new]*

Mitigation Measure 85 (Weed Control on MCFH). As agreed to by TRRC and Montana Department of Fish, Wildlife and Parks, TRRC shall use only mechanical means of weed control in its right-of-way adjacent to the MCFH between the points where the rail line crosses Interstate 94 to the connection with the Burlington Northern-Santa Fe Railroad Company main line. If it becomes necessary to utilize herbicides to control noxious weeds along the right-of-way in this area, herbicides will only be used with prior approval from the MT DFWP, as to the type of herbicide, application rate, means of application, wind speed and direction. *[TRRC III, new]*

Mitigation Measure 86 (MCFH Continuing Consultation). TRRC shall continue to make itself available to consult with Montana Department of Fish, Wildlife and Parks to reach consensus on any remaining issues concerning the environmental effects on MCFH from railroad construction and operations, for up to a period of six months after the effective date of the Board's final decision on TRRC's application in Tongue River III. TRRC shall use its best efforts to achieve resolution of any outstanding issues during that period. If no resolution is achieved during that period, the requirement for continued consultation shall cease unless both TRRC and MCFH agree that the period should be extended and so advise the Board in writing. At the end of the consultation period (whether extended by mutual agreement or not), TRRC shall advise the Board of its positions in writing. Montana Department of Fish, Wildlife and Parks is invited to provide its position, and either TRRC or MT DFWP (or both) may request that the Board develop a condition designed to mitigate any remaining concerns of MT DFWP related to the environmental effects on MCFH that the Board determines warrant mitigation. *[TRRC III, new]*

Mitigation Measure 87 (MCFH). TRRC shall adhere to the reasonable mitigation conditions imposed by the Montana Department of Fish, Wildlife and Parks in any easement granted by the State allowing TRRC to cross the MCFH. *[TRRC III, new]*

SEA believes that TRRC and MT DFWP should continue to work cooperatively on a mutually agreeable solution to address concerns regarding vibration and its potential long-term effects on the fish, infrastructure, and operation of the MCFH. SEA believes that a solution can be reached that would include reasonable baseline studies and vibration monitoring that would ensure minimal impact to the hatchery while not affecting TRRC's construction schedule. While SEA believes a reasonable solution can be reached, SEA also recognizes that this debate has been ongoing for a long time and parties could reach an impasse. SEA is proposing the following mitigation measure to allow the parties to continue to work cooperatively and include any reasonable mitigation (in addition to mitigation specified above) in an easement granted by the State.

To address the potential of an impasse between TRRC and MT DFWP, SEA is contemplating and requests comments on an additional requirement that the parties agree to use mediation to develop mutually agreeable mitigation. SEA's suggested additional requirement would also state that if mediation does not result in a mutually agreeable solution within six months of approval of the Final SEIS, the Board would evaluate the progress made and (1) grant an extension for further negotiation between the parties, or (2) allow TRRC to proceed with construction in accordance with the mitigation measures specified above.

Fort Keogh Livestock and Range Research Station (LARRS) Property

Mitigation Measure 88 (Department of Agriculture). TRRC shall adhere to the reasonable mitigation conditions imposed by the U.S. Department of Agriculture (USDA) in any easement granted by USDA allowing TRRC to cross the LARRS property line. *[TRRC III, new; the USDA is currently preparing new mitigation conditions that would apply to TRRC for crossing the LARRS property. To avoid any inconsistency between the USDA mitigation conditions, SEA is recommending TRRC I Condition 2.2.2 be superseded by this general condition.]*

BLM Property

The alignment approved in Tongue River I crosses six parcels owned by the BLM, requiring an easement across 95 acres. The proposed Tongue River I realignment would cross seven parcels owned by the BLM, requiring an easement across 112 acres. An analysis of possible alternatives to the use of BLM lands was conducted by TRRC, reviewed and verified by SEA and BLM, and is included in Appendix E. Based on the analysis contained in Appendix E, SEA preliminarily concludes that there are no feasible alternatives to the use of BLM lands. SEA also preliminarily concludes that, through the implementation of the mitigation measures presented in Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker," the potential environmental impacts of crossing BLM land would be reduced so that there would be no significant adverse effects. (See Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker.")

State Lands

An alternatives analysis for crossing of state lands, as required under the Montana Environmental Policy Act, is included in Appendix F. This analysis was prepared by MT DNRC in compliance with MEPA guidelines. Based on the analysis contained in Appendix F, SEA preliminarily concludes that, through the implementation of the alternatives suggested in the alternatives analyses, potential environmental and cultural impacts would be reduced.

5.3.2 Biological Resources

USFWS requires the preparation of a Biological Assessment[4] for any project that may affect any listed or candidate threatened or endangered species. The ICC did not prepare a BA as part of Tongue River I. In the BA prepared in Tongue River II, the USFWS species list included only four species, while the BA prepared for Tongue River III contained seven species, indicating that environmental circumstances have changed since 1996.

The new BA addresses the entire proposed rail line from Miles City to Decker. SEA preliminarily concludes that the implementation of the mitigation measures included in the current BA, or the mitigation conditions imposed by USFWS in any future Biological Opinion,[5] would ensure that potential impacts to Federal species of concern resulting from construction and operation of the proposed realignment (and the construction and operation of either the Four Mile Creek Alternative or the Proposed Western Alignment) would not be significant. (See BA in Appendix L.)

Federal Species of Concern

In Tongue River I, ICC identified a number of sensitive species and species of concern within the project area. ICC did not, however, prepare a BA. ICC noted that "indigenous populations of endangered species—principally the peregrine falcon and black-footed ferret—have not been documented in the project area. Wintering populations of bald eagles along the Tongue River

[4] A Biological Assessment evaluates potential impacts on Federally listed threatened and endangered species and their habitat.

[5] A Biological Opinion documents USFWS' determination regarding a project's impacts on Federally listed threatened and endangered species under the Endangered Species Act.

are not likely to be adversely affected. Should an endangered species be located during a preconstruction survey of the proposed alignment, appropriate action will be taken under Section 7 of the Endangered Species Act of 1973, as amended."

In Tongue River II, SEA prepared a BA and found that construction of the TRRC Extension would not adversely affect the pallid sturgeon or the peregrine falcon. SEA also found that if the proposed mitigation measures were imposed, neither the black-footed ferret nor the bald eagle would be adversely affected.

In Tongue River III, SEA prepared a BA to address the areas affected by the entire line from Miles City to Decker, including the proposed Western Alignment. The BA addresses the seven species currently listed or proposed for listing by USFWS for the region encompassing the proposed rail line from Miles City to Decker via the proposed Western Alignment as well as the Four Mile Creek Alternative: black-footed ferret, whooping crane, interior least tern, bald eagle, black-tailed prairie dog, mountain plover, and pallid sturgeon. The whooping crane, interior least tern, pallid sturgeon, and the black-footed ferret are listed as endangered; the bald eagle is listed as threatened; the black-tailed prairie dog is listed as a candidate species; and the mountain plover is a species of conservation concern. Chapter 4.2.2 provides a summary of the research conducted for each species as part of the updated BA. The complete BA is included in Appendix L and provides information relating to the Tongue River I and Tongue River II portions of the rail line, as well as the proposed Western Alignment at issue in Tongue River III.

SEA recommends that mitigation measures in Tongue River I and Tongue River II regarding Federal species of concern be superceded by Mitigation Measure 24, which requires adherence to all requirements of a Biological Opinion issued by USFWS.

> **Mitigation Measure 24 (Biological Opinion).** TRRC shall adhere to the mitigation conditions imposed by the U.S. Fish and Wildlife Service in a Biological Opinion, if any is issued for the TRRC line. If no Biological Opinion is issued, TRRC shall adhere to the mitigation measures in the Biological Assessment addressing construction and operation of the rail line. *[TRRC III, new]*

Based on the information available to date, SEA preliminarily concludes that potential impacts to Federal species of concern resulting from construction and operation of the proposed Tongue River I and Tongue River II realignment would be reduced to a less-than-significant level through implementation of the new mitigation measure identified above and through measures resulting from consultation with USFWS pursuant to Section 7 of the Endangered Species Act.

State Species of Concern and General Wildlife

Information regarding state species of concern and general wildlife species in the Tongue River area is provided in Chapter 4, Section 4.2.2, "Affected Environment – Biological Resources.".

Based on a review of aerial photographs, topographic maps, and site visits, SEA determined that the proposed Tongue River I and Tongue River II realignment would not result in any new impacts to state species of concern and general wildlife not previously identified in Tongue River I and Tongue River II.

SEA recommends that mitigation adopted in Tongue River I and Tongue River II be superseded or modified as discussed in Chapter 4, "Proposed Western Alignment," and that all mitigation measures be applied to the entire rail line from Miles City to Decker except where otherwise indicated. SEA preliminarily concludes that the proposed new and modified mitigation measures would adequately address the impacts to general wildlife.

Vegetation

SEA's analysis of aerial photographs shows that since 1985 there has been a change of less than 2 percent in vegetation/land cover within the 400-foot survey area of the alignment approved in Tongue River I, and that there have been no changes in the composition of vegetation within the Tongue River II survey area. The primary causes of habitat changes has been conversion of native rangeland habitats to agricultural habitats and conversion from one form of agricultural use to another.

Since 1985 (Tongue River I) and 1996 (Tongue River II), there have been substantial increases in the number and occurrences of noxious weeds in the Tongue River Valley. Noxious weeds are of concern to local landowners because they adversely affect the quality of the land for grazing of animals such as cattle. The weed of greatest concern at this time appears to be leafy spurge, which reportedly occurs widely. Other species reported to be major concerns include spotted knapweed, Russian knapweed, sulfur cinquefoil, Russian thistle, and salt cedar (tamarisk). SEA determined through careful analysis that the proposed Tongue River I and Tongue River II realignment would not change the conclusions in the respective EIS documents regarding the spread of noxious weeds in the Tongue River Valley, nor has there been any change in regulations that address noxious weeds.

The ICC-imposed mitigation measures in Tongue River I addressed the development and implementation of a noxious weed program and required that disturbed areas be promptly reclaimed. The Board, in Tongue River II, adopted similar mitigation measures. Because the mitigation measures adopted in Tongue River II are more detailed and comprehensive, SEA is preliminarily recommending that the mitigation measures in Tongue River I be superseded and replaced by the measures adopted in Tongue River II regarding noxious weed control and restoration/reclamation and that these measures be applied to construction and operation of the entire line. SEA preliminarily concludes that this mitigation would adequately address the spread of noxious weeds that could result from the construction and operation of the Tongue River I and Tongue River II realignment and that the impacts would not be significant. (See Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker," for further discussion regarding specific mitigation measures.)

Instream Fisheries Habitat

Based on SEA's analysis of aerial photos from 1997, there did not appear to have been any changes in instream fisheries habitat in the Tongue River since the analyses conducted for Tongue River I and Tongue River II. However, due to the turbid nature of the river, it is difficult to make conclusive determinations on the basis of aerial photographs. SEA preliminarily concludes that new proposed mitigation would adequately address the changes in instream fisheries habitat.

Wetland Resources

SEA's analysis for this Draft SEIS included preparation of a new wetland delineation for the entire line from Miles City to Decker, and a Conceptual Habitat Mitigation Plan. These studies were prepared at the specific request of, and in consultation with, the Corps for the purpose of processing a Section 404 (33 U.S.C. 344) permit for the project. These studies are included in Appendix D. Based on the new wetland delineation, SEA determined that there has not been a substantial change in the number, location, and size of wetlands in the project areas since Tongue River I and Tongue River II analyses were completed. The Tongue River I realignment would, however, cross several wetlands at points upstream of the crossings analyzed under the alignment approved in Tongue River I. The Tongue River II realignment would cross Hanging Woman Creek at a location approximately 3,900 feet east of the crossing analyzed in Tongue River II.

The ICC imposed mitigation measures in Tongue River I to address impacts to aquatic ecology. In preparing this Draft SEIS, SEA, at the Corps' request, granted the Corps cooperating agency status. TRRC prepared the studies discussed above to facilitate and expedite processing of a Section 404 permit for construction of the entire rail line (Tongue River I, Tongue River II, and Tongue River III) from Miles City to Decker. Since a Section 404 permit will be issued for construction of the entire rail line, SEA preliminarily recommends that the mitigation measures imposed by the Board in Tongue River II be superseded.

With adoption of Mitigation Measure 22, SEA's conclusion presented in Tongue River I and Tongue River II, that impacts to wetland resources would not be significant after implementation of mitigation measures, would not change.

5.3.3 Soils and Geology

SEA's analysis of aerial photographs showed that since 1985 there have been several small areas of erosional loss of agricultural fields along the alignment approved in Tongue River I. The erosion appears to be caused by a number of factors: existing gullies, the cutting back of the Tongue River bank, and the development of sand and gravel bars from alluvial deposition since the Tongue River I decision. However, total loss of agricultural land between 1985 and 1997 appears to be less than 5 acres. Other than this minor amount of loss of agricultural land to erosion, only small areas of erosion have occurred in the study area since the approval of Tongue River I. Other than limited areas of minor erosion, there have been no physical changes in soils and geology along the alignment approved in Tongue River II.

Based on TRRC's new geotechnical studies, SEA preliminarily concludes that the proposed Tongue River I and Tongue River II realignment would result in an increase in the amount of cut and fill required for construction over what was anticipated in the EIS for Tongue River I and Tongue River II. The increase in volume would be due to TRRC's decision to provide greater slope stability by creating flatter cut and fill slopes than envisioned during the earlier environmental review process. The volume of earth work required for the construction of Tongue River I has increased from 14,200,000 cubic yards (1985) to 18,645,000 cubic yards (1998), and the volume of earth work required for the construction of Tongue River II via the approved Four Mile Creek Alternative would increase from 12,402,000 cubic yards (1996) to 14,834,000 cubic yards (1998). For Tongue River II, some of the additional earth work is directly attributable to the proposed realignment south of Birney. The Birney changes would

move the rail line from the more level area along the river into a more hilly area east of the alignment.

SEA believes at this point that the mitigation measures adopted in Tongue River I and Tongue River II, as well as new and revised mitigation measures identified in Tongue River III and presented in Chapters 4 and 7 of this Draft SEIS, should be combined and applied to construction of the entire rail line (Tongue River I through Tongue River III). Application of all these measures would be adequate to mitigate the environmental impacts from soil loss and soil slumping associated with the Tongue River I and Tongue River II realignment, including the additional earth work that would result from the realignment.

5.3.4 Hydrology and Water Quality

Erosion

SEA's analysis of aerial photographs revealed that between 1985 and 1997 there were minor changes in the morphology of the Tongue River in the general area along the Tongue River I and Tongue River II alignments. The minor changes that have occurred in the Tongue River channel (e.g., minor changes in course and sandbar deposition) would not affect the proposed Tongue River II realignment because the refinements would move the railroad further from the Tongue River, thereby reducing the impacts of construction and operation on stream course.

The Tongue River is considered low priority for total maximum daily load[6] analysis under EPA's regulations, because total suspended solids are generally low and do not limit beneficial uses or aquatic habitats. However, TMDLs are currently being developed. The proposed Tongue River I and Tongue River II realignment would increase cut and fill requirements and the potential for increased erosion, which could result in the suspension of eroded materials in the Tongue River. SEA identified soil loss and soil slumping as significant unavoidable effects of the alignment approved in Tongue River I and Tongue River II.

The ICC imposed mitigation measures in Tongue River I and Tongue River II to reduce sediment transport and suspended-solids loading to the Tongue River through appropriate construction practices and application of BMPs. The Board also adopted mitigation measures in Tongue River II that were very similar to those adopted in Tongue River I. SEA, as part of its analysis in Tongue River III, is preliminarily recommending combining and modifying the measures from Tongue River I and Tongue River II, and applying those measures, along with measures identified in Tongue River III, to construction and operation of the entire line (Tongue River I, Tongue River II, and Tongue River III). SEA believes that with implementation of these mitigation measures, no significant impacts would result from TRRC's proposed Tongue River I and Tongue River II realignment. (See Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker.") These mitigation measures will require a General

[6] The TMDL program's purpose is to identify water bodies that do not meet water quality standards, and implement cleanup processes to protect water quality and consumers. TMDLs can either be numeric criteria or desired ecological end points. MDEQ determined the TMDL development priorities for the Tongue River to be "low." However, increased sediment loading to the Tongue River or its tributaries during construction and long-term operation of the railroad could be issues of concern if any TMDL criteria developed in the future are exceeded. Refer to Chapter 4, Section 4.2.4.2, "Water Quality in the Tongue River," for additional discussion.

Permit for Storm Water Discharge Associated with Construction Activity, which would be issued by the Montana Department of Environmental Quality, and will require site-specific treatment of erosion issues. Please refer to Chapter 4, Section 4.3.3.2, "Construction-period Impacts on Soils and Geology," for a discussion of residual soil erosion impacts.

Tongue River Dam

The elevation of the Tongue River Dam has been raised since completion of the EISs in Tongue River I and Tongue River II. The raising of the Tongue River Dam and the opportunity for greater regulation of its flow could result in higher sediment concentration in the Tongue River during drought years if these years coincide with the construction of this rail line project and/or if droughts occur prior to revegetation on cut and fill slopes. Increased sediment concentration could take place in the Tongue River during a drought due to reduced water volumes and a subsequent reduction in current velocity. As indicated previously, SEA preliminarily recommends that a combination of modified mitigation measures from Tongue River I and Tongue River II, and those measures identified in Tongue River III, be implemented to reduce potential hydrology and water-quality impacts along the entire rail line to a less-than-significant level. (See Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker.") Based on the information available to date, SEA does not believe that further mitigation is needed to address this potential impact.

Changes in Water Flow

Peak streamflow data for the period 1985 through 2003 indicate that there have been no significant changes or abnormal trends in the Tongue River flow since the EIS analyses conducted in Tongue River I and Tongue River II. Streamflow data show a direct and proportional relationship between variable levels of precipitation and variability in streamflow during this period. Based on the fact that the project would not affect natural precipitation levels and that the Tongue River I and Tongue River II alignment would generally be located further from the Tongue River, SEA preliminarily concludes that the proposed Tongue River I and Tongue River II realignment would not affect the normal variations in streamflows that occur in the Tongue River Valley and that no mitigation is required to address variations in streamflows.

5.3.5 Cultural Resources

To determine if there would be any changes in the cultural resources potentially affected by the proposed Tongue River I and Tongue River II realignment, SEA conducted a literature review (Class I inventory) to identify the number of cultural resources within the area of potential effects. SEA determined that the Class I inventory should be conducted within a 3,000-foot-wide area (1,500 feet on either side of the rail's centerline) along the proposed Tongue River I and Tongue River II realignment to ensure that all potentially affected cultural resources are accounted for in the analysis. The number of cultural resources within the area of the Class I inventory for the proposed Tongue River I and Tongue River II realignment was then compared to the number of cultural resources within the same area for the alignment approved in Tongue River I and Tongue River II. (See Tables 5-1 and 5-2.)

Table 5-1 – Comparison of Cultural Resources Potentially Affected by the 1985 Alignment and the Proposed Tongue River I Realignment

Alignment	Cultural Resources within the 3,000-foot Study Area	Cultural Resources within the ROW (Area of Disturbance)
Tongue River I Alignment (1985)	44	10
Proposed Tongue River I Realignment	37	8

Based on the Class I inventory conducted for the approved Tongue River I alignment, 44 potential or known cultural resource sites are within the 3,000-foot corridor. Of these 44 sites, ten are located within the ROW, the area that would be directly affected by construction. Based on the Class I inventory conducted for the proposed realignment of Tongue River I, 37 potential or known cultural resources are located within the 3,000-foot corridor. Of these 37 sites, eight are located within the proposed ROW. As a result, there would be a net decrease of two sites within the ROW. However, two of the cultural properties located along the original Tongue River I alignment have been determined not eligible for the NRHP. Thus the potential impacts on potentially eligible cultural resources would be the same for either alignment. Any cultural resources identified during the Class III inventory or during construction are, for present purposes, "unknown."

As shown in Table 5-2, within the 3,000-foot corridor studied in Tongue River II, SEA identified 61 potential or known cultural resource sites. Of these 61 sites, ten were located within the Tongue River II ROW. The proposed Tongue River II realignment contains 25 potential or known cultural resources within the 3,000-foot corridor. Of these 25 sites, eight are located within the ROW of the proposed Tongue River II realignment. (See Table 5-3 for a listing of all 61 cultural resource sites.)

SEA determined that within the 3,000-foot corridor there would be a net decrease of 36 cultural resource sites affected under the proposed Tongue River II realignment. Within the ROW, there would be a net decrease of two sites affected. Therefore, the potential impact on cultural resources resulting from the proposed Tongue River II realignment would be less than that resulting from the approved Tongue River II alignment.

In total, the combined number of cultural resources within the 3,000-foot corridor for Tongue River I and Tongue River II would decrease from 105 to 62, and the number of cultural resources within the ROW would decrease from 20 to 16 if all the proposed realignments were used. Therefore, SEA preliminarily concludes that the proposed Tongue River II realignment would decrease impacts on known cultural resources.

Table 5-2 – Comparison of Cultural Resources Potentially Affected by the Proposed Tongue River II Realignment

Alignment	Cultural Resources within the 3,000-Foot Study Area	Cultural Resources within the ROW (Area of Disturbance)
Tongue River II Alignment	61	10
Proposed Tongue River II Realignment	25	8

Table 5-3 – Cultural Resources Potentially Affected by the Proposed Tongue River II Realignment

Site Number/Name	Proposed Tongue River II Realignment	Tongue River II Alignment	Site Type	NRHP Eligibility
24RB0229	X	X	Vision Quest	Undetermined
24RB0230	X	X	Lithic Scatter, paleo to late	Eligible
Landing Strip	X	X	Airfield	Unrecorded
24RB0232	X	X	Stone Ringer	Undetermined
24RB0221	X	X	Lithic Scatter, Yonkee	Undetermined
24RB0155	X	X	Homestead	Eligible
Birney to Sheridan Road	X	X	Road	Unrecorded
Possible Grave of Medicine Top	X	X	Burial	Unrecorded
24RB0217, 1626, 1627, 1760	X	X	Lithic Scatter	Eligible
24RB0242	X	X	Lithic Scatter	Undetermined
24RB0243	X	X	Lithic Scatter	Undetermined
Cheyenne 1897 Camp	X	X	Camp	Unrecorded
24RB0208	X	X	Homestead	Undetermined
24RB1762	X	X	Culture Material Scatter	Undetermined
24RB1763	X	X	Cairns	Undetermined
24RB0247	X	X	Lithic Scatter	Undetermined
Grave		X	Grave	Unrecorded
24RB0249	X	X	Lithic Scatter	Undetermined
Big Medicine Plant Gathering Area		X	Plant Gathering	Unrecorded
24RB0171	X	X	Railroad	Unresolved
Fasting across the River from Birney Day School		X	Fasting Area	Unrecorded

Site Number/Name	Proposed Tongue River II Realignment	Tongue River II Alignment	Site Type	NRHP Eligibility
Cheyenne-Sioux Jan 1877 Council Site		X	Camp	Unrecorded
Quarters Circle U Ranch	X	X	Homestead	Unrecorded
Brewster Landing Field	X	X	Airfield	Unrecorded
Birney Cemetery	X	X	Burial	Unrecorded
Brewster Ranch	X	X	Homestead	Unrecorded
Eagle Nesting Area	X		Spiritual	Undetermined
24RB0787	X	X	1875 Battlefield	Registered
Birney, Indian Cabin		X	Homestead	Multiple forms
Crow Attacks Cheyenne Camp	X	X	Camp	Unrecorded
TRR300		X	Homestead	Unrecorded
TRR301		X	Homestead	Unrecorded
TRR302		X	House, Birney	Unrecorded
TRR303		X	House, Birney	Unrecorded
TRR304		X	House, Birney	Unrecorded
TRR305		X	House, Birney	Unrecorded
TRR306		X	House, Birney	Unrecorded
TRR307		X	House, Birney	Unrecorded
TRR308		X	House, Birney	Unrecorded
TRR309		X	School, Birney	Unrecorded
TRR310		X	House, Birney	Unrecorded
TRR311		X	House, Birney	Unrecorded
TRR312		X	House, Birney	Unrecorded
TRR313		X	Birney Store	Unrecorded
TRR314		X	House, Birney	Unrecorded
TRR315		X	House, Birney	Unrecorded
TRR316		X	House, Birney	Unrecorded
TRR317		X	House, Birney	Unrecorded
TRR318		X	House, Birney	Unrecorded
TRR319		X	House, Birney	Unrecorded
TRR320		X	House, Birney	Unrecorded

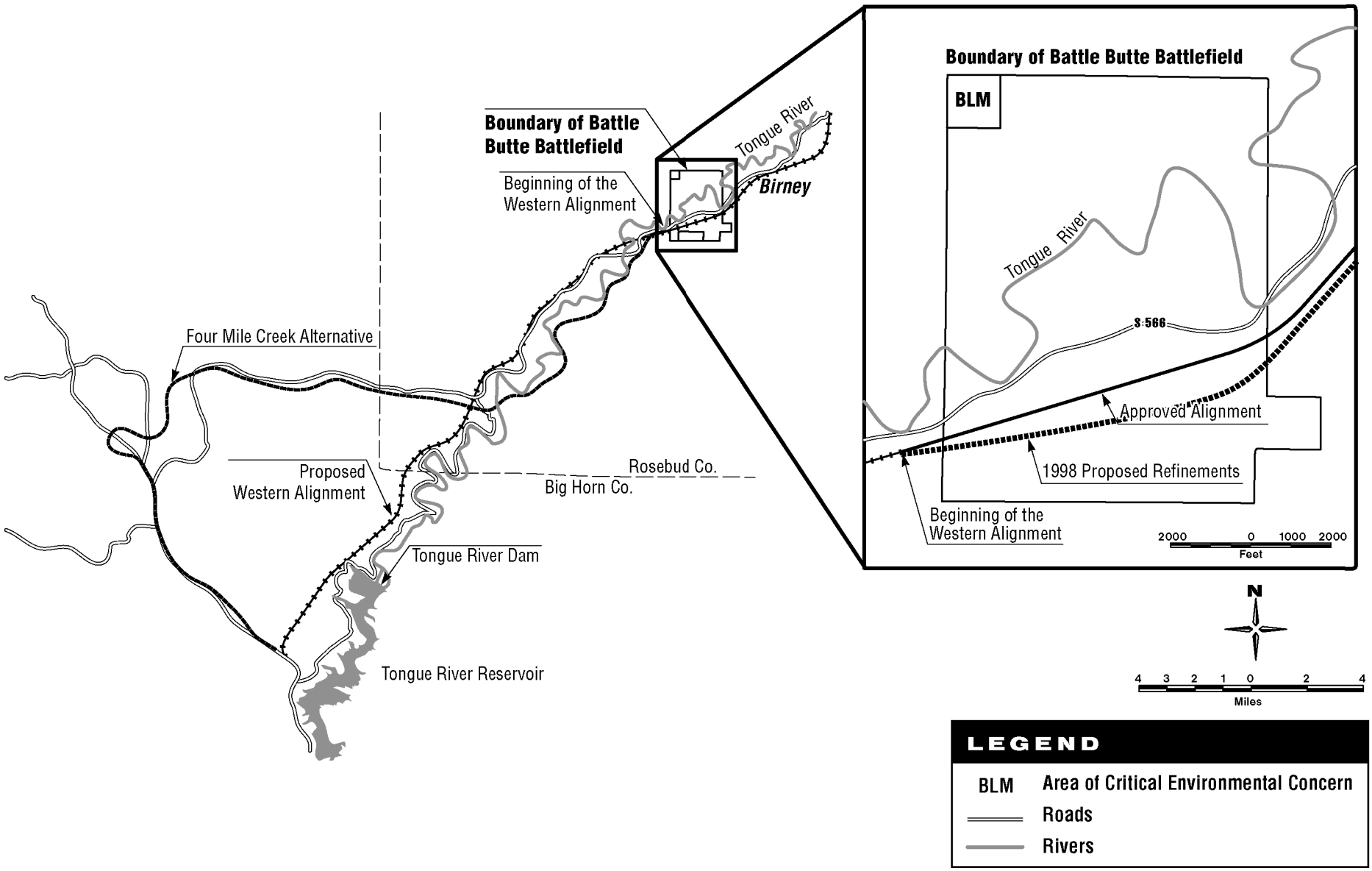
Site Number/Name	Proposed Tongue River II Realignment	Tongue River II Alignment	Site Type	NRHP Eligibility
TRR321		X	House, Birney	Unrecorded
TRR322		X	House, Birney	Unrecorded
TRR323		X	House, Birney	Unrecorded
TRR324		X	House, Birney	Unrecorded
TRR325		X	House, Birney	Unrecorded
TRR326		X	House, Birney	Unrecorded
TRR327		X	House, Birney	Unrecorded
TRR328		X	House, Birney	Unrecorded
TRR329		X	House, Birney	Unrecorded
TRR331		X	House, Birney	Unrecorded
TRR332		X	House, Birney	Unrecorded
Total Number of Sites	**25**	**61**		

Both Tongue River II alignments would cross the Battle Butte Battlefield. This site has significant, rare, and irreplaceable historical and cultural value of national significance and is listed on the NRHP. Either alignment in Tongue River II would adversely affect this site. As stipulated in the PA, a treatment plan would be developed that would outline procedures to avoid or mitigate the impacts of the railroad to this site. (See Figure 5-3.)

To ensure that potential impacts to cultural and paleontological resources resulting from construction and operation of the entire rail line from Miles City to Decker are appropriately addressed, SEA developed a new PA in consultation with the following signatory agencies:

- ACHP.
- MT SHPO.
- BLM.
- Corps.
- MT DNRC.
- USDA.
- TRRC.
- Board.

In addition to these signatory parties, the Northern Cheyenne and Crow Tribes are participating in the development of the PA as consulting parties. The PA sets forth the detailed requirements of how the impacts associated with the construction and operation of either the proposed Western Alignment or the Four Mile Creek Alternative would be addressed, including impacts to paleontological, architectural, historic, and cultural properties. The PA guides and regulates the



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FIGURE 5-3

BATTLE BUTTE BATTLEFIELD SITE

procedures by which the identification and treatment of paleontological and cultural resources would occur. The PA includes detailed requirements for additional surveys of the entire rail line ROW from Miles City to Decker; identification and evaluation of paleontological, prehistoric, historic, or traditional cultural sites or structures; development of a detailed Treatment Plan in consultation with the parties to the PA and the Native American community; and procedures for reviewing and addressing objections and/or disagreements. The PA developed for Tongue River III would replace the previous PA developed for Tongue River II and would apply to construction of the entire rail line from Miles City to Decker. The current Draft PA is attached in Appendix G.

5.3.6 Transportation and Safety

Roadway Realignments

Since Tongue River I was administratively approved in 1985, the MDOT has relocated a segment of C566, also known as Tongue River Road, near the McRae Ranch, in Rosebud County. The road was relocated away from the Tongue River, and an existing bridge over Roe and Cooper Creeks was replaced. The road and the bridge were relocated to the west, farther upstream along Roe and Cooper Creeks. Table 5-4 provides a comparison of the number of road relocations required for the proposed Tongue River I realignment versus the alignment approved in Tongue River I.

Table 5-4 – Comparison of Required Road Relocations along Tongue River I Alignments

Alignment	Crossing Type		
	Lateral Relocations	At-grade Crossing	Separated Grade Crossing
Tongue River I Alignment (1985)	7	0	1
Proposed Tongue River I Realignment	4	3	2 (one bridge)

The alignment approved in Tongue River I included eight road relocations: seven lateral relocations and one separated grade crossing. The proposed Tongue River I realignment would require nine road relocations: four lateral relocations, three at-grade crossings, and two separated grade crossings.

Table 5-5 compares the road relocations required in Tongue River II. As shown in the table, the number of road relocations would not change as a result of the proposed realignment. Therefore, SEA preliminarily concludes that the potential impact of the proposed realignment on transportation and safety would be the same as the impact of Tongue River II.

Table 5-5 – Comparison of Required Road Relocations along Tongue River II Alignments

Alignment	Crossing Type		
	Lateral Relocations	At-grade Crossing	Separated Grade Crossing
Tongue River II Alignment	5	4	1
Tongue River II Realignment	5	4	1

Mitigation measures imposed by the ICC in Tongue River I and adopted in Tongue River II require TRRC to equip all at-grade crossings with warning signs and devices deemed appropriate under the MDOT Railroad Crossing Protection Policy. SEA preliminarily recommends that the mitigation measure adopted by the Board in Tongue River II be updated to reflect current Montana regulations and be applied to the construction and operation of the entire rail line (Tongue River I, Tongue River II, and Tongue River III) from Miles City to Decker. (See Mitigation Measure 55 in Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker.") SEA believes that, with imposition of this mitigation measure, no new significant environmental impacts would result from TRRC's proposed Tongue River I and Tongue River II realignment.

Traffic Volume

In preparing this Draft SEIS, SEA determined that traffic volumes along C566 are low and have not increased significantly since completion of the analysis for Tongue River I and Tongue River II. At a midway point along C566, the average daily vehicle count in 1985 was 55 vehicles per day. The count had declined to 50 vpd in 1990, grew to 70 vpd in 1995, and decreased to 40 in 2002 (MDOT 2003). It is not expected that the proposed Tongue River I and Tongue River II realignment would result in a greater impact on traffic levels than the alignment approved in Tongue River I because it would not generate a greater number of trips or reduce capacity.

5.3.7 Air Quality

SEA determined that ambient air quality has remained the same or improved since the EISs were prepared for Tongue River I and Tongue River II. As discussed below, new Federal and state standards have not been exceeded in the project area since 1985.

Changes in Analysis Techniques

The EIS in Tongue River I included calculations of construction and operation emissions and modeled impacts using techniques that have since been revised and updated. The new estimating techniques published in EPA's Technical Highlights for locomotive engines and in AP-42 Addenda for construction releases will likely result in more accurate emission calculations. Typically, the results show lower emissions, since old calculation methods utilized emission rates that tended to overestimate releases. Also, Buoyant Line Programs such as HIWAY-2, used to model line sources in the mid-1980s, have been replaced by more sophisticated and accurate models, such as the Industrial Source Complex model.

Northern Cheyenne Reservation

In 1993, the EPA designated the Northern Cheyenne Reservation as a Class 1 inventory[7] area. Federal regulations, amended in 1997, require air-pollutant emissions to be modeled for any new construction within 10 kilometers of a Class 1 inventory area. The model must demonstrate that impacts are below defined significance thresholds. The required modeling was completed in June 2004 and did not demonstrate a significant impact, since the analysis prepared for Tongue River I determined that air quality impacts would not be significant, and that analysis utilized older, less accurate techniques that provided more conservative results.

New Emission Sources in Tongue River I

To update the analysis contained in the EIS for Tongue River I, SEA reviewed available electronic records of air permit applications from 1989 through the present. Since 1989, there have been 29 stationary-source air permit applications to the state from industries in Rosebud, Custer, Powder River, or Big Horn counties. These include applications from industries representing the mining, energy, railroad operation and maintenance (tank car cleaning facilities), and forest products sectors.

Federal regulations restrict air quality degradation or violation of Federal air quality standards resulting from emissions at these sources. Any new sources of air pollution are required to comply with Federal regulations. Such regulations include a new source review analysis and, if applicable, modeling to ensure that air releases do not significantly impact the surrounding area. TRRC conducted air quality modeling pursuant to a request from SEA, and construction-period increases in emissions were determined to be short-term and temporary, therefore SEA determined that there is no impact associated with these emissions. (See Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker.")

SEA's analysis included review of specific air pollutants to evaluate whether the proposed Tongue River I realignment would contribute to a significant air quality impact. The results of SEA's review are summarized below.

Sulfur Dioxide (SO_2). SEA determined that historical data from SO_2 monitoring stations show either improvement or no change in air quality since 1985, depending on the station at which measurements were taken. Additionally, SEA determined that there have been no recorded violations of state or Federal ambient air quality standards in the area.

Particulate Matter (PM_{10}). Historical data from PM_{10} monitoring stations show either improvement or no change in air quality since 1985, depending on the station at which measurements were taken. Additionally, SEA determined that there have been no recorded violations of state or Federal ambient air quality standards in the Tongue River area.

Other Contaminants. There are no ambient monitoring data available in the proposed project area for lead (Pb), carbon monoxide (CO), and nitrous oxides (NO_x). The State does not require monitoring for these contaminants since the levels are believed to be insignificant.

[7] Class 1 inventory areas are areas determined by the EPA to be sensitive to increases in air pollutants. Under the Administrative Rules of Montana, increases in pollutant concentrations in Class I areas shall be limited [ARM 17.8.806(6)(a)804].

Montana is in compliance with the Federal standards for all the contaminants listed above. There is no reason, based on the information available to date, to believe the proposed Tongue River I realignment would result in a violation of any Federal standards.

New Receptors Within the Project Area

As discussed above, SEA identified 12 new residences that were constructed since 1985 within one-half mile of the proposed Tongue River I realignment and one new residence that was constructed since 1996 within one-half mile of the centerline of the proposed Tongue River II realignment. SEA preliminarily concludes that construction-period dust impacts would occur to new residences built in the vicinity of the proposed Tongue River I and Tongue River II realignment.

In Tongue River I, the ICC imposed mitigation measures to reduce dust emissions resulting from construction. In Tongue River II, the Board adopted similar but more specific measures. (See Air Quality Conditions 1 through 5.) These measures include (1) restricting speeds on access roads to reduce dust; (2) minimizing the clearing of ROW in the early stages of construction to reduce wind erosion; (3) revegetating devegetated areas at the earliest possible opportunity; and (4) watering all work areas to reduce dust. SEA preliminarily recommends that the mitigation measures for Tongue River II be applied to the entire line from Miles City to Decker, superseding the mitigation measures imposed in Tongue River I. (See Mitigation Measures 69-73 in Chapter 7, "Mitigation Measures Applicable to the Entire Rail Line from Miles City to Decker.") A discussion of operational air quality impacts on the new receptors can be found in Section 5.3.1, "Land Use."

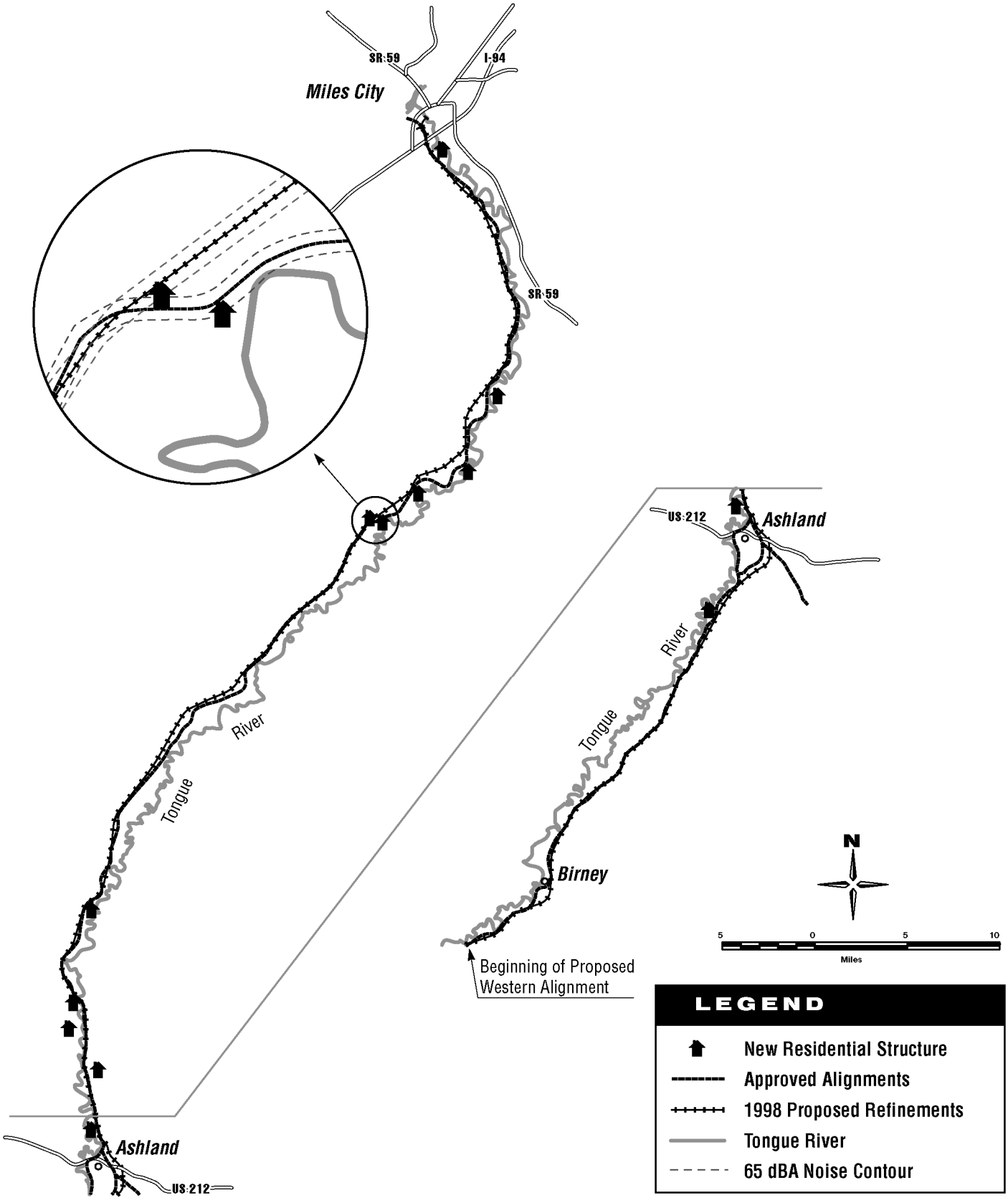
5.3.8 Noise and Vibration

New Sensitive Receptors

Of the 12 new residences that have been constructed since 1985 within one-half mile of the proposed Tongue River I realignment, SEA identified only one residence (Site 5) that would be located within the 65-dBA noise contour. As shown in Figure 5-4, Site 5 would experience noise levels greater than 65 dBA from either the alignment approved in Tongue River I or the proposed Tongue River I realignment. Regarding Tongue River II, the one residence constructed since 1996 within a half-mile of the proposed realignment is located outside the 65-dBA noise contour.

The ICC imposed mitigation measures to reduce noise impacts of construction and operation of the railroad in Tongue River I. The Board adopted similar measures in Tongue River II. SEA is recommending that mitigation measures adopted in Tongue River I and Tongue River II be combined, updated, and applied to construction and operation of the entire rail line. The following measure relates specifically to the Spotted Eagle Lake Recreation Area in Miles City.

> **Mitigation Measure 89 (Tree Buffers).** As agreed to by TRRC, TRRC shall provide a tree buffer between the Spotted Eagle Lake recreation area and the railroad right-of-way in order to reduce the impact of train noise upon those pursuing recreational activities and to moderate the visual impact to that area. *[TRRC I, Condition 6.1(6), modified to clarify the tree buffer requirement at the Spotted Eagle Lake recreation area.]*



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FIGURE 5-4

65 dBA NOISE CONTOURS BETWEEN MILES CITY AND THE WESTERN ALIGNMENT

SEA believes that with implementation of this measure and the other modified measures from Tongue River I and Tongue River II, no new significant noise impact would result from TRRC's proposed Tongue River I and Tongue River II realignment.

5.3.9 Socioeconomics

The socioeconomic analysis prepared for Tongue River III and presented in Chapter 4 evaluated the socioeconomic impacts of constructing the entire rail line from Miles City to Decker. (See Chapter 4, Section 4.3.9, "Environmental Consequences – Socioeconomics.") The analysis demonstrates that the proposed rail line would result in a net gain in regional employment and would generate significant new tax revenues for the State. No new impacts would result from the proposed realignments.

Appendix F contains additional information concerning socioeconomics provided by MT DNRC.

5.3.10 Recreation

Recreational resources in the Tongue River I study area have not changed since 1985, and include fishing, hunting, camping, and boating. There would be no new significant impacts on recreational resources caused by the proposed realignments.

There are eight Block Management Areas located along the Tongue River between Ashland and Miles City providing access to a total of 127,000 acres of land for free public hunting, including approximately 40 miles of river frontage. There is also the Hirsch conservation easement that provides 11,000 acres of hunting access and two fishing access points: one located at the Twelve Mile Dam south of Miles City and one just below the Tongue River Dam. Potential impacts caused by the railroad would be temporary loss of access during construction to portions of the conservation easements and block management lands. The railroad as a whole would not affect access to the fishing sites, and hunting access would be almost fully restored during the operational phase of the project except for the land that will be used for ROW.

5.3.11 Aesthetics

As previously noted, 12 new residences have been constructed since 1985 within one-half mile of the proposed Tongue River I realignment. The construction of the 12 new residences in the Tongue River I study area introduces new people (or viewers) into the study area who were not considered at the time of the previous environmental document. The visibility of the proposed rail line from each of the new residences is briefly described below.

- Site 1 – An area of cut and fill located 2,800 feet to the northwest of the residence would be visible from the residence.
- Site 2 – An area of cut and fill located 2,700 feet to the northwest of the residence would be visible from the residence.
- Site 3 – The proposed Tongue River I realignment would not be visible from this site.
- Site 4 – An area of cut and fill and the rail line itself would be located 4,800 feet to the northwest of the residence and would be visible from the residence.

- Site 5 – The rail line itself would be located 250 feet west of the residence and would be visible from the residence.
- Site 6 – The new residence identified at this site is a trailer home that has since been moved.
- Site 7 – An area of cut and fill located 2,000 feet to the west of the residence would be visible from the residence.
- Site 8 – An area of cut and fill located 1,900 feet east of the residence would be visible from the residence.
- Site 9 – The rail line itself would be located 250 feet east of the residence and would be visible from the residence.
- Site 10 – An area of cut and fill located 1,200 feet east of the residence would be visible from the residence.
- Site 11 – The rail line would be located approximately 1,800 feet east of the residence and would be visible from the residence.
- Site 12 – The rail line would be located approximately 1,700 feet east of the residence and would be visible from the residence.

Four of the 12 sites above would be subject to new views of cut slopes associated with the proposed Tongue River I realignment (Sites 1, 2, 7, and 10). From Sites 1, 2, and 7, the cut and fill slopes would be larger than those evaluated in Tongue River I. However, the cut and fill slopes would occur farther from these sites under the proposed Tongue River I realignment than they would under the alignment approved in Tongue River I. Furthermore, construction of the alignment approved in Tongue River I would require the removal of the residence at Site 9 Construction of the proposed Tongue River I realignment would not require the removal of that residence; however, cut and fill slopes associated with the proposed Tongue River I realignment would be visible from Site 9. Along with the cut and fill slopes, the visibility of the rail line from the above residences would be a visual impact.

In the Tongue River II study area, there haven't been any physical changes to aesthetics or visual resources since 1996. However, based on new geotechnical information, to provide improved slope stability TRRC is proposing flatter cut and fill slopes along the entire rail line. These flatter slopes would affect a larger area and would be more visible from residences and public roads in the project area for Tongue River II.

In Tongue River I, the ICC imposed mitigation measures requiring that disturbed areas be promptly reclaimed. The Board in Tongue River II adopted similar mitigation measures. SEA preliminarily recommends that the mitigation measures in Tongue River II regarding restoration/reclamation be applied to the entire line, superseding the mitigation measures imposed in Tongue River I. SEA preliminarily concludes that these measures would adequately address the potential aesthetic impacts of the proposed Tongue River I and Tongue River II realignment and that no new significant impacts would result from the proposed Tongue River I and Tongue River II realignments.

5.3.12 Energy

There have been no changes since Tongue River I and Tongue River II in the types of energy that would be used to construct or operate the rail line. However, the proposed Tongue River I realignment would be approximately 3 miles shorter, and both realignments would have an

overall flatter grade than the alignments originally approved. These factors would reduce energy expenditures associated with operation of the proposed Tongue River I and Tongue River II realignment when compared to the alignments that were originally approved. This energy savings would be somewhat offset by additional construction-period energy requirements because of additional earth work necessary to construct the proposed Tongue River I and Tongue River II realignment when compared to the alignment approved in Tongue River I and Tongue River II. (See Chapter 4, Section 4.3.3, "Environmental Consequences – Soils and Geology," for further discussion.)

6.0 CUMULATIVE AND INDIRECT EFFECTS

In preparing this Draft SEIS, SEA has evaluated the potential cumulative effects of construction and operation of the entire rail line from Miles City to Decker, in combination with other reasonably foreseeable related actions occurring in the general project area. SEA performed the cumulative effects analysis by

(1) reviewing the analysis of potential cumulative effects in Tongue River I and Tongue River II;
(2) determining whether changes in the related actions evaluated in those documents warranted additional analysis; and
(3) determining whether the proposed Western Alignment or the proposed realignments of Tongue River I and Tongue River II would result in new or different cumulative effects.

Based on the analysis outlined in these steps, SEA preliminarily concludes that the cumulative effects of the proposed Western Alignment and the Tongue River I and Tongue River II realignment would be similar to those previously identified in Tongue River I and Tongue River II. Therefore, SEA does not modify the conclusions reached in Tongue River I and Tongue River II.

6.1 DEFINITION OF CUMULATIVE AND INDIRECT EFFECTS

The Council on Environmental Quality (CEQ) defines indirect effects as "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." (40 CFR Section 1508.8) Those regulations define cumulative effects as the "incremental effect of the [proposed Federal] action when added to other past, present, and reasonably foreseeable future actions."[1] Cumulative effects account for the overall impact of both direct and indirect effects of the proposed action under consideration as well as recent past and proposed future actions by other entities.[2] Because it is not practical to analyze the cumulative effects of an action on the entire universe, CEQ's recommended cumulative effects analysis methodology begins with defining spatial and temporal boundaries—a scope—for the study. Within this scope, and for each resource of concern, an agency determines whether a resource may be affected by the proposed action in combination with future reasonably foreseeable actions planned by public or private entities.[3]

[1] CEQ Regulations, 40 CFR § 1508.7.

[2] Council on Environmental Quality, Executive Office of the President, "Considering Cumulative Effects Under the National Environmental Policy Act," January 1997, p. 8. This cumulative effects analysis follows the methods described in this CEQ publication.

[3] Ibid, p. 11.

6.2 SPATIAL AND TEMPORAL BOUNDARIES

SEA has analyzed potential indirect air quality impacts of the proposed action to the upper Midwest region, which is the most likely market for coal to be carried on the Tongue River Railroad. The basis for this analysis is that the type of fuel burned in electric power-generating plants is directly related to the type of emissions produced. The purpose of the analysis is to determine whether the approval of applications such as the proposed rail line and others like it, such as Dakota, Minnesota & Eastern, could have a significant indirect impact on air quality in the target market region. Other than examining this geographically distinct indirect effect, this Draft SEIS examines an area that is geographically much closer to the Tongue River Railroad along either the proposed Western Alignment or the Approved Four Mile Creek Alternative than the upper Midwest.

Spatial and temporal boundaries are the geographic area and time frame within which the cumulative effects acting upon each resource of concern are studied. CEQ recommends that, instead of doing superficial analyses of a list of barely relevant issues, an agency "count what counts,"[4] considering the distance an effect can travel and the length of time it can endure before it becomes insignificant.[5] For this reason, the temporal and spatial boundaries used in this analysis vary according to the resource studied.

For most resources analyzed in this Draft SEIS,[6] SEA believes that the spatial boundary for the cumulative effects study is roughly the same area for which direct and indirect effects were studied in Tongue River I and Tongue River II, here reviewed for the entire length of the line from Miles City to Decker in Chapter 5 of this Draft SEIS, "Focused Review of Tongue River I and Tongue River II." Impacts to land use, noise and vibration, and cultural resources are not expected to travel great distances. Cumulative effects for these resources would likewise be confined to approximately the area over which direct and indirect impacts would have significance. Adverse cumulative effects on these resources are possible if reasonably foreseeable projects are in very close proximity to the proposed action. With the exception of air and water impacts, SEA believes that the area over which cumulative impacts could be significant is congruent with the areas of direct and indirect impacts from construction and operation of the proposed action. Therefore, for resources other than air and water, cumulative impacts are analyzed using the same distances from the rail line as were used in Chapter 5.

By contrast, the area for which an effect upon water and air quality remains potentially significant is greater than for the other resources of concern in this Draft SEIS. This is due to the potential for air and water impacts to traverse great distances, unconstrained by topography and possibly facilitated by surface water, groundwater movement, or prevailing winds. Additionally, effects resulting from these cumulative impacts may not be experienced or noticed immediately. SEA has followed CEQ's guideline recommendation and broadened the scope for these two

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[4] Ibid, p. 12.

[5] Ibid, p. 16.

[6] These resources are land use, terrestrial and aquatic biological resources, soils and geology, cultural resources, transportation and safety, noise and vibration, socioeconomics, recreation, aesthetics, and energy.

resources—air and water—to encompass the Tongue River watershed and the part of the EPA-defined Air Quality Control Region containing the Tongue River and the proposed rail line. The AQCR—Region 143—encompasses most of the eastern third of Montana including Rosebud County and a small portion of Big Horn County.

Although CEQ's advice on defining a temporal boundary for a cumulative effects analysis is less concrete than for spatial boundaries, it suggests that the same time frame used for the project-specific analysis of direct and indirect impacts is generally appropriate.[7] Therefore, for both air and water quality and the other resources of concern analyzed in Chapter 5, SEA has chosen to study the project's cumulative impacts over a five-year period starting with construction and ending after a few years of operation.

6.3 RELATED ACTIONS EVALUATED IN THE CUMULATIVE EFFECTS STUDY

For the cumulative analysis performed for Tongue River I and Tongue River II, SEA compiled a list of existing or proposed projects, or related actions, to determine their potential for cumulative impacts in conjunction with the proposed rail line. SEA reviewed these projects again for this SEIS to determine if the cumulative effects analysis in Tongue River I and Tongue River II remain accurate. SEA also took steps to identify projects that were not foreseeable at the time of Tongue River I and Tongue River II. To ensure a complete list of reasonably foreseeable projects, SEA visited the project area and contacted representatives from BLM; MT DNRC and their environmental contractors; the USDA, Forest Service (Custer National Forest); and the offices of elected officials, including the Governor of Montana and Montana's state senators. SEA compared the list of reasonably foreseeable projects with the related actions analyzed in Tongue River I and Tongue River II and updated the analysis where necessary, as described in the following sections.

6.4 UPDATE OF PREVIOUSLY IDENTIFIED PROJECTS

The previous NEPA documents prepared for Tongue River I and Tongue River II contained cumulative effects analyses for the following reasonably foreseeable actions: the Tongue River Reservoir Dam Reconstruction, the use of area recreational facilities, and coal mine development associated with the construction and operations of both Tongue River I and the extension of the rail line in Tongue River II. These are discussed below.

6.4.1 Tongue River Dam Reconstruction

SEA's analysis in the FEIS in Tongue River II (April 1996) concluded that the simultaneous construction of the Tongue River Reservoir Dam and the proposed rail line could result in cumulative impacts such as vibration and flooding. However, the reconstruction of the dam was completed in July 1999. Therefore, simultaneous construction will not occur. The reconstruction of the dam is no longer considered a project with potential cumulative effects.

[7] Ibid, page 16.

6.4.2 Relocation of Recreational Resources

The reconstruction of the Tongue River Reservoir Dam resulted in an increase in the surface area of the Tongue River Reservoir and the relocation of then-existing recreational areas at the Tongue River Reservoir State Park (along the old shoreline of the reservoir) to areas along the new shoreline. Tongue River II considered the cumulative effect of moving these recreational areas and also considered the impacts of construction and operation of the rail line on the recreational resources at the Tongue River Reservoir State Park. SEA analyzed the potential impacts of construction and operation of the proposed Western Alignment, which would be in closer proximity to the relocated recreational areas than the previously approved Four Mile Creek Alternative. (See Chapter 4, Section 4.3.10, "Environmental Consequences – Recreation," of this Draft SEIS.) SEA determined that even though the proposed Western Alignment would be closer than the Four Mile Creek Alternative to some of the relocated recreational areas at the Tongue River Reservoir State Park, the proposed Western Alignment would be located a sufficient distance from these areas to ensure that potential air quality, noise, land use, and visual impacts to recreational resources—fishing, hunting, camping, and water activities—would not be significant.

6.4.3 Coal Mine Development in the Ashland/Birney Area

In Tongue River I, SEA determined that the related action of greatest interest was the development of coal mines in the Ashland/Birney area. In Tongue River II, the analysis of cumulative effects resulting from coal mine development in the Ashland/Birney area was updated. Both the 1985 FEIS for Tongue River I and the 1996 FEIS for Tongue River II assume modest changes in coal production in the Ashland/Birney area. These documents also indicate that the largest percentage of TRRC's haul will originate from the existing mines at Decker and Spring Creek. The analysis evaluated the impacts of the development of the Montco Mine and other potential mines in the Ashland area, and estimated the production of up to ten million tons annually by the year 2007 and up to 18 million tons annually by 2012, all of which would be transported by TRRC.

There has been no discernible change of social, economic, or environmental factors since the analysis in Tongue River II to significantly increase or decrease the potential for mine development as a result of construction of either the already approved Four Mile Creek Alternative or the proposed Western Alignment. The Montco Mine permit has expired since the preparation of Tongue River II. Continued coal mine development in the Ashland/Birney area is likely to occur, but is tied to a number of variables related to demand for low-sulfur coal created by the Clean Air Act of 1990. The potential for coal mine development in the Tongue River area likely would increase with improvements to the transportation system (i.e., the Tongue River Railroad), however, SEA concludes that there are no material changes that warrant an assumption of increased coal production generally or increased coal production in the Ashland/Birney area beyond what was analyzed in Tongue River II (see Table 2-2 in this document for coal tonnage forecasts). Other potential coal mine development in the region is described below.

Spring Creek Mine Expansion

The Spring Creek Coal Company (SCCC) has filed an application with BLM to lease a 150-acre tract of land containing an estimated 19.8 million tons of Federally-owned coal. SCCC has also

filed an application with MT DNRC to lease a 479-acre tract containing an estimated 62.1 million tons of coal. These tracts are all located in Big Horn County and would be mined as an extension of the Spring Creek Mine. The Co-Lead Agencies for the leasing agreements, BLM and MT DNRC, prepared an Environmental Assessment (MT-022-1320-DB) and published a Finding of No Significance (*Federal Register*, July 14, 2000, Volume 65, Number 136) for activities associated with the leasing agreements.

Alluvial Valley Coal Exchange

The Surface Mining Control and Reclamation Act of August 3, 1977, provides owners of unminable coal who own coal rights within an alluvial valley floor (AVF) with an exchange of minable coal, as determined by the Federal government. In 1985, the State of Montana issued an AVF determination for lands near the Tongue River in Rosebud County. In May 1996, the State clarified the total acreage in this determination: 2,346 acres of land. The landowners (Nance/Brown) requested an exchange of 3,679 acres of land for 4,185 acres of Federal coal mine property. BLM, in 1997, stated that 3,249 acres qualified for exchange. The property owners filed no appeal of this decision within the 30-day appeal period. BLM, in 1997, began preparation of an EIS for this project, but the environmental analysis was put on hold shortly after it began. The property owners are presently considering mining and other economically viable options. BLM does not expect any near-term action related to this AVF determination and SEA considers mining actions related to the AVF not reasonably foreseeable.

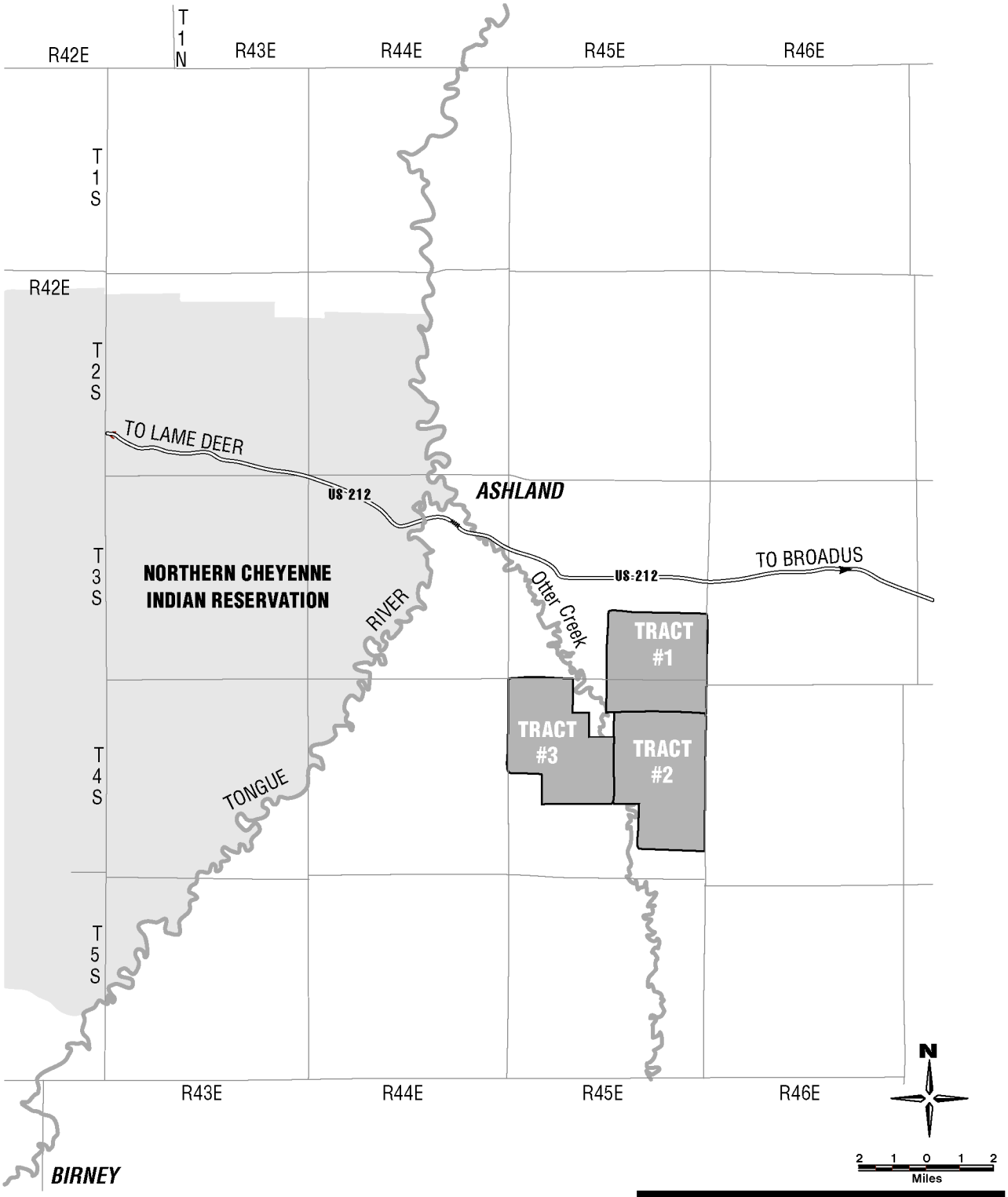
Otter Creek Tracts 1, 2, and 3

Pursuant to the 1997 Public Law 105-83, three tracts known as Otter Creek 1, 2, and 3, were transferred from the Federal government to the State of Montana on February 19, 2002. Figure 6-1 depicts the extent of Otter Creek tracts 1, 2, and 3. A development consortium has proposed the construction of a 750-megawatt coal-fired generator on these tracts and a 100-mile power line to tie into existing transmission lines. The consortium indicated the need for a 3-million-ton-a-year coal mine to supply the power plant.

The Tongue River II analysis stated that the volume of coal generated from these tracts could be as much as 18 million tons per year. SEA believes that these assumptions are unchanged. The potential effects of Otter Creek development could include changes in the economic, demographic, and social character of the area caused by the influx of workers to the area, potential degradation of surface-water quality resulting from soil disturbance and mine operations, impacts to wildlife from the removal of vegetation, and potential impacts to cultural resources. Based on the information available to date, SEA concludes that assumptions related to coal mine development in the Otter Creek and Ashland/Birney area (and contained in Tongue River II) are still accurate because the potential for mine development in the area has not materially changed. There are currently no known or anticipated contracts for Otter Creek coal that would be accessed by the proposed rail line.

Developers of the proposed Otter Creek development indicated that electricity from the project would be sold in Montana and the Pacific Northwest. The time-frame for development is roughly between 2008-2010. Many uncertainties surround the proposed development that make it less than reasonably foreseeable:

(1) The development consortium for Otter Creek has not yet obtained a lease or the necessary permits for the project;



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FIGURE 6-1

EXTENT OF OTTER CREEK TRACTS 1, 2, AND 3

(2) Development is dependent on the consortium's ability to obtain transmission-line access; and
(3) Transmission-line rights are being sought through a provision in the President's Energy Bill that grants the Secretary of Energy the power to impose Federal eminent domain for siting electrical transmission lines.

SEA considers the development of the Otter Creek tracts and the associated new generator to be speculative in nature since the development consortium has not yet obtained leases or permits for the tracts, or the granting of transmission rights.

Powder River Basin Coal and the Dakota, Minnesota, and Eastern Railroad Powder River Basin Expansion Project

The Tongue River II Draft EIS states that "The largest percentage of Tongue River Railroad Company's immediate haul . . . would originate from the existing mines at Decker and Spring Creek and, to a much lesser degree, from Wyoming Powder River Basin mines" [Section 1.3.1]. These assumptions are unchanged.

In considering the Dakota, Minnesota, and Eastern project, which is now pending before the Board on remand, SEA does not believe it is reasonable to assume that PRB coal carried by DM&E would, with TRRC's proposed action, result in cumulative adverse impacts. The DM&E project consists of a $2 billion expansion and upgrade that involves building about 280 miles of new track to the PRB and upgrading 600 miles of existing track in Minnesota and South Dakota. SEA foresees no cumulative impacts arising from the construction of the DM&E line, which, if approved and built, would, at its closest point, be over 100 miles to the south-southeast of the proposed action. Cumulative operational impacts from the DM&E proposal could include air quality impacts from train operations. Air quality impacts are discussed below.

6.5 NEW REASONABLY FORESEEABLE PROJECTS SINCE TONGUE RIVER II

The reasonably foreseeable projects that have arisen since the 1996 FEIS in Tongue River II are discussed below.

6.5.1 Power Plant Projects

Coal-fired and natural gas-fired power plants have environmental impacts associated with air emissions and waste streams. SEA identified future power projects in Montana and Wyoming to determine their reasonableness for consideration in the cumulative analysis. Future power projects in Wyoming and Montana are listed in Table 6-1. Of the projects identified in Table 6-1, only the Hardin Plant (discussed below) is a reasonably foreseeable action. The other projects are either not reasonably foreseeable or not geographically close enough (within MAQCR - Region 143) to the proposed action for cumulative impact consideration.

The Hardin Plant is being developed by Centennial Energy Resources, a subsidiary of Montana Dakota Utility Resources Group in Bismarck, ND. Centennial Resources is proposing the construction of a 115-megawatt, coal-fired facility adjacent to an existing transmission substation while the plant is located in MAQCR - Region 140, it is approximately 60 miles from the proposed rail line and represents the closest reasonably foreseeable power project to the

proposed action. Representatives from Centennial Energy indicate construction of the plant has begun and it is expected to be operating commercially by late 2005.

Table 6-1 – Planned Power Plants in Montana and Wyoming

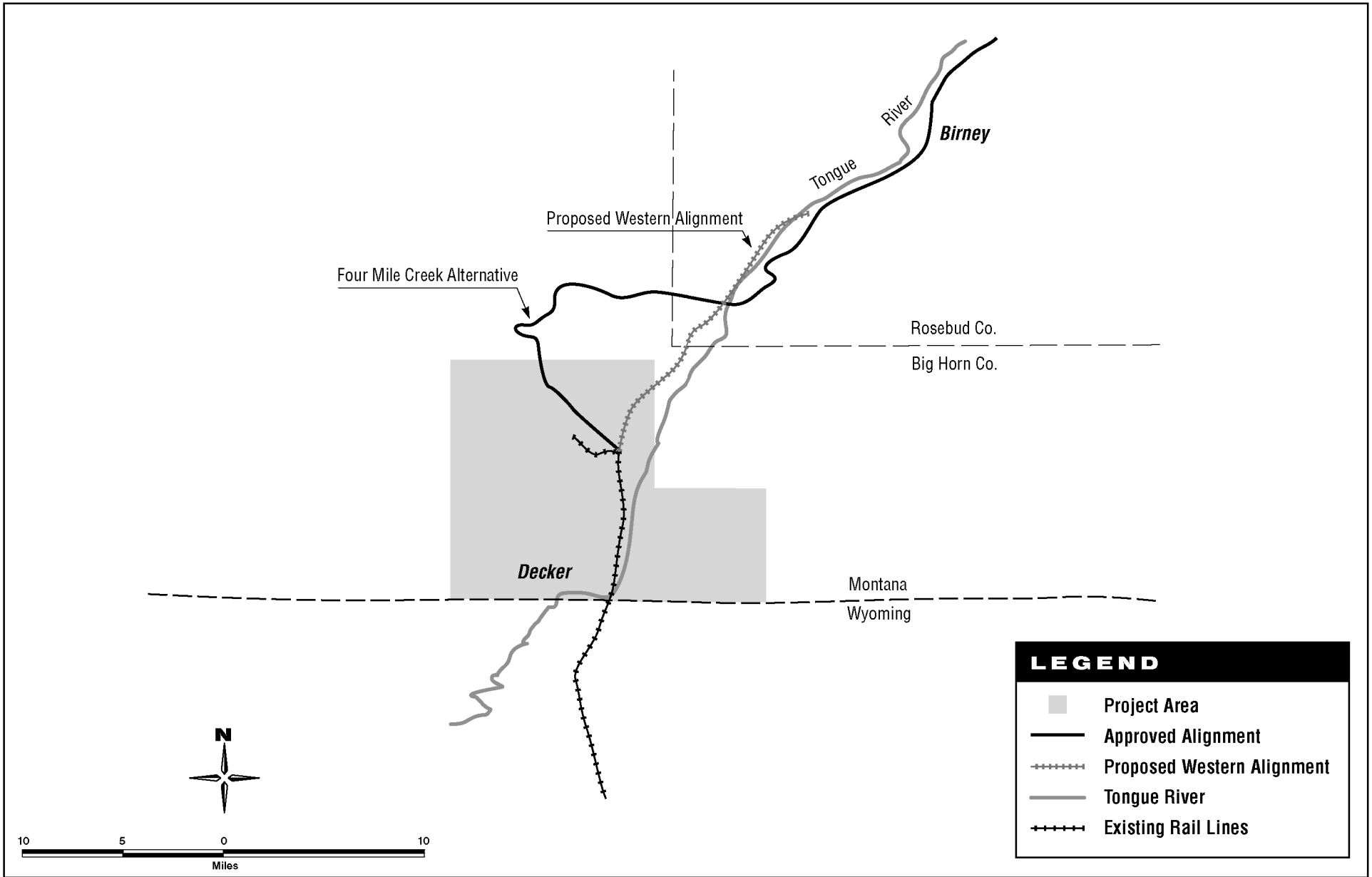
Project Name & Location	Owner-Developer	Megawatts (MW) Fuel Type	MAQCR[a]	Status
Montana First Megawatt Plant, Great Falls, MT	Northwestern Energy Corp.	240 MW: Two 75 MW Natural gas; One 90 MW Steam	141	Construction suspended.
Hardin Generator Project, Hardin, MT	MDU Resources Group, Centennial Power	113 MW: Coal IGCC	140	Permit received from MDEQ. Construction began in 2004.
Roundup Power Project, Roundup, MT	Bull Mountain Development Co.	780 MW: Coal-fired	140	Permit received from MDEQ. Decision under appeal. Commercial service target date for first power unit: March 2006.
Basin Creek Power, Butte, MT	Basin Creek Power Services LLC	48 MW: Gas-fired	142	Permit received from MDEQ. Construction financing underway.
Two Elk, Gillette, WY	North American Power Group	280 MW: Coal-fired	NA	Some permit approval. Status uncertain.
Oregon Trail, Glenrock, WY	Buffalo Power Co.	1100 MW: Coal-bed methane	NA	Project viability uncertain. Estimated plant start date: early 2006
Wygen #2, Gillette, WY	Black Hills Corp.	500 MW: Coal	NA	Project on hold.
Middle Bear, SPRB, Gillette, WY	North American Power Group	500 MW: Coal-fired	NA	Project cancelled.

Note: [a] MAQCR = Montana Air Quality Control Region

6.5.2 Coal-bed-methane-gas Wells

The proposed location of coal-bed-methane gas activity within the project area is shown in Figure 6-2. Commercial quantities of CBM gas exist within coal-bearing geologic formations, and large quantities of CBM gas are currently collected throughout southeastern Montana and northeastern Wyoming in conjunction with coal mining. CBM gas is collected by drilling a series of water wells and pumping out groundwater, which liberates the CBM gas. Gas pipelines run from each well to a central collection point where it is dehydrated and compressed in preparation for transportation to market, also via pipelines.

The exact number of CBM gas wells, their specific location, and the time frame for development are governed by variables including new exploration development, new production techniques, fluctuations in prices and demand for natural gas, and price fluctuations that prompt larger or smaller development. BLM issued an EIS to assess the potential impacts of CBM gas exploration and production in 16 counties in south-central and southeastern Montana. The Final Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River Basin and Billings Resource Management Plans was released in January 2003. BLM issued a Record of Decision (ROD) in April 2003 and MDEQ issued a ROD for the same EIS in August 2003. BLM's environmental review concluded that the preferred CBM gas



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FIGURE 6-2

LOCATION OF COALBED METHANE WELL PROJECT

development alternative (Alternative E) had the following primary environmental impacts associated with CBM gas well development:

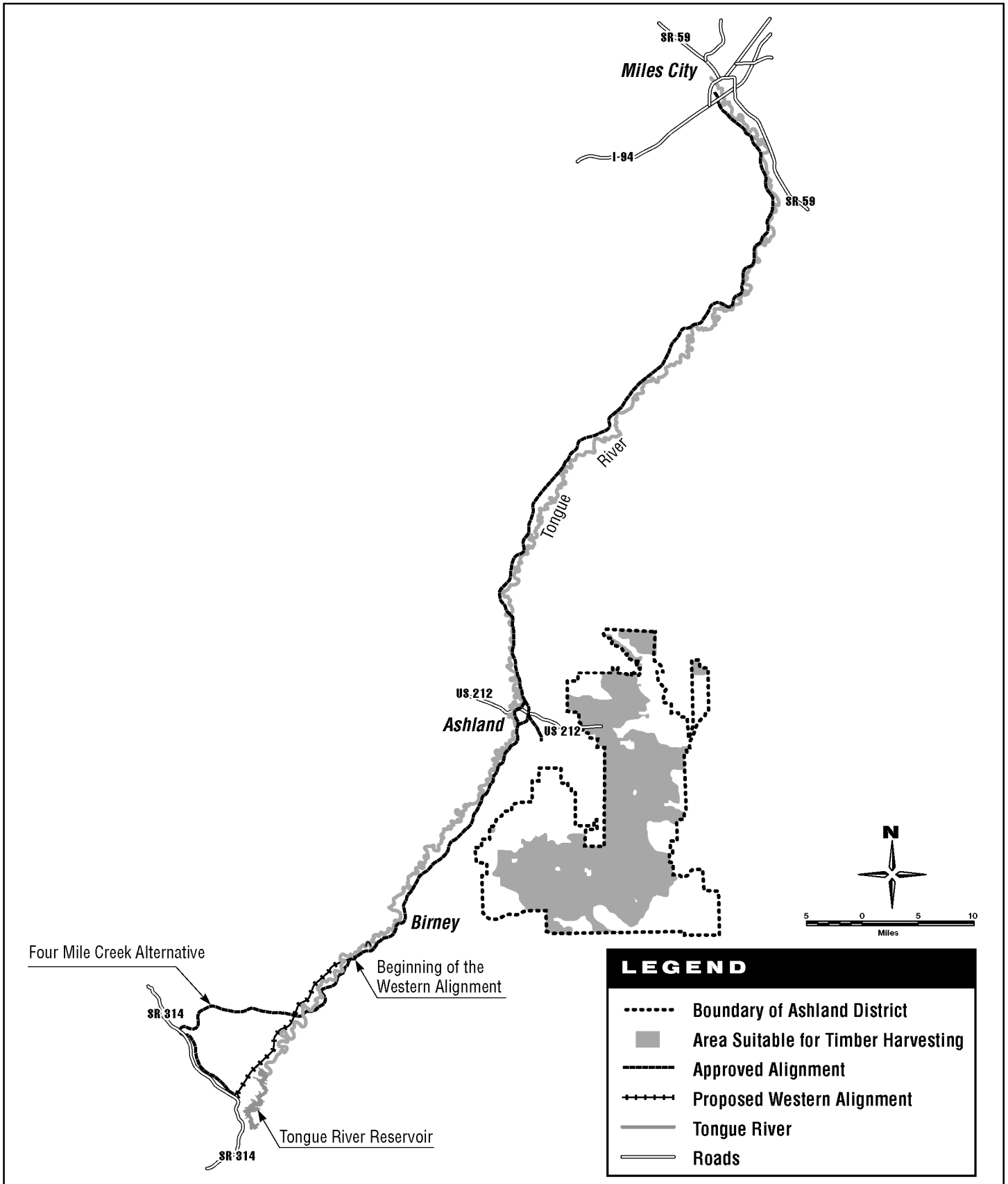
- Potential drawdown of water in coal aquifers at specific locations near CBM gas wells.
- Disruptions to wildlife as a result of construction activities.
- Soil erosion and compaction associated with the construction of unpaved access roads.
- Conversion of small amounts of land (about 1/4 acre of land for each well) from agriculture or range land.
- Dust and particulate air emissions from construction of the wells and access roads.
- Minor changes in the visual character of the landscape.
- Slight surface-water-quality alterations and moderate flow increases.
- Localized short-term increases in CO, NO_x, SO_2, $PM_{2.5}$, and PM_{10} concentrations.

In February 2004, MDEQ released an Environmental Assessment, Decision Record, and a Finding of No Significant Impact on a Plan of Development submitted by Fidelity Exploration and Production Company for up to 85 CBM gas wells in Big Horn County. The air quality analysis did not identify any pollutant concentrations that would violate applicable air quality standards. Modeling assumptions also took into consideration the mining activities at Spring Creek and Decker coal mines and known sources of air emissions in Wyoming.

Fidelity Exploration and Production Company has also submitted to the Montana Board of Oil and Gas Conservation a plan to develop 217 wells in southeastern Montana near the Wyoming border, in Big Horn County. An environmental assessment is being prepared for the proposed development that is expected to be completed later in the summer of 2004. The analysis in that soon-to-be-issued document will be reflected in the Final EIS in Tongue River III.

6.5.3 Custer National Forest Timber Sale Projections

Custer National Forest encompasses Federal lands in Montana, North Dakota, and South Dakota. The Ashland Ranger District of the Custer National Forest is located on the east side of the Tongue River, to the north and south of Ashland. Figure 6-3 depicts the boundaries of the Ashland Ranger District. The October 1986 Custer National Forest Management Plan authorizes the harvest of 3.5 million board feet of timber per year over a ten-year period in the Ashland, Beartooth, and Sioux Ranger Districts. The authorization was extended for an additional ten years (i.e. 2006), pending the completion of a new Management Plan. The bulk of this harvesting would occur in the Ashland Ranger District, because the other Districts contain fewer acres designated as suitable for timber harvesting (Cornelia Hudson, Ashland Ranger District, Custer National Forest, personal communication, November, 2003). The shaded areas in Figure 6-3 are areas that are designated for timber harvesting. Unmitigated timber harvesting could potentially contribute to soil erosion, water quality degradation, and loss of wildlife habitat.



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FIGURE 6-3

LOCATION OF ASHLAND DISTRICT
CUSTER NATIONAL FOREST

6.5.4 Northern Cheyenne Tribe Tongue River Watershed Conservation Plan

As part of the Northern Cheyenne Indian Reserved Water Rights Settlement Act of 1992, Congress authorized the creation of a $4.6 million Enhancement Fund to provide for the conservation, development, and enhancement of fish and wildlife resources and habitat in the Tongue River Basin. The Northern Cheyenne Tribe Tongue River Watershed Conservation Plan enhances existing riparian areas by creating stock watering tanks in upland areas of the reservation west of the proposed Western Alignment. The Conservation Plan also provides management direction and policy for natural resources. A Final Environmental Assessment/Finding of No Significant Impact addressing the Plan was issued in August 1997. The Bureau of Reclamation is the lead agency for this project and has constructed upland pipelines for the creation of watering tanks. One last pipeline remains to be constructed and is expected to be completed in 2004. These pipelines exist on narrow ROWs—approximately 150 feet—and are located in upland areas away from the Tongue River. No cumulative effects are expected in conjunction with the proposed rail line via either the proposed Western Alignment or the approved Four Mile Creek Alternative as a result of the completion of Conservation Plan projects in 2004.

6.6 REASONABLY FORESEEABLE IMPACTS

This section discusses the reasonably foreseeable cumulative impacts associated with the proposed action and projects within the spatial and temporal boundaries of this study.

6.6.1 Land Use

Direct and indirect land use impacts associated with the proposed Western Alignment would occur within the rail corridor ROW as described in Chapter 4, Section 4.3.1, "Environmental Consequences – Land Use." The ROW consists primarily of non-irrigated rangeland, irrigated and non-irrigated farmland, and less than 20 acres of prime farmland. The proposed Western Alignment would divide parcels of land and would convert to rail use land that is currently used for grazing, farming, and open space. Cumulative impacts would occur with other reasonably foreseeable projects that would also take grazing, farming, and open space and convert its use or change the functionality of the land. SEA has not identified any reasonably foreseeable projects within the ROW of the proposed Western Alignment that would also impact land use. SEA identified the development of CBM gas wells as the only reasonably foreseeable project that would change the use of other parcels within larger tracts currently used for ranching and farming activities. No long-term impacts to land use would occur from the CBM gas-well activities. All foreseen CBM gas wells must include a reclamation plan, submitted to BLM for approval, that shows how the land will be returned to its pre-existing conditions upon completion of the drilling activities.

The development of Otter Creek parcels for coal mining, as described in Section 6.4.3 of this chapter, is considered speculative and not reasonably foreseeable. SEA concludes that no cumulative effects to land use would occur due to the absence of land use-altering projects within and abutting the TRRC ROW.

Construction Impacts. Construction impacts on land use associated with the proposed rail line would include the taking of land for the ROW and the use of land adjacent to the ROW for

staging construction. The simultaneous construction of CBM gas wells could result in cumulative effects on land use, but the speculative location of CBM gas wells makes an adverse cumulative effect unlikely. No planned CBM gas-well development is known within or abutting the TRRC ROW.

Operations Impacts. The potential presence of CBM gas wells and related infrastructure and the operation of the proposed rail line both represent changes to land use in southeastern Montana. However, there is no causal relationship between these two land uses. The leasing of land for the development of CBM gas wells is done either by the Federal government or private landowners and must be permitted and authorized by BLM. The presence of the proposed rail line would not be expected to hinder the development of CBM gas wells. The CBM gas development in conjunction with the proposed rail line is not expected to constrain development or land use activities in the project area, including existing ranching and farming activities. Mitigation measures associated with the proposed rail line include compensation, fencing, and the construction of cattle passes. These are described in more detail in Chapter 4, Section 4.3.1, "Environmental Consequences – Land Use." Mitigation requirements for CBM gas wells imposed by BLM include site plans to minimize land disturbing impacts, ROW stipulations for minimizing impacts, a reclamation plan, and a reclamation final abandonment evaluation.

Conclusions. Land use impacts resulting from the proposed Western Alignment would be restricted to a defined ROW corridor. No additional projects within the ROW were identified. The approved Four Mile Creek Alternative would have a similar impact. Projects potentially on the periphery of the rail line corridors—specifically the CBM gas wells—would alter the land use in the vicinity of the rail line. The development of CBM gas wells represents a change in land use but these changes are not expected to create adverse cumulative effects due to the relatively small area impacted and the reclamation of the land back to its original state after the gas has been extracted. No adverse cumulative impacts to land use resources are expected as a result of the rail line construction and operations.

6.6.2 Biological Resources

The proposed Western Alignment would traverse mostly rural and undeveloped land containing a wide range of terrestrial and aquatic biological resources. Impacts from construction and operations would potentially occur to vegetative and animal species, riparian and wetland areas, waters of the United States, and land (the introduction and dissemination of noxious weeds). Potential impacts would occur generally within and abutting the proposed rail line ROW. The lack of reasonably foreseeable projects within and abutting the proposed rail line ROW results in the absence of cumulative biological resource impacts. Chapter 4, Section 4.3.2 of this document, "Environmental Consequences – Biological Resources," describes the impacts to terrestrial and aquatic biological resources from the construction and operation of the proposed rail line.

Construction and Operations Impacts. Some disruption to wildlife, including big game migration, upland bird activity, and raptor activity, is expected to occur during CBM gas-well construction. These impacts are described in the BLM EIS as localized and temporary in nature. The impacts associated with the proposed rail line include the removal of vegetation and habitat and increased sedimentation, increased potential for toxic spills, and the loss of floodplain. CBM gas-well construction and proposed rail line construction could result in cumulative

effects; however, these projects would not necessarily occur immediately adjacent to each other and construction-related impacts likely would not impact the identical habitats or species. Thus, SEA concludes that the known occurring species, including threatened or endangered species, would not be adversely impacted by the TRRC in conjunction with CBM gas wells.

The study area (1,500 feet from rail line) contains no other projects that would cumulatively affect wetlands or waters of the United States. Projects located outside of the study area are subject to similar regulations as TRRC when affecting wetlands or waters of the United States and because of their distance, are not expected to cumulatively affect these resources. The respective construction activities are not expected to create adverse cumulative impacts to terrestrial and aquatic biological resources. Mitigation to alleviate potential impacts from the proposed rail line to terrestrial and aquatic biological resources are outlined in Chapter 4, Section 4.3.2 of this document, "Environmental Consequences – Biological Resources."

6.6.3 Soils and Geology

Soil and geologic impacts associated with construction of the proposed Western Alignment would include soil erosion, changes in the physical characteristics of soil, and slumping, while operations impacts would also include erosion and slumping. Construction impacts associated with the proposed Western Alignment are considered temporary in nature. Section 4.3.3 of this document describes mitigation measures to alleviate potential impacts. Cumulative impacts to soil and geologic resources would occur in the presence of other projects being simultaneously constructed in close proximity to the proposed TRRC construction. SEA did not identify any reasonably foreseeable projects that would contribute to soil and geologic impacts and concludes that no cumulative effects would occur.

Construction Impacts. Temporary impacts on soils and geology would result from the construction of the proposed rail line. These could include soil erosion, changes in the physical characteristics of the soil, changes to biological activity in the soil, effects from exposing saline and sodic soils, and slumping. SEA examined reasonably foreseeable actions that could potentially create cumulative impacts to soils and geology. The BLM EIS states that impacts to soils would occur from the construction sites and from unpaved access roads used for CBM construction. The construction of CBM gas wells will disrupt soils in the immediate vicinity of well pads, but these wells are not foreseeable within the TRRC ROW or adjacent to the line. SEA believes that it is not reasonable to assume that CBM gas-well development within the project area would be directly or indirectly impacted by the proposed rail line.

Operational impacts. Impacts from the proposed Western Alignment could include soil erosion and slumping. No reasonably foreseeable projects would contribute to impacts on soil and geology while the proposed rail line is operational.

Conclusion. SEA concludes that no cumulative effects on soil and geologic resources are expected as a result of the construction and operation of the proposed Western Alignment. The approved Four Mile Creek Alternative would result in similar cumulative effects.

6.6.4 Hydrology and Water Quality

The proposed rail line is not expected to impact groundwater resources (see Section 4.3.4, "Environmental Consequences – Hydrology and Water Quality"), so only surface water impacts were considered in this cumulative analysis. Water quality impacts from the proposed rail line could include increased sediment loading into the Tongue River and adjacent perennial and non-perennial streams during construction and the potential spills of herbicides and diesel fuel into the Tongue River during rail operations. Impacts during construction constitute the greatest potential for impacts to water quality. The only reasonably foreseeable project with the potential for water quality impacts is the development of CBM gas wells. Construction-related impacts of CBM gas wells consist of ground disturbing activities that could potentially cause sediment loading in nearby streams. These impacts are not considered significant and are not expected to occur adjacent to the proposed rail line. CBM gas-well operations have the greatest potential to impact water quality, but this impact is not made greater (or more adverse) by operational impacts from TRRC. SEA has considered the potential for cumulative water quality impacts and has concluded that the two projects—the proposed Western Alignment and CBM gas-well development—would not result in significant adverse cumulative effects.

Construction Impacts. The proposed rail line in conjunction with CBM gas wells could result in cumulative effects on water quality if construction of these projects occurred simultaneously and in close proximity to each other, whether the proposed Western Alignment or approved Four Mile Creek Alternative is built. Simultaneous construction of both the proposed rail line and CBM gas wells is not considered likely, where CBM gas wells would be constructed adjacent to the TRRC and cause increased sediment loadings into the Tongue River. CBM gas wells are constructed on well pads that must have vegetative buffers and seeded ROW. As a result, SEA does not believe construction-period cumulative effects on surface water quality would be significant or adverse.

Operations Impacts. The BLM EIS estimates that over the next 20 years, up to 18,300 CBM gas wells are reasonably foreseeable in the Montana portion of the PRB. To extract methane from underground coal formations, ground water is brought to the surface. Although the produced water may be suitable for humans and livestock to drink, it is typically not suitable for irrigation. Due to its high levels of sodium (which is described in terms of sodium adsorption ratio, or SAR) and salinity, coal-bed-methane-produced water can adversely impact soil structure, leaving the soil unable to percolate water in a manner that can support plant growth. At certain salinity levels, crop production is diminished, an important consideration in the PRB, where over 30,000 acres are irrigated.

The discharge of CBM gas-well water will be conducted under an approved state MPDES permit that contains the necessary discharge limits to protect water quality for beneficial use. For example, the recent EA prepared for the Fidelity POD showed that modeled flows will meet the Montana water quality requirements for an SAR value of less than 4.5.

The BLM ROD for the CBM gas wells requires the development of a Water Management Plan for exploratory wells and PODs. Additionally, well operators must obtain certification from MDEQ under Section 401 of the Clean Water Act for any disposal of water. The Water Management Plan must assure that there is no degradation, as defined by MDEQ, to water quality in any watershed.

The proposed Western Alignment is not expected to result in an increased SAR in the Tongue River. Annual increases in total suspended solids (TSS) are expected from the project, as described in Table 4-22. The TSS generated by the proposed rail line would not exacerbate the SAR, and the increased SAR from CBM gas-well development would not result in increased TSS. However, SEA recognizes that these respective projects have the potential to create a cumulative impact on water quality in the Tongue River. Proposed mitigation measures for the proposed Western Alignment would address the increased TSS. The use of BMPs and the progression of revegetation during construction would significantly reduce sediment erosion and delivery. It is estimated that sediment delivery would be reduced to near zero as a result of these practices, with a corresponding decrease in estimated TSS of between 50 and 70 percent. (See the mitigation measures in Chapter 4, Section 4.3.4.2, "Environmental Consequences – Soils and Geology; Construction-period Impacts." See also Chapter 4, Section 4.3.2, "Environmental Consequences – Biological Resources," for a discussion of mitigation measures designed to promote revegetation.)

SEA also considered the Custer National Forest Management Plan in this analysis. The Management Plan includes a comprehensive guide for timber harvesting and requirements to reduce potential impacts such as erosion and sediment loading to area streams and creeks. Practices such as shelterwood harvesting[8] help to reduce these impacts and are implemented wherever feasible as part of the Management Plan. SEA believes that the cumulative effect of continued timber harvesting in the 156,000 square-mile Custer National Forest would not result in significant impacts on sediment loading in the Tongue River. The Management Plan, prepared in consultation with BLM, NPS, USFWS, and local tribes and Native American groups, does not identify any potential concerns for erosion related to timber harvesting. The current harvesting volume adopted in 1986 is not expected to change.

Conclusions. SEA has reviewed the reasonably foreseeable projects in the Tongue River watershed and has determined that there is a potential for cumulative effects to the Tongue River as a result of the proposed Western Alignment and the development of CBM gas wells in the region. The approved Four Mile Creek Alternative would result in similar cumulative effects. These effects are not expected to be significant or adverse. Mitigation measures and agency oversight will be used to maintain water quality to surface waters in the Tongue River watershed. No additional mitigation is warranted.

6.6.5 Cultural and Paleontological Resources

Cultural and paleontological resource impacts from the proposed Western Alignment would be expected to occur during construction when ground-disturbing activities occur and during operations from vibration and visual intrusions. The presence of cultural resources would be determined prior to construction through records investigations and field surveys to identify the location and extent of resources. Mitigation in the form of resource avoidance or excavations

[8] In shelterwood harvesting, not all mature trees are removed, leaving a partial canopy to shelter new trees. The partial canopy is removed in a second cutting once the new trees have established themselves beyond the need for further protection (10-20 years). Shelterwood harvesting is not appropriate for Lodgepole Pines because new trees do not thrive in shady conditions. However, Ponderosa Pine and Douglas Fir benefit from this type of harvesting.

would be implemented under the guidance of the SHPO and under the mitigation measures established in the PA, a copy of which is attached as Appendix G. This document considered potential impacts within the proposed rail line ROW and within a 3,000 foot corridor. No reasonably foreseeable projects were identified within this area of potential impact that would contribute to the degradation or loss of these resoruces. SEA concludes that no cumulative impacts to cultural and paleontological resources would occur as a result of the proposed Western Alignment.

Construction Impacts. Cultural and paleontological resource impacts associated with the proposed Western Alignment would occur during the construction and would be confined to the proposed ROW and within a 3,000-foot corridor. Potential impacts would be mitigated through cultural resource investigations and surveys. SEA did not identify any other projects within the proposed rail ROW or 3,000 foot corridor, therefore, no cumulative cultural resources impacts are expected to occur. BLM requires that CBM gas-well development plans include a cultural resource survey, SHPO coordination, and tribal consultation.

Operations Impacts. Operations impacts from the TRRC would potentially include vibration and visual impacts associated with train operations. No reasonably foreseeable projects would contribute to either vibration or visual intrusions upon cultural, paleontological or historical properties.

Conclusion. SEA concludes that there are no reasonably foreseeable projects within the proposed Western Alignment ROW or within the adjacent 3,000-foot corridor, therefore, no cumulative impacts on cultural or paleontological resources would occur. This conclusion also applies to the approved Four Mile Creek Alternative.

6.6.6 Transportation and Safety

Transportation impacts during construction of the proposed Western Alignment include an increase in vehicular traffic, increased traffic delays and safety concerns. Operational impacts would include safety concerns at rail crossings. Cumulative effects on transportation and safety would occur as concurrent construction activities increase the vehicular traffic in the area near the proposed rail line or as development activities generate traffic resulting in the potential for increased rail crossings by vehicles. SEA did not identify any reasonably foreseeable projects that would contribute significant increases to area vehicular traffic, either during construction or operations. No cumulative effects would be expected to occur on the transportation and safety infrastructure.

Construction Impacts. Transportation impacts during construction of the proposed Western Alignment could include an increase in vehicular traffic, increased traffic delays and safety concerns. The construction of CBM gas wells may contribute to traffic and safety concerns in the region. However, the location of CBM gas-well development is speculative and not expected to occur adjacent to the proposed rail line. Mitigation measures for both the proposed Western Alignment (see Chapter 4, Section 4.3.6, “Environmental Consequences – Transportation and Safety”) and the development of CBM gas wells is expected to alleviate traffic and safety concerns. No cumulative effects are anticipated.

Operations Impacts. Traffic delays at rail crossings and increased safety concerns are direct impacts of rail operations. Mitigation measures to address these impacts are addressed in Chapter 4, Section 4.3.6, "Environmental Consequences – Transportation and Safety." No reasonably foreseeable projects are expected to result in adverse cumulative transportation and safety effects. The operations associated with CBM gas wells will not generate significant increases in vehicular traffic. No cumulative effects would be expected from this activity.

Conclusion. No cumulative impacts are expected to occur to transportation resources, access, or safety as a result of the construction of either the proposed or approved alignment and operations in conjunction with other reasonably foreseeable actions.

6.6.7 Air Quality

Potential Air Quality Impacts within Air Quality Control Region 143

The MDEQ divides the state into five Air Quality Control Regions. The proposed Western Alignment, like the entire rail line from Miles City to Decker, is located in AQCR 143–Eastern Montana. The Montana Air Monitoring Network Review for 2003 describes AQCR 143 as basically the eastern third of Montana, with rolling glaciated plains over the northern half of the region and rolling sedimentary plains covering the southern half. The terrain is often quite rough, but generally does not produce noticeable terrain effects on the meteorology and climatology of the region. As a rule, dispersion of air in this region is excellent, with frequent shallow and short-lived inversions.

Air quality monitoring in AQCR 143 has traditionally focused on meteorological conditions in Rosebud County. Nitrogen dioxide was monitored for 20 years near the Montana Power Company's four coal-fired power generating plants in Colstrip. Over that time the air quality monitoring did not indicate significant NO_2 in the area and the monitoring was terminated in 2001. Air quality monitoring for particulates has centered around the coal mining areas of Colstrip and Ashland. Two sampling stations were installed in 1989 to measure PM_{10}. Low particulate values led to the termination of one sampling station in 1995 and the other in 2002. Montana Power Company also maintained an ambient monitoring network for sulfur dioxide at their Colstrip facility. Again, no impacts were identified in these monitoring efforts and SO_2 monitoring at the facility was discontinued at the end of 2001. The 2003 Network Review states that ozone (O_3) is not a pollutant of major concern in Montana, with all regions in attainment. Monitoring for ozone was conducted in AQCR 143 during the mid-1970s, but there is no ongoing monitoring of ozone in AQCR 143.

Project construction would generate dust that could affect visibility and local air quality. Long-term operation would generate pollutant emissions from diesel engines. Construction activities associated with the development of CBM gas wells could result in cumulative dust/visibility effects during construction. Long-term air quality effects could result from the cumulative operations of the TRRC and the Hardin Plant. SEA determined that a significant cumulative air quality effect occurring from TRRC in conjunction with reasonably foreseeable projects is not likely, as explained below.

Construction Impacts. Cumulative air-quality impacts were considered for projects that would generate emissions during TRRC construction, including CBM gas wells.

Based on information from BLM's EIS, SEA preliminarily concludes that cumulative effects could occur as a result of CBM gas-well construction if the construction occurs simultaneously with construction of the proposed Western Alignment. Gas-well construction impacts on air quality could include fugitive dust from drilling and vehicular operations on unpaved (construction) roads. These impacts would be expected to be minor and temporary in nature. The exact location of future CBM gas wells or the number of wells to be constructed is not known. There are no known applications to BLM for gas-well development near the proposed rail line. The primary siting consideration for CBM gas wells is the location of coal seams that are "shallow" or close to the surface. The extraction of CBM gas does not necessarily require a high density of wells (gas well pads at a density of greater than one per acre). There is no reason to expect that CBM gas wells would be clustered in close proximity to the proposed Western Alignment. Moreover, to address potential construction-related impacts to air quality, BLM requires mitigation measures to control fugitive dust generated by traffic and other activities.

Operations Impacts. The Hardin Plant is located in MAQCR 140, west of AQCR 143. The MDEQ indicates that the Hardin Plant has received all required permits for operation. Emission rates for the proposed Hardin Plant were modeled for PM_{10}, SO_2, and NOx, and are shown below in Table 6-2, "Modeled Air Quality Emissions from the Proposed Hardin Plant." Air-quality modeling for the permit application shows emissions in compliance with Federal and state air quality standards. The modeling results indicate moderate air quality impacts. Dispersion modeling conducted for the facility calculated emission levels at 5,200 receptors within a six-mile radius of the proposed plant. All of the modeled concentrations were within the limits of the National Ambient Air Quality Standards and Montana Ambient Air Quality Standards. The dispersion of emissions within close proximity to the Hardin Plant would not be expected to result in adverse cumulative effects with the proposed rail line, located approximately 60 miles away. Plant emissions are regulated by MDEQ to ensure compliance with state and Federal air quality standards. SEA believes that emissions from the Hardin Plant would not contribute to adverse cumulative effects in conjunction with the proposed action.

Table 6-2 – Modeled Air Quality Emissions from the Proposed Hardin Plant

Pollutant	Averaging Period	Modeled Value	Background Value ($\mu g/m^3$)	Ambient Value[a] ($\mu g/m^3$)	NAAQS/ MAAQS[b]
PM_{10}	24-hour	7.63	30	37.63	150
	Annual	1.67	8	9.67	50
NO_x	24-hour	35.77	75	110.77	564
	Annual	1.20	6	7.20	94
SO_2	1-hour	37.79	35	72.79	1,800
	3-hour	23.71	26	49.71	1,300
	24-hour	11.16	11	22.16	365
	Annual	1.20	3	3.20	52

Notes: [a] Includes modeled and background values, in microns per cubic meter.
[b] Most restrictive standard is shown.

Operation-related impacts to air quality from CBM gas wells are addressed by BLM in requirements to mitigate emissions of particulate matter (PM_{10} and $PM_{2.5}$), NO_2, and SO_2. These mitigation measures include utilizing Best Available Control Technology by reducing compression requirements and using electric instead of natural gas-fired compressor engines to reduce emissions from the compressors. It is not expected that CBM gas-well construction and operations would, with the proposed rail line construction and operations, create adverse cumulative effects. Construction of CBM gas-wells and the proposed Western Alignment is not expected to be of long duration and operations are not expected to result in significant concentrations of emissions.

The BLM ROD states that a Plan of Development (POD) and an Application for a Permit to Drill (APD) for CBM gas must demonstrate compliance with air-quality standards. PODs and APDs that may violate air quality standards will not be approved. The BLM ROD states that the responsibility for permitting and enforcing compliance with the Federal and state Clean Air Acts has been delegated to MDEQ. MDEQ mitigation requires that permitted CBM gas sources demonstrate compliance with applicable standards through the permitting process. The mitigation measures state that permits will not be issued for CBM actions that result in emissions that exceed the NAAQS or the MAAQS.

Conclusions. SEA concludes that two projects, in conjunction with construction of the proposed Western Alignment, have the potential for creating cumulative effects to air quality: the Hardin Power Plant and the development of CBM gas wells. This cumulative air quality effect would also occur with the approved Four Mile Creek Alternative but with slightly greater effects on air quality due to its longer length. Construction-related impacts to fugitive dust would likely be expected in conjunction with the development of the CBM gas wells. Mitigation measures to address construction impacts would be expected to suppress fugitive dust during construction. Operation impacts associated with the Hardin Plant are not expected to create, with the proposed Western Alignment, significant cumulative impacts due to the distance between the two projects. Operation of both the proposed Western Alignment and CBM gas wells has the potential to create cumulative effects, depending on the location and density of the gas wells. Specific mitigation measures are recommended for the proposed Western Alignment to help alleviate air quality impacts. (See Chapter 4, Section 4.3.7, "Environmental Consequences – Air Quality.") CBM gas-well development must comply with site-specific air quality analysis to maintain air quality standards. MDEQ and BLM will review the environmental analysis of potential air quality impacts as projects are submitted for approval. Therefore, no cumulative adverse effects are expected on air quality within AQCR 143.

Potential Air Quality Impacts within the Upper Midwest Region

Regulatory Framework Governing Power Plant Emissions. Combustion products are released into the atmosphere when coal is burned, unless captured at the source by scrubbers or other technology. Many of these combustion products are considered pollutants and are regulated by the EPA. Others are unregulated, though they may be monitored, and some contribute to global warming.

In 1980, Congress established the National Acid Rain Precipitation Assessment Program to study the causes and impacts of acid rain. NAPAP's study found that electric-power generation was responsible for 70 percent of SO_2 emissions and 30 percent of NO_x emissions nationwide.

In 1990, Congress established the Acid Rain Program under the Clean Air Act, with the goal of reducing emissions by 10 million tons of SO_2 and two million tons of NO_x below 1980 levels.

To achieve emissions reductions, the Clean Air Act requires a two-phase tightening of the restrictions placed on fossil-fuel-fired power plants. Phase I began in 1995 and affected 445 mostly coal-burning electric-utility plants located in 21 eastern and midwestern states. Phase II began in 2000 and tightens the annual emissions limits on larger, higher-emitting plants and also sets restrictions on smaller, cleaner plants, encompassing over 2,000 plants in all. Utilities have a number of options for reducing SO_2 emissions, which include the following:

- Fuel switching and/or fuel blending with lower sulfur coal.
- Obtaining additional emissions allowances on the open market.
- Installing flue-gas-desulfurization equipment (scrubbers).
- Using previously unimplemented emissions controls.
- Retiring or replacing units.

Measuring Impacts of Burning Low-Sulfur Coal. TRRC's application for construction and operation of the proposed Western Alignment states that "most of the coal to be carried on the proposed rail line would serve markets in Minnesota, Wisconsin, Michigan, Washington state, northern Illinois, and the Dakotas. Other possible destinations include Ohio, Pennsylvania, New York, and Canada (McMahan 1998)." Of these 11 potential markets, five are contiguous states in the upper Midwest (Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota). Three markets are contiguous states in the East (Ohio, Pennsylvania, and New York) and the other three markets are widely dispersed (Washington state, northern Illinois, and Canada). SEA therefore considers the upper Midwest to be the main target market for the coal that would be delivered via the Tongue River Railroad.

The estimated 30-40 million tons of coal that would be carried annually on the rail line via either the proposed Western Alignment or the approved Four Mile Creek Alternative would represent approximately 10 percent of western region production and 3.6 percent of national production.[9]

The emissions from power plants are limited by each state's State Implementation Plan (SIP), adopted in cooperation with EPA. Under the SIP, each power plant is assigned a maximum annual emission level for specific pollutants as part of its permit to operate. In other words, regardless of a region's demand for electricity and no matter how much coal a plant has on hand to burn, a plant is not allowed to exceed its state-dictated emissions limits within a given time period. In fact, power plants often cease operations for short periods to stay below their permitted emission levels. Therefore, Board-issued rail construction authority, such as for TRRC, would not raise the level of airborne pollutants emitted from coal-burning power plants above state caps.

Uncertainties of TRCC's Low-Sulfur Coal Transportation Market . There is clearly an existing demand for low-sulfur coal, and as long as the Clean Air Act caps remain in place, it seems likely to increase. The DOE National Energy Modeling System forecasts that coal

[9]The Department of Energy estimates the western region's annual production to be approximately 400 million tons, while national production is estimated to be 1,100 million tons.

production in the Powder River Basin region and coal consumption in the target upper Midwest region will continue to increase over the next 20 years. Part of TRRC's stated Purpose and Need in the 1992 Tongue River II DEIS was to reach and carry more of the low-sulfur coal being extracted from mines around the Tongue River. One possible indirect effect of the entire TRRC line might be that more mines will open near the rail line, or that existing ones will be exploited more rapidly with competing railroads offering transportation in the area. In addition, TRRC and projects like it could somewhat reduce the transportation costs associated with low-sulfur coal by shortening the route from existing mines to power plants in the upper Midwest region.

These direct and indirect effects of the entire TRRC rail line and other similar railroad constructions could prolong the use of coal as an energy source over other, less polluting energy sources. However, the extent to which this would be the case is speculative, given the myriad of factors that could affect future demand for coal. The demand for coal, as well as other energy sources, and the selection of future energy sources to meet growing demand is based on a wide range of factors, including the mine price of coal, the cost of oil and natural gas and also economic, social, political, and environmental factors. In short, SEA recognizes that even if these rail construction projects contribute in some small way to a power producer favoring coal over other, cleaner sources of energy, the Board could not control emissions from these power plants, which would still be capped by SIPs and individual power plant permit requirements.

Accordingly, even if certain coal fields would not be mined but for the construction of the TRRC rail line, that fact alone is not sufficient to require the Board to study a particular environmental effect under NEPA and the relevant regulation, under the reasoning in *Department of Transportation v. Public Citizen*, 124 S. Ct. 2204 (2004); 2004 U.S. Lexis 4027, at *27. There, the Court explained that NEPA requires a reasonably close ("proximate") causal relationship between an environmental effect and alleged cause. SEA believes that there is not a sufficiently close relationship between construction and operation of the TRRC rail line (and other rail construction projects to serve the Powder River Basin) and increases in air emissions from power plants. A more extensive examination of potential changes in air emissions from power plants is thus not required in this Draft SEIS.

Visibility and Haze

Construction-related cumulative effects on visibility and haze could result from an increase in fugitive dust and construction vehicle emissions. Construction activities associated with the proposed rail line and the development of CBM gas wells are expected to create an increase in fugitive dust and increased emissions.

Operations-related cumulative effects on visibility and haze could occur as the result of rail operations, CBM gas-well operations, and mining activities. Visibility and regional haze are a recent concern where air pollution from various coal-related industries in the Montana/Wyoming area, including emissions from locomotives hauling coal, have begun to affect Class I areas.[10] With regard to Tongue River I, Tongue River II, and Tongue River III, however, air pollutants generated by operation of locomotives over the entire rail line (see Table 4-40) would be

[10] Class I areas are determined by the State of Montana to be sensitive to increases in air pollutants. Under the Administrative Rules of Montana, a Class I area is not allowed to be adversely affected by new emission sources [ARM 17.8.806(b)(a)].

substantially below all EPA air-quality thresholds that would trigger the need to do a detailed visibility analysis. EPA defines the prevention of significant deterioration (PSD) threshold for NO_x, at 40 tons per year. The operation of trains over TRRC's rail line via the proposed Western Alignment would generate 13.9 tons per year. (See Chapter 4, Section 4.3.7, "Environmental Consequences – Air Quality.")

SEA determined that, if unmitigated, cumulative effects on visibility and haze would likely occur from the TRRC in conjunction with other reasonably foreseeable projects. Mitigation measures required by BLM for CBM gas wells and recommended for TRRC would result in cumulative impacts that are not adverse.

Construction Impacts. Construction activities associated with CBM gas-well development may result in fugitive dust that reduces visibility in the region. If this development occurs in conjunction with the proposed Western Alignment, cumulative effects on visibility could result. Mitigation measures, as required by BLM, during the construction of CBM gas-wells would reduce the amount and severity of fugitive dust. No adverse cumulative effects are anticipated as a result of the construction of either Tongue River II or Tongue River III..

Operations Impacts. SEA considered train-operation emissions in combination with coal-mine emissions to determine the potential for cumulative impacts on regional visibility. Heavy equipment used at coal strip mines is a source of combustion-related gases, such as SO_2, NO_x, volatile organic compounds, and CO. These emissions contribute suspended particulate matter and particulates smaller than ten microns in diameter (PM_{10}) to the ambient environment.

As noted above in the air quality discussion, past monitoring in the region has focused on ambient air quality related to mine activity. Monitoring has not revealed any significant impacts on the air quality of the region. Mine-generated pollutants, when combined with those from the entire TRRC rail line, are not expected to contribute significantly to regional visibility. Background PM_{10} measurements conducted during 1992 through 1993 at the Spring Creek Coal Mines, which are served by an existing rail line, detected an average annual PM_{10} concentration of 13 microns per cubic meter ($\mu g/m^3$). The Federal and state annual average standard is 50 $\mu g/m^3$.

The BLM EIS for CBM gas development analyzed cumulative visibility and haze impacts. No violations of Federal standards are expected to occur as a result of the gas development. However, emissions from train operations and coal mine operations would cumulatively contribute to visibility degradation. In the CBM EIS, BLM has identified mitigation measures to alleviate air quality impacts including the appropriate surfacing of roads and well locations to suppress fugitive dust, the use of dust inhibitors (non-saline dust suppressants and water) on unpaved roads, reduced compression requirements on field compressors, electric compressors in place of natural gas-fired compressors, and BACT, as described in the air quality analysis. With the mitigation measures of the CBM EIS and BACT utilized by the TRRC, no cumulative visibility and haze impacts are anticipated.

Conclusions. SEA is proposing mitigation to reduce the contribution of the entire proposed rail line via either the proposed Western Alignment or the approved Four Mile Creek Alternative on visibility degradation. These mitigation measures, identified in Chapter 4, Section 4.3.7, "Environmental Coinsequences – Air Quality," would minimize construction and operation

impacts on visibility. These measures include revegetation, the use of dust suppressants, BMPs, and additional air quality modeling, and are expected to result in visibility values that comply with Class I standards. The implementation of these mitigation measures in conjunction with the mitigation measures for CBM gas-well development imposed by BLM would ensure that no adverse cumulative effects to regional visibility and haze would occur.

6.6.8 Noise and Vibration

Noise and vibration impacts associated with the proposed rail line would occur in close proximity to the ROW. Construction activities and train operations are expected to increase noise and vibration levels in the immediate vicinity of the proposed Western Alignment. Cumulative effects would be considered for projects within the ROW or adjacent to the proposed rail line. SEA did not identify any reasonably foreseeable projects that would contribute to the noise environment or result in vibration from operational activities.

Construction Impacts. The BLM EIS did not identify any noise or vibration impacts associated with CBM gas-well construction. The placement of CBM gas wells in rural areas would not likely result in noticeable increases to noise or vibration. A recent Finding of No Significant Impacts (FONSI) for the development of 85 CBM gas wells (Environmental Assessment MT-020-2004-0134, Fidelity Badger Hills, and FONSI, February 9, 2004) did not include the consideration of construction noise and vibration impacts. No other reasonably foreseeable activities were identified with the potential to create cumulative noise effects in conjunction with the proposed action.

Operations Impacts. Likewise, the BLM EIS and subsequent documentation did not identify noise and vibration impacts associated with CBM gas-well operations. Regional coal mining activities would be expected to contribute to the noise environment and possibly result in ground vibrations from blasting or earth removal activities. As stated earlier, SEA did not identify any mining activities that were reasonably foreseeable and that would contribute to significant increases in noise or vibration.

Conclusion. SEA concludes that no cumulative effects on the noise environment or on vibration would occur in conjunction with the proposed Western Alignment or the approved Four Mile Creek Alternative.

6.6.9 Socioeconomics and Environmental Justice

Socioeconomics

Cumulative socioeconomic effects could include local or regional commercial, residential, or industrial development concurrent with the TRRC's construction and development, an increase in the local workforce, or the planned expansion of existing business or government programs. No such projects were identified by SEA, other than the potential increase of CBM gas-well development. The total surface area for potential CBM gas-well development, as described in the BLM EIS, covers over 25 million acres. SEA concludes that CBM gas-well development may induce a beneficial effect on regional socioeconomics, but that significant socioeconomic gains or effects are speculative.

Construction Impacts. The simultaneous construction of the proposed rail line and CBM gas wells could result in increases to local employment and economic conditions. These beneficial effects would likely be temporary.

Operations Impacts. The simultaneous operation of the proposed rail line and the development of CBM gas wells could result in increases to local employment and economic conditions. These beneficial effects would be temporary. The CBM gas wells would have a finite life span and would not contribute to the socioeconomics of the region indefinitely.

Conclusion. No adverse cumulative effects to the socioeconomic conditions would occur in conjunction with the proposed Western Alignment or the approved Four Mile Creek Alternative. Beneficial cumulative effects would be expected over the short term where CBM gas-well development occurs.

Environmental Justice

Cumulative effects on environmental justice would occur if the proposed rail line, in conjunction with other reasonably foreseeable projects, contributed to changes in the social, economic, or environmental status of minority or disadvantaged populations in the study area. SEA did not identify any projects contributing to changes in the environmental justice conditions of the area population and concludes that no adverse cumulative effects would result from the proposed Western Alignment.

Construction Impacts. This Draft SEIS notes the economic benefits associated with construction of the entire rail line from Miles City to Decker. In addition, mitigation measures adopted as part of Tongue River II require TRRC to appoint a liaison between TRRC management and the Northern Cheyenne Tribe to assist in ensuring that tribal members have an equal opportunity to secure temporary construction jobs with TRRC. This measure is appropriate because the unemployment rate for Native Americans is higher than the statewide average.

Operations Impacts. This Draft SEIS also describes the economic benefits associated with operation of the entire rail line from Miles City to Decker. The requirement that TRRC appoint a liaison between TRRC management and the Northern Cheyenne Tribe would also assist in ensuring that tribal members have an equal opportunity to secure full-time operational jobs with TRRC.

Conclusion. SEA concludes that no adverse cumulative effects associated with the construction or operation of the proposed Western Alignment or the approved Four Mile Creek Alternative on Native Americans or any environmental justice communities are foreseeable or expected.

6.6.10 Recreation

Cumulative impacts to recreation resources would result from the concurrent implementation of projects, with the proposed Western Alignment, that result in a reduction of resource availability or usefulness. SEA did not identify any reasonably foreseeable projects that would, with the proposed Western Alignment, impact recreation resources.

Construction Impacts. SEA analyzed the potential impacts of construction of the proposed Western Alignment, which would be in closer proximity to the relocated recreational areas than

the approved Four Mile Creek Alternative. (See Chapter 4, Section 4.3.10, "Environmental Consequences – Recreation," of this Draft SEIS.) SEA determined that even though the proposed Western Alignment would be closer than the Four Mile Creek Alternative to some of the relocated recreational areas at the Tongue River Reservoir State Park, the proposed Western Alignment would be located a sufficient distance from these areas to ensure that potential air quality, noise, land use, and visual impacts to recreational resources—fishing, hunting, camping, and water activities—would not be significant. No other reasonably foreseeable projects were identified that would potentially impact recreation resources.

Operations Impacts. SEA also analyzed the potential impacts of rail operations of the proposed Western Alignment and concluded that this alignment would be located a sufficient distance from these areas to ensure that potential air quality, noise, land use, and visual impacts to recreational resources—fishing, hunting, camping, and water activities—would not be significant.

Conclusion. Due to a lack of other reasonably foreseeable projects in the region that would potentially impact these resources, noadverse cumulative impacts are expected to occur to recreation resources as a result of the proposed rail line construction and operation in conjunction with other reasonably foreseeable actions.

6.6.11 Aesthetics

Cumulative impacts on the aesthetic environment can result from construction activities, new development, or manmade changes to the natural environment. The rail line along either the proposed Western Alignment or the approved Four Mile Creek Alternative would result in a change to the visual environment. Regional projects such as CBM gas-well development and coal mining activities would also be expected to contribute to changes to the area's aesthetics. These changes could potentially create a cumulative effect on the region's aesthetics. Chapter 4, Section 4.3.11 of this document, "Environmental Consequences – Aesthetics," describes the impacts of the proposed rail line on area aesthetics.

Construction Impacts. Construction of the proposed rail within the ROW corridor would be visible from some public vantage points such as local roads. Construction activities likely would result in land disturbance that would be noticeable to area residents. However, no other construction activities associated with other development is expected to occur concurrently within the proposed Western Alignment or the approved Four Mile Creek Alternative ROW. SEA concludes that cumulative effects on area aesthetics would not be significant during construction.

Operations Impacts. Rail operations would result in long-term changes to the area's aesthetics. The development of CBM gas wells and the continuation of coal mining activities would cumulatively contribute to changes in the natural landscape and regional aesthetics that might be noticeable to residents of the area. Some of these cumulative changes might not be dramatic in light of the ongoing presence of coal mining activities for many years. The advent of CBM gas wells is already being seen in some parts of the Tongue River Basin. No additional projects were identified that would contribute to long-term changes to the aesthetics in the project area.

Conclusion. No significant adverse cumulative impacts are expected to occur to the aesthetic values of the region as a result of the proposed Western Alignment construction and operation in conjunction with other reasonably foreseeable actions. The approved Four Mile Creek Alternative would result in similar, but slightly greater cumulative effects because it would be more visible from public roadways. While changes to the aesthetic environment are expected, historic activities such as coal mining and, to a lesser extent, CBM gas-well development have already contributed to changing aesthetics in the region. SEA does not consider these cumulative effects to be significant or adverse.

6.6.12 Energy

Energy related impacts of the proposed rail line include the use of diesel fuel during construction and rail operations. The energy demands of the project are described in Chapter 4, Section 4.3.12, "Environmental Consequences – Energy." The cumulative considerations for energy resources would include the demands of other reasonably foreseeable projects during construction or operations. SEA did not identify any reasonably foreseeable projects that would result in a cumulative demand or expenditure of energy resources and concludes that no adverse cumulative impacts would ensue from the project.

Construction Impacts. Construction of the proposed rail line would create a demand for diesel fuel to operate construction machinery. Construction activities related to CBM gas-well development would also require energy resources—most likely diesel fuel—for machinery to conduct surface disturbing activities, drilling, and pipeline construction. The energy demands for CBM activities would be for short durations of time and would not involve large-scale construction activities (requiring multiple construction crews over a long period of time). CBM gas-well development would not be expected to put demands on area resources or diesel fuel supplies. No adverse cumulative effects would be expected.

Operations Impacts. The operational energy demands for the proposed Western Alignment would include diesel fuel to operate train locomotives. CBM gas-well operations would use electric or natural gas-fired compressors. Regional coal mining activities would likely place demands on diesel fuel for their operations. This cumulative demand for diesel fuel is not considered significant due to the historic presence of coal mining operations in the region and their ability to operate without disrupting energy supply. SEA does not anticipate adverse cumulative impacts to energy resources in the region from rail and other regional activities.

Conclusions. The demand for energy resources such as diesel fuel is expected to be met in the region for rail construction and operations and other projects that require this energy resource. SEA does not expect adverse cumulative effects to energy resources from construction and operation of either the proposed Western Alignment or the approved Four Mile Creek Alternative.

6.7 CONCLUSION

SEA preliminarily concludes that the proposed Western Alignment, the proposed realignments of Tongue River I and Tongue River II, and the related actions identified in this chapter, would not result in significant adverse cumulative effects within the immediate project area or the larger region encompassed by foreseeable CBM gas-well development, timber harvesting, and

power plant construction and operation. These conclusions are similar to those reached in the EISs prepared for Tongue River I and Tongue River II. SEA has not identified any new potentially significant impacts associated with reasonably foreseeable projects that would result in a modification to the conclusions reached in Tongue River I and Tongue River II regarding a lack of cumulative impacts.

7.0 MITIGATION MEASURES APPLICABLE TO THE ENTIRE RAIL LINE FROM MILES CITY TO DECKER

7.1 INTRODUCTION

This chapter presents SEA's complete list of preliminary recommended mitigation measures for the entire rail line from Miles City to Decker, MT (Tongue River I, Tongue River II, and Tongue River III), via either the previously approved Four Mile Creek Alternative or the proposed Western Alignment (if approved). To give the parties, agencies, and general public the opportunity to consider all of the mitigation for the entire line in one place, the preliminary recommended mitigation measures include the measures from Tongue River I and Tongue River II that remain unchanged; some proposed refinements and modifications to measures in Tongue River I and Tongue River II, primarily to reflect changed circumstances; and new measures that are being recommended as a result of the analysis conducted in this Draft SEIS for the proposed Western Alignment. SEA preliminarily recommends that, if the proposed Western Alignment is approved, the entire list of mitigation measures be adopted by the Board to provide one set of comprehensive mitigation measures for the entire rail line from Miles City to Decker. If the Board adopts the recommended mitigation measures, these measures would replace and supersede the mitigation measures adopted in the Board's decisions in Tongue River I and Tongue River II. SEA preliminarily recommends that the Board impose the revised and updated environmental mitigation for Tongue River I and Tongue River II even if the Board denies the application for the proposed Western Alignment, pending in Tongue River III. This recommendation for revised and updated mitigation measures is in response to changed regulatory requirements or changed conditions and reflects SEA's most recent experience and expertise in handling rail construction cases. As part of the public review of the Draft SEIS, SEA seeks comments on all of these preliminary mitigation recommendations and SEA's approach, and will consider these comments in making final mitigation recommendations to the Board.

Review of Mitigation Imposed in Tongue River I and Tongue River II

To prepare the list of the preliminary recommended mitigation measures for the entire rail line, SEA reviewed the mitigation measures adopted in Tongue River I and Tongue River II to determine the following:

(1) Is the mitigation measure appropriate for the proposed Western Alignment and/or the refinements proposed by TRRC to Tongue River I and Tongue River II?

(2) Does the mitigation measure require modification to address the environmental impacts of the proposed Western Alignment, the refinements proposed by TRRC to Tongue River I and Tongue River II, or to address changed circumstances or changes in mitigation approaches developed since Tongue River I and Tongue River II?

(3) Is the mitigation measure from Tongue River I superseded by mitigation measures that were adopted in Tongue River II, or is mitigation from Tongue River I or Tongue River II superseded by new or modified mitigation measures that are being recommended as a result of the analysis conducted in this Draft SEIS?

Many of the mitigation measures adopted by the Board's predecessor agency, the Interstate Commerce Commission (ICC) in Tongue River I and by the Board in Tongue River II, though appropriate for that time, differ from the current language and practices now used by SEA. The kind of mitigation that SEA now develops reflects SEA's ongoing experience since the mitigation measures in Tongue River I and Tongue River II were written, recent court cases, and the enactment of the ICC Termination Act of 1995.

Unless otherwise noted, SEA has attempted not to make significant substantive changes to the mitigation from Tongue River I and Tongue River II at this point. However, where appropriate, SEA has modified the language of certain mitigation measures adopted in Tongue River I and Tongue River II to clarify the intent and/or responsible parties, reflect new timeframes, and incorporate new conditions and legal requirements.

SEA discusses in more detail below its approach to mitigation and the kinds of changes that have been proposed to the mitigation measures adopted in Tongue River I and Tongue River II.

Applicability of Mitigation Measures to the Entire Line

Based on the information available to date, SEA believes that the mitigation measures listed below should be applied uniformly, unless otherwise specifically noted, to the entire rail line from Miles City to Decker via either the approved Four Mile Creek Alternative or the proposed Western Alignment.

The geographic area involved in Tongue River I, Tongue River II, and Tongue River III generally shares the same broad characteristics. Moreover, although the mitigation measures were developed to correspond to the separate applications submitted by TRRC in Tongue River I and Tongue River II, the mitigation in Tongue River II generally built upon and was designed to conform with the mitigation measures from Tongue River I. SEA has employed the same approach here in Tongue River III and has designed mitigation measures that build upon the mitigation measures adopted in Tongue River I and Tongue River II. Essentially, the objective in all three proceedings has been to design protective environmental mitigation measures that can be effectively implemented with respect to the construction and operation of TRRC's proposed rail line from Miles City to Decker via either the approved Four Mile Creek Alternative or the proposed Western Alignment.

Despite the separate applications, the entire line from Miles City to Decker would most likely be constructed as one continuous line. Accordingly, SEA believes that it would be unworkable for the Board to try to separate the mitigation measures by each proceeding. It would be unrealistic and would make little sense to ask TRRC and the other agencies involved to try to implement the mitigation measures in separate segments. SEA thus preliminarily concludes that the most effective means and most reasonable approach is to have all the environmental mitigation measures listed below, unless otherwise specifically noted, apply uniformly to the entire line from Miles City to Decker.

One specific exception is the Miles City Fish Hatchery (MCFH), which the alignment approved in Tongue River I will cross. The fish hatchery has been the subject of ongoing site-specific negotiations between TRRC, Montana Department of Natural Resources and Conservation (MT DNRC), and Montana Department of Fish, Wildlife, and Parks (MT DFWP) concerning the effects rail line construction and operation on the hatchlings and young fish. Accordingly,

regarding the fish hatchery, SEA proposes several conditions, including specific weed control and continuing consultation about performing studies of the effects of vibration, that are different from the conditions that would otherwise apply or are recommended in this document.

Multi-agency Railroad Task Force

In Tongue River II the Board adopted the following mitigation condition:

> TRRC shall participate as a member of the Multi-agency/Railroad Task Force (Task Force), which will approve and determine the mitigation measures set forth by TRRC in the Mitigation Plan in the DEIS addressing aquatic and terrestrial ecology.

Pursuant to Tongue River II, the members of the Task Force consisted of the Board, TRRC, two state agencies (MT DFWP and MT DNR), and the Federal agencies that cooperated on that EIS, the Bureau of Land Management and the U.S. Fish and Wildlife Service. (Since the issuance of Tongue River II, the United States Corps of Engineers (the Corps) has become a cooperating agency in this proceeding).

Then, in a decision served December 31, 1996, the Board denied a request of Northern Plains Resource Council (NPRC) to become a member of the Task Force, to extend the responsibilities of the Task Force beyond aquatic and terrestrial ecology issues, and to expand the coverage of the Task Force to the geographic area involved in Tongue River I. The Board found that NPRC had provided no basis for the need of the Task Force to review the terrestrial and aquatic impacts for the Miles City-Ashland segment that was the subject of Tongue River I.

As explained above, in light of the similarity of the environment along the Miles City-Ashland segment (Tongue River I) and either the approved (Tongue River II) or the proposed route (Tongue River III) for the Ashland-Decker segment, SEA now preliminarily recommends extending the responsibilities of the Task Force to include the entire rail line, Tongue River I, Tongue River II, and Tongue River III, with the exception of the MCFH, which as described in more detail below, is the subject of its own unique studies and ongoing consultations. SEA is making this recommendation because similar issues could arise with respect to terrestrial and aquatic impacts along the entire route. It makes sense to give the Task Force a role along the entire rail line because, in light of private ownership of much of the land along the entire Miles City-Decker corridor, the final engineering for the entire route has not yet been done and SEA has not been able to gain entry to much of the properties for close examination of the exact location of species and migration routes.[1]

Moreover, the expertise of the agencies comprising the Task Force would be helpful in working with TRRC to suggesting the best way to implement mitigation measures for impacts to the terrestrial and aquatic environments wherever they arise along this line (with the exception of impacts to the fish hatchery). SEA also believes that it would be advantageous to include the Corps as a member of the Task Force because its expertise and assistance would facilitate the

[1] In cases where access was limited, SEA based the analysis of potential impacts on aerial photography, information contained in published reports and studies, and comments and additional information provided by other agencies and interested parties.

implementation of biological mitigation measures pertaining to impacts to wetlands and waters of the United States. Thus, there does not appear to be any reason to make a distinction between Tongue River I, Tongue River II, and Tongue River III as to the applicability, and the role of, the Task Force, except to exclude issues of terrestrial and aquatic effects on the MCFH from the purview of the Task Force.

Consequently, SEA proposes that the Task Force condition Mitigation Measure 14 would apply to the entire TRRC line between Miles City and Decker (except for the fish hatchery), because there seems to be no basis to have a Task Force for some, but not other, parts of the line, and all parts of the line would traverse large tracts of land to which SEA could not obtain access during the environmental review process. Likewise, SEA proposes to include and in its proposed condition has included, the Corps among the agencies that would participate on the Task Force (assuming for purposes of this draft SEIS that the Corps will agree). But if the comments on this Draft SEIS indicate that it is appropriate to limit the Task Force condition to the Tongue River II geographic area or that the Corps should not be a member, SEA's final recommended Task Force condition will be less broad. Ultimately, it is for the Board to decide whether to apply the Task Force condition along the entire TRRC route and to include the Corps, or to limit the Task Force to the membership and geographic scope in the December 1996 decision.

SEA's recommended condition also clarifies how the Task Force would work and what the process would be if the Task Force members do not reach consensus (Mitigation Measure 14) and the condition specifies what some of the functions would be (i.e., to oversee TRRC's implementation of Condition Nos. 68-71, 75-76, 79, 81-82, and 84-85).

Finally, SEA preliminarily suggests that the Task Force condition should specify that the Task Force would remain active through the completion of construction and for a period of two years of railroad operations, or any other period the Board might impose. (Mitigation Measure 14). Based on the information available to date, SEA believes that the time period in the proposed condition would ensure that the Task Force would function until completion of all the environmental mitigation measures that may be adopted in Tongue River III.

SEA specifically requests comments on all aspects of the Task Force condition and processes proposed in this Draft SEIS.

Miles City Fish Hatchery

Introduction

TRRC has been consulting with both MT DNRC and MT DFWP regarding the alignment approved in Tongue River I, which crosses the MCFH. In 2003 and 2004, MT DNRC and MT DFWP raised several concerns about the impact of the line approved in Tongue River I on the MCFH, including the following:

- Potential effects on the hatchery's primary and secondary water supply lines.
- Effects of vibration from train operations on the viability of fish stocks as well as the infrastructure and maintenance of the hatchery.
- Need for a weed-control program that would not adversely affect fish at the hatchery.
- Coal dust from the train cars.
- Alternative route analysis.
- Conservation easements and fishing access to the Tongue River.

In response to these concerns, TRRC has conducted a number of investigations and studies, including geotechnical investigations and monitoring of vibration levels at the MCFH, and has proposed mitigation measures to address some of these concerns. (See Appendix F.)

After exchanging correspondence on a variety of issues related to the hatchery in late 2003, TRRC met with MT DFWP in February 2004 to discuss ways to address various concerns. As explained in a letter TRRC sent to SEA on July 16, 2004, the parties have reached agreement on appropriate mitigation measures to ensure protection of the water pipelines serving the MCFH and a weed-control-management plan for the areas of the right-of-way adjacent to the MCFH. Further, the parties agreed that the issue of conservation easements and fishing access to the Tongue River are not related to the MCFH and can best be addressed with individual owners during the right-of-way acquisition process. The parties also have discussed concerns regarding coal dust and its effects on fish at the hatchery, and it is SEA's understanding that MT DFWP has agreed that the potential for coal dust to adversely affect fish hatchery operations will be minimal because of the slow speeds trains will be traveling when crossing the MCFH property as the trains connect with, or depart from, the BNSF line.

TRRC and MT DFWP are continuing to discuss the issue of train vibration and its potential to adversely affect the MCFH. In May 2004, TRRC submitted additional geotechnical and vibration studies concerning MCFH to MT DFWP to supplement studies conducted in 1999 and to respond to MT DFWP's comments on the 1999 analyses. TRRC contends that the vibration effects of its trains on the fish in the hatchery should not be significant, as its analyses indicate that trains traveling on the existing BNSF mainline, which also passes close to the MCFH (and trains traveling on operating rail lines around the country that are located in close proximity to fish hatcheries) produce low levels of vibration at the hatcheries that do not appear to affect the hatcheries' ability to produce fish. TRRC also has expressed a willingness to discuss with MT DFWP some form of appropriate, limited monitoring program for vibration at MCFH during and after construction.

Notwithstanding these developments, MT DFWP has not indicated whether it remains concerned about potential vibration impacts on the hatchery and continues to believe that still more baseline studies should be conducted to more fully understand the potential long-term effects vibration may have on the fish, infrastructure, and operation of the MCFH. Presumably, MT DFWP will raise any remaining concerns that it has—and present its views on an appropriate monitoring program—in further discussions with TRRC or in its comments on this Draft SEIS.

Finally, SEA is aware that questions remain as to whether there are alternative routes that TRRC could use to avoid or minimize going through the MCFH. Because Tongue River I has long since been administratively final—and because, based on the information available to date, there are no changed circumstances that would warrant revisiting the long settled alternative routing analysis in Tongue River I—SEA has not reexamined the earlier determination on the appropriate routing of Tongue River I in this Draft SEIS. To ensure that all interested parties have the benefit of the Tongue River I analysis, Appendices J and K of this document contain relevant correspondence on this issue. The EIS in Tongue River I also is available on the Board's website at www.stb.dot.gov.

Analysis

SEA commends the parties on their willingness to negotiate and come to terms on most of the MCFH issues. SEA encourages TRRC and MT DFWP to continue to work cooperatively on a mutually acceptable solution to address the remaining concerns involving the hatchery, particularly those involving vibration and its potential long term effects on the fish, infrastructure, and operation of the MCFH. (As discussed above, SEA sees no basis for revisiting the alternative routing analysis of Tongue River I to avoid the hatchery at this late date.)

SEA is hopeful that, prior to the issuance of a final decision in Tongue River III, a solution acceptable to all the interested parties can be reached that would include terms for possible additional baseline studies (although it may be that MT DFWP will agree with TRRC's position that the existing baseline studies are adequate) and a reasonable plan for appropriate vibration monitoring during and after construction, to minimize and guard against undue impacts to the hatchery. Given the extensive analysis of the vibration issue that has already been undertaken, SEA expects that whatever further studies (if any) and/or monitoring plans will be agreed upon and could be done at reasonable cost[2] and in a timely manner, so as to not unduly affect TRRC's construction schedule.

TRRC has pending before MT DFWP a right-of-way easement application. The granting of that easement is essential for rail construction of Tongue River I to take place because otherwise the TRRC line could not cross MCFH property.

SEA is proposing to update the mitigation in Tongue River I for the MCFH to specifically require TRRC to adhere to the reasonable mitigation conditions the parties have agreed to in any easement that should be granted by the State (Mitigation Measure 87).

Two other newly recommended conditions (Mitigation Measures 84 and 85) address the agreements between MT DFWP and TRRC for relocating and protecting the hatchery's water supply pipelines from the Yellowstone and Tongue Rivers and restrictions on the methods for achieving weed control along the right-of-way in the vicinity of the hatchery.

At the same time, another newly recommended condition (Mitigation Measure 86) encourages the parties to continue their discussions on the remaining issues while this proceeding is going forward.[3] To address the (hopefully unlikely) possibility of an impasse, SEA recommends that, and requests comments on whether, the Board impose this additional condition, which imposes a specific time frame for the parties' continuing discussions to be completed. SEA contemplates that this condition would support TRRC's and MT DFWP's best efforts to resolve any outstanding issues relating to potential impacts involving the hatchery within six months

[2] Based on the information available to date, the additional 9-year, $800,000 study that MT DFWP requested in February 2004 seems unwarranted.

[3] If the parties continue to discuss ways to come to terms on the remaining issues during the comment period on this Draft SEIS and the time it takes to issue a Final SEIS and the Board's final decision in Tongue River III, they should have adequate time to fully discuss all of their remaining concerns and hopefully reach consensus.

following the effective date of the Board's final decision in Tongue River III. The condition states that if no resolution is achieved by the end of this six-month period, the requirement for continued consultation would cease unless both parties determine and advise SEA in writing that the period should be extended. In addition, the condition provides that at the termination of the consultation period, whether extended by mutual agreement or not, TRRC and MT DFWP should advise SEA of their positions in writing. At that time, either or both parties could request that SEA develop a condition designed to mitigate any remaining MT DFWP concerns related to the environmental effects on the fish hatchery that the Board might determine to warrant mitigation.

Monitoring and Reporting

In major rail construction cases such as this, the Board now typically imposes a condition that explicitly permits any party to ask the Board to review the continued applicability of its final mitigation in the event of a material change in the facts or circumstances upon which the Board relied in imposing the mitigation. SEA is recommending such a condition here (Mitigation Measure 15). Additionally, in other recent cases, as appropriate, the Board has imposed reporting requirements as part of the environmental mitigation. Likewise, SEA recommends such a condition in this case (Mitigation Measure 17), which would require TRRC, from the effective date of the Board's final decision until two years of railroad operations have occurred (or any other environmental oversight period that the Board might impose), to make quarterly reports documenting the status of implementation of the environmental conditions.

Continuing Technical Assistance of the Third-party Contractor

SEA is also recommending that a third-party contractor be retained by TRRC to assist SEA in the monitoring and enforcement of mitigation measures on an as-needed basis during construction and for a period covering the first two years of operation, or any other environmental oversight period the Board might impose in this case (Mitigation Measure 16).

It has been SEA's experience in other recent cases that technical environmental issues often arise after the commencement of the implementation of the required mitigation. Typically, the railroad, Federal and state agencies, interested organizations, and members of the public continue to seek from SEA information and explanations about methodology, data gathering, records of consultation, and possible variables in the implementation and interpretation of the mitigation. To ensure that SEA has the necessary resources to address these issues, SEA preliminarily recommends that a condition be imposed that would provide SEA with ongoing contractor assistance. The third-party contractor would be available to SEA on an as-needed basis to research technical issues, represent the Board on the Task Force, gather information in response to requests from the public about the preparation and intent of the environmental documents, and generally assist SEA with environmental issues that might arise during the construction period and the first two years of operations or for any other oversight period the Board might impose.

Mitigation for Cultural Resources: New Programmatic Agreement

In Tongue River II, the Board imposed a mitigation measure requiring compliance with a Programmatic Agreement (PA) that had been developed in consultation with a number of interested agencies and tribes to guide in the proper identification and treatment of cultural resources that may be affected by the construction and operation of the rail line.

Likewise, if approved, the Tongue River III alignment would traverse mostly undeveloped land, with the potential of disturbing prehistoric, historic, and traditional cultural resources. SEA preliminarily recommends modification of one mitigation measure that was adopted by the Board in Tongue River II to reflect that SEA has prepared a revised draft PA that would apply to the entire line (Mitigation Measure 52).

Specially to ensure proper identification and treatment of cultural and paleontological resources from the construction and operation of Tongue River I and Tongue River II via either the Four Mile Creek Alternative or the Proposed Western Alignment, the Board developed a PA for Tongue River III in consultation with the Advisory Council on Historic Preservation (ACHP), Montana State Historic Preservation Office (MT SHPO), BLM, the Corps, MT DNRC, USDA, Northern Plains Resource Council (NPRC), Northern Cheyenne Tribal Council, Crow Tribal Council, and TRRC. The PA sets forth the detailed requirements of how the impacts associated with the construction and operation of either alignment would be appropriately addressed, including impacts to paleontological, architectural, historic, and cultural properties. The PA guides and regulates the procedures by which the identification and treatment of cultural resources would occur. The PA includes detailed requirements for additional surveys of the entire rail line right-of-way from Miles City to Decker; identification and evaluation of prehistoric, historic, or Native American sites or structures; development of a detailed Treatment Plan in consultation with the parties to the PA and the Native American community; and procedures for reviewing and addressing objections and/or disagreements.

The PA developed for Tongue River III would replace the previous PA developed for Tongue River II, and would apply to construction of the entire rail line from Miles City to Decker. The current, revised Draft PA is shown in Appendix G. SEA invites the public's comments and recommendations concerning the Draft PA. The Final PA which will be put out for signature will reflect any comments received.

Mitigation Measures Requiring State and Federal Approvals by Other Agencies

The environmental mitigation being carried over from Tongue River I and Tongue River II includes conditions requiring TRRC to obtain easements and other approvals from other agencies, including state agencies. SEA's view at this point is that these mitigation measures should be retained with only minor changes since they were previously imposed by the Board and its predecessor agency, the ICC. Nonetheless, it is important here to note the extremely broad preemption provision for state, local (and even Federal) law contained in 49 USC 10501(b), as broadened by the ICC Termination Act of 1995. (See Chapter 1 for additional discussion.) Under Section 10501(b)(2), the Board's jurisdiction over "transportation by rail carriers, and the remedies provided ... with respect to routes, services, and facilities of such carriers ... is exclusive and preempt[s other] remedies provided under Federal or State law." The Board and the courts have expressed the view that Congress intended by Section 10501(b) to preempt state and local regulations to the maximum extent permitted by the Constitution, and that state and local permitting or preclearance requirements, including zoning ordinances and environmental or land use permitting requirements, are preempted because, by their nature, these requirements tend to interfere with interstate commerce due to the ability to deny or unduly delay the carrier's right to construct facilities or conduct its operations (e.g., City of Auburn v. Surface Transportation Board, 154 F. 3d 1025 (9th Cir. 1998 Auburn); Joint Petition for Decl. Order - Boston & Maine Corp. and Town of Ayer, MA, STB Finance Docket No. 33971 (STB served May 1, 2001).

At the same time, as the Board has recognized, not all state and local regulations that affect interstate commerce are preempted. In particular, state and local regulations remain valid when they can be applied without interfering with the Federal law or the purposes of the Federal scheme, and localities retain certain police powers. Moreover, Federal environmental laws such as the Clean Air Act and the Clean Water Act are not preempted. State and local agencies play a significant role under these and other Federal environmental statutes. State and local entities can also raise their environmental concerns before the Board during the environmental review process for the requisite consideration in railroad construction cases. (See Auburn, 154 F. 3d at 1033.)

In short, the Board's environmental review process in this and every other rail construction case includes consultation with appropriate Federal, state, and local agencies and government entities and provides the opportunity for them and all other interested parties to request and comment on the environmental analysis and proposed environmental mitigation. If the Board imposes a condition that a railroad applicant meet the reasonable requirements from other government entities as a condition to a license, there is no conflict with the broad Federal preemption because the Board controls the process and can take steps later, if necessary, to ensure that the state law is not being applied in such a way that it unduly restricts a railroad's operations or unreasonably burdens or interferes with interstate commerce. Thus, none of the conditions previously imposed by the Board, or now recommended by SEA, are intended to restrict TRRC from seeking a determination from the Board (and/or an appropriate court) that the action of any other agency in denying a particular easement or approval, or in refusing to act on an application for such an easement or approval in a timely manner, is preempted under the Interstate Commerce Act.

Finally, as discussed in Section 1.6, "Participating Agencies," this Draft SEIS has been developed in consultation with three cooperating agencies: the Corps, BLM, and MT DNRC. To help the cooperating agencies fulfill their regulatory responsibilities and functions, and to avoid duplicative environmental analysis, SEA has included in this Draft SEIS environmental review and mitigation for certain issues specifically requested by the cooperating agencies, such as recommended conditions that would require TRRC's compliance with Section 404 of the Clean Water Act and acquisition of the necessary easements to cross lands that are owned or managed by BLM or MT DNRC.

Based on the information provided in this Draft SEIS and the future Final SEIS, the cooperating agencies and other agencies should be able to issue any necessary approvals without further environmental review. Furthermore, the imposition of any conditions requiring approvals from other government entities presupposes that the regulations will not be applied in a discriminatory manner and that any conditions the government entity imposes will not have the effect of unduly interfering with railroad operations or interstate commerce, and will not prohibit the construction and operation of a Federally-approved rail line.

Other New Mitigation Measures

Finally, in addition to the issue areas described above in which SEA has recommended new mitigation measures in this Draft SEIS, there are also newly recommended mitigation measures concerning safe train operating practices, land use, noise, geological considerations, hydrology and water quality, aquatic concerns, revegetation, and effects on the habitat of sensitive animal species.

Editorial Changes to Tongue River I and Tongue River II Mitigation

In compiling a comprehensive set of mitigation measures that would apply to the entire line in Tongue River I through Tongue River III, SEA has made proposed editorial changes, where appropriate, to clarify the meaning of the mitigation measures being carried forward from Tongue River I and Tongue River II and to avoid duplication. SEA also assigned responsibility for implementation of the mitigation if that responsibility was not clear. The substance and/or intent of the mitigation measures brought forward from Tongue River I and Tongue River II, however, generally remain unchanged.

Notation System for the Recommended Mitigation Measures

The comprehensive list of preliminary proposed mitigation measures is presented below using the following notation system:

1. New mitigation measures being recommended by SEA are identified in the list below by the note *[TRRC III, new]*.
2. Mitigation measures that are recommended by SEA to be retained from either Tongue River I or Tongue River II are identified in the list below by the note *[TRRC I (or TRRC II), {condition number}]*.
3. Mitigation measures recommended by SEA to be modified from Tongue River I or Tongue River II are identified in the list below by the note *[TRRC I (or TRRC II), {condition number}, modified {modification reason}]*.

Appendix J provides the complete list of mitigation measures as adopted in Tongue River I with an indication in the right margin of SEA's determination regarding the measure (i.e., recommended, recommended as modified, or recommended to be superseded).

Appendix K provides the complete list of mitigation measures adopted in Tongue River II with the same indications explained above.

In addition, for the mitigation measures from either Tongue River I or Tongue River II that are recommended to be superseded, the reasons for this recommendation are discussed, in order, in the section immediately following the list.

7.2 COMPLETE LIST OF THE PRELIMINARY RECOMMENDED MITIGATION

The following list of preliminary recommended mitigation measures has been compiled using appropriate measures adopted in Tongue River I and Tongue River II, revised and updated mitigation measures from Tongue River I and Tongue River II, and new mitigation developed in this Draft SEIS. The preliminary mitigation recommendations are listed by environmental issue area and are sequenced in the same order as that found in Chapter 4, except the Administrative Mitigation Measures, which are interspersed throughout the chapter.

7.2.1 Land Use Mitigation

Mitigation Measure 1 (Direct and Indirect Land Loss). TRRC shall negotiate compensation for direct and indirect loss of agricultural land on an individual basis with each landowner whose property will be affected as a result of the construction and operation of the line between Miles City and Decker. TRRC shall assist landowners in identifying and

developing alternative agricultural uses for severed land, where appropriate. TRRC shall apply a combination of alternative land use assistance and compensation as necessary and agreed upon during right-of-way negotiations. *[TRRC II, Land Use Condition (1), modified by minor edits]*

Mitigation Measure 2 (ROW Fencing). TRRC shall construct fencing along the railroad right-of-way (ROW) where required to control livestock, as requested by the landowner. If fencing is requested, fence construction and type shall be used that allows movement of big game animals across the railroad ROW. The general fencing options to be used shall be developed by TRRC for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. In the event that a land owner does not agree with the Task Force's general determinations about fencing, the Task Force shall be consulted to determine mitigation on a case-by-case basis. *[TRRC I, Condition 10.1(5) and Land Use Condition (3), combined and modified to require the Task Force's involvement in the development of appropriate fencing types]*

Mitigation Measure 3 (Access Restrictions). TRRC shall install cattle passes (oval, corrugated metal structures, approximately 11 feet high and 12 feet wide at the base) along the railroad right-of-way to ensure passage of cattle under the rail line. TRRC shall work with landowners to identify appropriate locations for cattle passes and private grade crossings for equipment. *[TRRC II, Land Use Condition (4)]*

Mitigation Measure 4 (Displacement of Capital Improvements). Where capital improvements are displaced as a result of construction or operation of this rail line, TRRC shall relocate or replace these improvements or provide appropriate compensation based on the fair market value of the capital improvements being displaced. *[TRRC II, Land Use Condition (2), modified to provide additional clarity regarding fair market value compensation]*

Mitigation Measure 5 (Impacts During Construction). During final engineering, TRRC shall consult with individual landowners to minimize conflict between construction activities and ranching operations. *[TRRC II, Land Use Condition (5), modified by minor edits]*

Mitigation Measure 6 (Construction Areas). TRRC shall confine all construction activities to the railroad right-of-way and to the construction camps along the rail line, at locations to be negotiated between individual landowners and TRRC. *[TRRC II, Land Use Condition (6), modified by minor edits]*

Mitigation Measure 7 (Construction Camps). TRRC shall require its contractors to assure that its construction camps are orderly. Upon completion of construction, TRRC shall return the camps to their previously existing use. *[TRRC II, Land Use Condition (7)]*

Mitigation Measure 8 (Construction Liaison). TRRC shall appoint a representative, with direct access to management, to work with primary construction contractors, subcontractors, and affected landowners to address any problems that develop during construction. *[TRRC II, Land Use Condition (8)]*

Mitigation Measure 9 (Wildfire Suppression and Control Plan). Prior to construction of this rail line, TRRC shall develop a Wildfire Suppression and Control Plan for fires occurring on the right-of-way as a result of rail construction/operations or undetermined causes. TRRC shall observe the following measures in developing the plan:

(1) The plan shall be developed with the Montana Department of Natural Resources and Conservation's Eastern Land Office, as well as other appropriate governmental agencies and volunteer fire departments along the route.

(2) The plan shall be developed by TRRC after final engineering and overall operation plans are complete. This will afford planners the benefit of specific information regarding TRRC's operation, equipment, and personnel that might be of use in case a fire occurs.

(3) State-of-the-art techniques for fire prevention and suppression shall be evaluated and included in the plan, as appropriate.

[TRRC II, Safety Condition (4), modified to clarify that the above measures are those required for fire suppression]

Mitigation Measure 10 (Fire Prevention). To minimize the potential for railroad-caused fires, TRRC shall observe all general rail safety regulations promulgated by the Federal Railroad Administration regarding railroad operations. *[TRRC II, Safety Condition (4), modified to clarify that this measure is to help prevent fire]*

Mitigation Measure 11 (Fire Suppression). Prior to construction of this rail line, TRRC shall negotiate with local ranchers along the right-of-way the placement of fire suppression equipment so that it may be used to promptly extinguish fires during construction and operation of the line. *[TRRC II, Safety Condition (5), modified by minor edits]*

Mitigation Measure 12 (Fire Access Road). During construction and operation of this rail line, TRRC shall maintain a serviceable access road within, and access points along, the right-of-way at locations determined in consultation with the local fire officials, to permit entry to the railroad right-of-way of vehicles to aid in fire suppression. *[TRRC II, Safety Condition (6), modified by minor edit]*

Mitigation Measure 13 (Mobile Communications). Prior to beginning construction of this rail line, TRRC shall develop and install a mobile communications system between the local volunteer fire fighting units, train crews, and ranchers with property adjacent to the right-of-way to ensure adequate communication in emergency situations during construction and operation of this line. *[TRRC II, Safety Condition (7), modified by minor edit]*

7.2.2 Biological Resources Mitigation

Mitigation Measure 14 (Task Force). TRRC shall participate as a member of a Multi-agency/Railroad Task Force. The purpose of the Task Force shall be to approve the implementation and monitoring of biological (i.e., terrestrial and aquatic) mitigation measures for the entire rail line (Tongue River I, Tongue River II, and Tongue River III), with the exception of such issues concerning the Miles City Fish Hatchery.

Unless otherwise indicated in the mitigation conditions, TRRC is responsible for compliance with all biological mitigation conditions set forth below. As specified in the mitigation conditions themselves, TRRC shall prepare various surveys, plans and documents for review

and approval by the Task Force. It is the responsibility of the Board representative on the Task Force to convene the Task Force when an appropriate issue involving terrestrial and aquatic matters arises. The Task Force, in conducting its review of any terrestrial and aquatic issues that are proposed to it, shall attempt to reach agreement and approval through consensus. However, if a consensus cannot be reached by the Task Force members, a vote will be taken and approval will be determined by a majority of the Task Force members present (at least one half of the members present plus one vote). If the Task Force is unable to reach a decision, either through consensus or by a majority vote, the Board representative on the Task Force will bring a recommended resolution back to the Board, at which time the Board will make a final decision.

Task Force members shall participate in the Task Force at their own discretion and expense and to the extent that their resources permit. Further, Task Force members may use additional resources available to them to accomplish mitigation. Other interested parties may be invited to participate as appropriate.

Those agencies who have agreed to participate on the Task Force include the Board, Montana Department of Fish, Wildlife and Parks (MT DFWP), Montana Department of Natural Resources and Conservation (MT DNRC), United States Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), and United States Corps of Engineers (Corps). TRRC has also agreed to participate. The Board will act as the lead agency to coordinate the Task Force. Each participating agency, as well as TRRC, shall designate representative(s) to work with the Task Force.

The Task Force will remain active until TRRC certifies to SEA that the rail line construction has been completed and that all construction mitigation measures have been implemented and for a period of two years of rail operations or any other period the Board may impose. *[TRRC II, Aquatic Condition A.9.1 General, modified to provide additional clarity, duration, and responsibilities to the Task Force]*

Mitigation Measure 15 (Material Changes). If there is a material change in the facts or circumstances upon which the Board relied in imposing specific environmental mitigation conditions, and upon petition by any party who demonstrates such material change, the Board may review the continuing applicability of its final mitigation, if warranted. *[TRRC III, new]*

Mitigation Measure 16 (Third-party Contractor). TRRC shall retain a third-party contractor to assist SEA in the monitoring and enforcement of mitigation measures on an as-needed basis until TRRC has completed project-related construction and for a period covering the first two years of railroad operations or for any oversight period the Board may impose. *[TRRC III, new]*

Mitigation Measure 17 (Reporting). TRRC shall submit to SEA on no less than a quarterly basis, beginning with the effective date of the Board's final decision in Tongue River III and continuing for the first two years of railroad operations, or for any other period that the Board may impose, reports documenting the status of implementation of the Board's final environmental mitigation conditions. *[TRRC III, new]*

Mitigation Measure 18 (Plant Species of Concern). TRRC shall conduct a field search of the alignment during final-phase engineering of this line to identify plant species of concern (Federal and state) and to implement appropriate mitigation measures during construction activities if such species are found. This field search shall be conducted during the appropriate time of year to identify any potential rare plant species. (The survey schedule shall be approved by the Task Force in accordance with the process set forth in Mitigation Measure 14.) TRRC shall prepare and implement a formal mitigation plan approved by the Task Force for minimizing impacts on species of concern. *[TRRC III, new]*

Mitigation Measure 19 (Reclamation). During construction of this line, TRRC shall implement reclamation and revegetation of the right-of-way (ROW) at the earliest possible time after clearing has been completed. Revegetation shall be implemented only in those ROW areas with adequate substrate and grade. Wherever possible, construction and attendant revegetation shall be expedited. The following generally accepted practices shall be employed in the reclamation process: *[TRRC II, Vegetation Condition A.9.3.2(1), modified to clarify where reclamation activities shall take place]*

(1) **Preconstruction Planning** – TRRC shall include the following elements in its reclamation planning:
   (a) Designation of sensitive areas.
   (b) Proposed time schedule of construction activities.
   (c) Right-of-way clearing and site preparation plans.
   (d) Preconstruction evaluation of soils to be disturbed. The soils' A horizon (the A horizon is the topmost soil layer that is commonly made up of unconsolidated organic matter (e.g., leaf litter) and is not saturated with water) shall be identified, removed, stored, and replaced prior to revegetation.
   (e) Erosion and sediment control plans.
   (f) Waste disposal plan.
   (g) Restoration, reclamation, and revegetation plan. *[TRRC I, Condition 10.3(1)(a); TRRC II, Vegetation Condition A.9.3.2.(1)(a), modified to include soils evaluation]*

(2) **Restoration/Reclamation Plan** – TRRC shall follow the following procedures in its restoration and reclamation plan:
   (a) Commencement of reclamation as soon as practicable after construction ends, with the goal of rapidly reestablishing ground cover on disturbed soils that could support vegetation, with all cut and fill slopes mulched and seeded as they are completed.
   (b) Avoidance of reclamation when soil moisture is high or ground is frozen.
   (c) Use of straw mats in the revegetation process to reduce erosion and to add carbon back into the soil system to promote the accumulation of soil organic matter.
   (d) Ripping and disking of soils prior to revegetation to prevent compaction of soils and to increase the ability of plant roots and water to penetrate the soil.
   (e) Analysis of site soil requirements and seasonal precipitation patterns to identify planting dates for optimal revegetation success.
   (f) Use of rapidly establishing plant species for thorough and rapid ground surface protection.
   (g) Retention of a reclamation specialist to determine specific procedures for reclamation on steep slopes or locations near waterways.

(h) Revegetation shall not be implemented uniformly along the entire rail line, but rather revegetation criteria shall be based on the circumstances present in specific construction areas to assure that habitat and functionality are maintained within each ecosystem. *[TRRC II, Vegetation Condition A.9.3.2(1)(b), modified to clarify where reclamation efforts would be successful and include additional measures]*

(3) **Revegetation Success Assurances** – To ensure revegetation success, TRRC shall implement the following measures:

(a) Development of an inventory and documentation of pre-existing conditions.

(b) The type and quantity of seed, fertilizer, and other soil amendments to be used shall be determined based on soil chemical and physical properties. TRRC shall use native species for revegetation, where possible, unless alternatives are approved, in advance of application, by the Task Force in accordance with the process set forth in Mitigation Measure 14. On BLM tracts, all seeds shall be from native species. Species to be used for revegetation may include, but are not limited to:

- western wheatgrass (*Pascopyrun smithii (Agropyron s.)*)
- green needlegrass (*Nasella viridula (Stipa v.)*)
- sideoats grama (*Bouteloua curtipendula*)
- little bluestem (*Schizachyrium scoparium*)
- blue grama (*Bouteloua gracilis*)

(c) Segregation of topsoil from subsoil and topsoil stockpiled for later application on the reclaimed ROW.

(d) Use of only seed of registered quality and germination success, that has been certified as weed-free.

(e) Use of appropriate seeding techniques, such as drill seeding on level terrain and broadcast seeding or hydroseeding on slopes, to ensure distribution of seed mixture on individual microenvironments.

(f) Use of mulch material that has been certified as weed free, such as straw and woodchips, as a temporary erosion measure and to minimize soil temperature fluctuations and soil moisture loss. Mulch shall be applied more heavily on slopes than on level terrain, and nitrogen levels shall be adjusted to reflect the increased demand during mulch decomposition.

(g) Cover and compaction of seeded area following seeding.

(h) Use of a minimum of 20 pounds per acre of pure live seed throughout the route, where applicable.

(i) For slopes and construction areas near waterways, employment of a variety of Best Management Practices, including the use of sediment traps/basins, berms, contour furrows, silt fencing, straw bale barriers, rock checkdams, slope drains, toe-slope ditches, diversion channels, sodding, and erosion control blankets and/or mulching.

(j) Monitoring of reclamation. Regrading shall be undertaken for revegetating areas not successfully reclaimed.

(k) Development of success criteria.

(l) Development of a timeline for completion of the revegetation plan as well as follow-up monitoring and enforcement of the revegetation plan and success criteria. *[TRRC I, Condition 10.3(1)(c); TRRC II, Vegetation Condition A.9.3.2(1)(c), modified to include examples of BMPs and Task Force approval]*

(4) **Provisions for Areas of Special Concern**

(a) On all slopes less than 3:1 (a slope of 3:1 signifies 1 vertical unit for every 3 horizontal units), BMPs shall be utilized to effectively and efficiently revegetate the surfaces. BMPs have been identified by the National Resource Conservation Service (NRCS) for Montana, and these BMPs will be the primary guidance for all revegetation on slopes less than 3:1. Each cut and fill slope shall be evaluated individually, and the practices shall be modified to meet the needs of each individual slope and conditions. In general, these BMPs will be utilized unless site-specific conditions warrant different management practices. Below is a list of general BMPs that could be utilized by TRRC for revegetation of slopes less than 3:1, depending on the site-specific conditions at each individual cut/fill slope.

1. Construction of furrows parallel to the slope contour to minimize erosion and stabilize seed beds by effectively reducing the length of the slope, which in turn will reduce the erosive properties of water by decreasing the water's kinetic energy.
2. Minimization of foot traffic and grazing of domesticated animals so that the emerging vegetation at the site will establish more quickly.
3. Weed control either by clipping or applying labeled herbicides so that decreased competition from invasive species will enable the intended species to maximize the use of limited soil, water, and nutrients.
4. Preparation of the site seed bed utilizing standard agricultural techniques (e.g., disking, ripping) to facilitate plant emergence. If the site has limited topsoil, additional salvaged soil shall be placed on the surface to facilitate the preparation of the seed bed and provide a minimum of 4 inches of soil for revegetation activities.
5. Practice of fertilization rates, species selection, and seeding rates on a site-specific basis by a range management specialist. All seeds utilized in the revegetation program shall comply with Montana State Seed Law and Regulations.
6. Use of varying seeding methods at the cut/fill sites, including broadcast seeding, hydroseeding, or traditional agricultural drilling methods. If the site is planted by broadcast or hydroseeding, the seeding rates shall be doubled to ensure adequate plant emergence.
7. Mulching on all slopes less than 3:1 to minimize erosion using mulches such as straw woven fabric or artificial mulches based on site-specific conditions.
8. Additional temporary measures to reduce run-on onto the revegetated site. On sites where run-on could be a significant contributor to erosion, temporary diversion devices may be warranted to route water around the revegetated area. These diversion devices shall be removed once the site has been successfully revegetated. Additionally, the diversion devices shall be constructed to minimize concentration of water that could cause excessive erosion on non-disturbed sites.
9. If the cut/fill slope material is primarily clinker or bedrock, the slope shall not be revegetated. *[TRRC II, Vegetation Condition A.9.3.2(1)(d)3, modified to include additional specifics regarding slopes] [TRRC II, Vegetation Condition A.9.3.2(1)(d)1; deleted here, inserted as modified as HYD-5]; [TRRC II, Vegetation Condition A.9.3.2(1)(d)2; deleted here, inserted as modified as SAF-10]*

Mitigation Measure 20 (Task Force Oversight of Revegetation Plan). TRRC's revegetation plans shall be subject to review and approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. If it becomes clear that the success criteria of the revegetation plans are not feasible, the Task Force shall approve appropriate alternate mitigation. Yearly monitoring schedules and funds shall be arranged prior to construction of each rail segment, and work plans shall be approved by the Task Force in accordance with the process set forth in Mitigation Measure 14 before final engineering is complete. *[TRRC III, new]*

Mitigation Measure 21 (Noxious Weed Control). TRRC shall construct the rail line in compliance with county weed control plans for Rosebud and Big Horn counties, Montana. Except for the portion of the right-of-way described in Mitigation Measure 87 in and near the Miles City Fish Hatchery, TRRC, in consultation with local ranchers, the county extension agents, and the Task Force, shall develop a reasonable written Noxious Weed Control Program prior to commencing any construction of the rail line. The program shall include requiring construction methods that minimize the introduction and spread of noxious weeds, including the use of sterile ballast, weed-free seed straw, mulching, and hydroseeding materials. TRRC shall also minimize digging in areas where the rhizomes of rhizomatous weed species such as leafy spurge might be cut and spread throughout the site.

(1) The noxious-weed-control program shall include a combination of mechanical and herbicide spray methods to control noxious weeds. TRRC shall use mechanical removal of weeds near watercourses wherever feasible, depending upon time of year. Spray sequences shall be utilized to ensure that weed plants do not reach maturity.

(2) TRRC shall keep and reference records of herbicide application dates to ensure that the noxious-weed-control program goals are fulfilled. TRRC shall submit a report of weed control activities to the Task Force annually during construction. In all cases, only trained, licensed personnel shall be involved in noxious-weed-control applications. *[TRRC II, Vegetation Condition A.9.3.2(2), modified to provide additional clarity regarding the noxious weed control requirements]*

Mitigation Measure 22 (Wetland Permit). TRRC shall adhere to the reasonable mitigation measures identified in the Conceptual Habitat Mitigation Plan (a document prepared to determine the appropriate habitat mitigation**)** as otherwise imposed by the U.S. Corps of Engineers in any Section 404 permit(s) issued by the Corps for construction of the line. *[TRRC III, new]*

Mitigation Measure 23 (Stream Survey). Prior to construction of each rail segment and once site access is granted, TRRC shall, in consultation with the Montana Department of Natural Resources, conduct surveys of ephemeral streams that would be crossed by the railroad to determine the potential impacts of erosion and sedimentation on state species of concern and consult with MT DNRC on appropriate mitigation. *[TRRC III, new]*

Mitigation Measure 24 (Biological Opinion). TRRC shall adhere to the mitigation conditions imposed by the U.S. Fish and Wildlife Service in a Biological Opinion, if any is issued for the TRRC line. If no Biological Opinion is issued, TRRC shall adhere to the

mitigation measures in the Biological Assessment addressing construction and operation of the rail line. *[TRRC III, new]*

Mitigation Measure 25 (Aerial Survey). TRRC shall conduct an updated biological aerial survey during the winter before construction of each segment of the rail line begins. This aerial survey shall attempt to identify specific locations for ground surveys and any new winter ranges of species of concern. It shall also attempt to locate potentially active raptor nests especially in deciduous tree areas, while leaves are down. In addition, the aerial survey shall attempt to locate new prairie dog colonies along the route. Using the results of the surveys, TRRC will develop appropriate mitigation measures to minimize harm to species of concern, as needed, for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Condition A.9.3.1(1), modified to clarify that aerial surveys shall be required for species of concern and involvement of Task Force in developing any needed new conditions]*

Mitigation Measure 26 (Data Reconnaissance). Prior to the beginning of construction of each segment and once full access to the site of the railroad right-of-way is obtained, TRRC shall conduct aerial and ground-level surveys, as appropriate. Black-tailed prairie dog surveys shall be conducted to determine if construction of the line will traverse any additional prairie dog colonies. The surveys shall also determine the existence of black-footed ferrets. If black-footed ferrets are discovered, the Montana Department of Fish, Wildlife, and Parks shall be notified. Based on the surveys, TRRC shall develop appropriate means to mitigate the effects of construction and operation of the line on the black-tailed prairie dog and the black-footed ferrets for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14.

The surveys shall also locate habitat areas and nesting sites for the following species on the entire rail line. The surveys shall be conducted during the following time periods:

Big game (winter range)	December 1 to February 28
Sage/Sharp-tailed Grouse	March 15 to June 15
Raptors/Migratory Birds	May 15 to June 15
Bats	July 1 to July 31
Breeding Birds	May 15 to June 15
Reptiles/Amphibians	July 1 to August 31

TRRC shall identify big game winter range and active nests of sage grouse, sharp-tailed grouse leks (mating grounds) and raptors, particularly golden eagles and prairie falcons prior to the construction of any rail segments, on a map as part of the aerial and ground surveys. In each subsequent year of construction, additional surveys shall be conducted annually for the section (distance) of line that is to be built in that year. Due to the potential for nest initiation in the years after the initial survey, surveys shall be conducted according to standard survey procedures during summer to determine the presence of nests or of reptile and amphibian species. Pedestrian surveys shall be done to locate habitat areas as well as indicate recent activity. Using the results of the surveys, TRRC shall develop appropriate mitigation measures, as needed, for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Condition A.9.3.1(2),*

modified to better explain reason for distance-specific annual surveys and involvement of Task Force if new conditions are needed]

(1) The purpose of the reconnaissance shall be to locate (a) big game winter range based on evidence, such as animal remains, hair, pellet groups, etc.; (b) sage grouse and sharp-tailed grouse leks; and (c) raptor nests, particularly golden eagles and prairie falcons. Any evidence of state or Federal threatened, endangered, or sensitive species shall also be documented during the reconnaissance. *[TRRC II, Wildlife Condition A.9.3.1(2)(a), modified to include Federally threatened, endangered or sensitive species]*

(2) Any specific-use sites that are identified during the reconnaissance shall be mapped, described in field notes, photographed and evaluated for significance. Nesting species of concern shall not be disturbed during reconnaissance. Nests shall be described as active or inactive. Results of the ground reconnaissance shall be presented and used by TRRC for developing mitigation measures to minimize impacts to sensitive wildlife and wildlife-use areas for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. This could include, but would not be limited to, restricting construction activities near nests during the nesting period; employing nest site monitors to gauge the level of disturbance and halt construction if disturbance is great; and requiring off-site habitat enhancement or replacement for unavoidable losses of sensitive wildlife resources. *[TRRC II, Wildlife Condition A.9.3.1(2)(b), modified to provide additional clarity and involvement of the Task Force and include other possible mitigation measures]*

(3) Surveys for sage and sharp-tailed grouse leks shall be conducted following the Montana Sage Grouse Conservation Plan of the Montana Sage Grouse Work Group. If a possible lek site is identified, observations shall be made between March 15 and June 15 to verify activity at each site. Surveys shall be conducted at dawn to listen for male activity at each lek and shall be completed at least five days apart.

The extent of each lek shall be mapped. Vegetative cover suitable for nesting and brooding habitat adjacent to each active lek shall also be mapped within a one-mile radius of the lek. Active leks shall not be destroyed by construction of the railroad. If impacts to active leks as a result of construction activities are unavoidable, TRRC shall seek approval from the Task Force in accordance with the process set forth in Mitigation Measure 14 as to whether avoidance of the lek site during the mating season (March and April), is adequate mitigation. If the Task Force determines that the permanent loss of the lek would be a significant and unavoidable impact, TRRC shall develop appropriate replacement compensation for potential loss of grouse habitat for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. If the success of lek site mitigation, as determined by the Task Force in accordance with the process set forth in Mitigation Measure 14, has not been resolved during the construction period, TRRC shall continue monitoring into the operational period and shall advise SEA of its progress, in accordance with the reporting requirements of Mitigation Measure 17. *[TRRC II, Wildlife Condition A.9.3.1(2)(c), modified to clarify possible mitigation options]*

(4) To reduce impacts of the Tongue River Railroad on prairie dog colonies, prior to construction, TRRC shall develop appropriate means to mitigate the effects of construction and operation of the Tongue River Railroad on the black-tailed prairie dog for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Condition A.9.3.1(2)(d, e and f), modified to clarify]*

Mitigation Measure 27 (Night Survey). TRRC shall conduct nighttime surveys in conjunction with the ground reconnaissance required by Mitigation Measure 26 between July 1 to July 31, prior to construction of each segment of the rail line, for the purpose of identifying the location of any bat species of concern. *[TRRC III, new]*

Mitigation Measure 28 (Construction Surveys). TRRC shall utilize monitors during construction to identify and clearly mark areas containing sensitive biological resources for avoidance and to educate construction contractors and the employees that will be involved in rail construction activities about sensitive resources and the areas to be avoided during the rail construction activities. *[TRRC III, new]*

Mitigation Measure 29 (Destruction of Habitat). Active habitats for species such as nests, brooding locations, and migratory corridors, etc., shall not be destroyed during construction of the railroad. If impacts to these areas (short of destroying them) are unavoidable, TRRC seek approval from the Task Force in accordance with the process set forth in Mitigation Measure 14 as to whether avoidance during a species' active season would be adequate mitigation. If the Task Force determines that the permanent loss of habitat is a significant and unavoidable impact, TRRC shall develop appropriate replacement compensation for this potential loss of habitat in accordance with the process set forth in Mitigation Measure 26. In addition, if the Task Force determines that there has been significant habitat alteration after construction, TRRC shall develop appropriate habitat compensation for alteration of habitat in accordance with the process set forth in Mitigation Measure 26. *[TRRC III, new]*

Mitigation Measure 30 (Construction Activity Coordination). Rail construction activities shall be coordinated and timed to protect wildlife to the maximum extent possible. As part of these efforts, all reasonable attempts shall be made to minimize construction at big game wintering sites from December through March. *[TRRC II, Wildlife Condition A.9.3.1.1(1) clarified]*

Mitigation Measure 31 (Compensation Program). TRRC shall include the following mitigation measures as part of final right-of-way negotiations with private landowners along the ROW:

(1) TRRC shall participate in the development of a reasonable compensation program for lost wildlife habitat along the rail line prior to beginning construction on any portion of the rail line. The goal of the compensation program shall be to ensure that there is no net decrease in wildlife-habitat values resulting from the project. Habitat values of acreage lost shall be assessed using the U.S. Fish and Wildlife Service's Habitat Evaluation Procedure. TRRC shall be responsible for acquiring land (through purchase, conservation easements or other measures) and enhancing the wildlife-habitat value on that land to achieve the no-net-loss goal, and developing and implementing a monitoring plan to evaluate success of enhancement measures. Monitoring shall continue through

the oversight and reporting period described in Mitigation Measure 17. The process of valuing habitat loss, acquiring and enhancing new lands, and implementing the monitoring plan shall be done by TRRC with prior approval of the Task Force in accordance with the process set forth in Mitigation Measure 14. The process of valuing habitat loss for individual species or habitat types shall include an as needed analysis of potential "habitat fragmentation", i.e., assessment of the direct loss of wildlife habitat, reduction in the size of existing habitat patches, creation of more edge-type habitat, and creation of barriers that block movement of wildlife between patches. An example of appropriate habitat compensation could include the purchase by TRRC of "cutoff" land parcels containing good wildlife habitat, and the donation of these lands to the Montana Department of Fish, Wildlife, and Parks for beneficial wildlife management. *[TRRC I, Condition 10.1(1); TRRC II, Terrestrial Condition A.9.3(1), modified to clarify the goal of the compensation program]*

(2) TRRC shall construct ponds adjacent to the railroad grade, or use the railroad grade as a dam where practicable. These ponds could include "dugout" type ponds and "bypass" ponds designed to be filled during high flows where appropriate. *[TRRC II, Terrestrial Condition A.9.3(2)]*. For the construction of ponds, the railroad embankment (berm) shall form one (high) side of a depression. In its development of options for wildlife passage across the railroad right-of-way, TRRC shall consider ponds as a possible obstruction passage. Ponds shall also include erosion control features where appropriate. *[TRRC III, new]*

(3) If adjacent landowners agree, TRRC shall provide public access, in appropriate locations, if any, along the rail line right-of-way. *[TRRC II, Terrestrial Condition A.9.3(3), modified to clarify that access would only be provided if the adjacent landowners agreed]*

(4) TRRC shall grant conservation easements along the rail line where appropriate. *[TRRC I, Condition 10.1(4); TRRC II, Terrestrial Condition A.9.3(4), modified by minor edits]*

Mitigation Measure 32 (Pronghorn Antelope). TRRC shall prepare surveys that identify locations of pronghorn concentration, distributions, and movement for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. This survey program shall be conducted prior to the beginning of construction of each segment of the rail line. TRRC shall present the results of the study to the Task Force for its review and shall consider conducting a radio telemetry study (funded by TRRC) if preliminary surveys indicate heavy pronghorn use within the project area.

Once potential impacts have been fully determined following the above mentioned studies, TRRC shall work with the Task Force to develop appropriate measures, as needed, to minimize impacts from the railroad. The following measures shall be considered and implemented, as appropriate:

(1) establishment and enforcement of fencing standards along the railroad right-of-way that will allow movement of pronghorn while excluding livestock, as needed;

(2) identification of optimal passage-site locations for pronghorn movement across the railroad;

(3) use of grillwork as needed to exclude livestock while allowing movement of pronghorn across railroad at optimal locations;

(4) follow-up monitoring on an annual basis to evaluate effectiveness of passage.

Monitoring shall continue through the oversight and reporting period previously identified in Mitigation Measure 17. In the unlikely event that this follow-up monitoring shows that the above mentioned mitigation measures are inadequate and the Task Force concludes that impacts to the wildlife's ability to migrate are resulting in a decline in species population, TRRC shall develop additional mitigation options for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. *[TRRC II, Wildlife Conditions (1) and (2), modified to provide additional clarity regarding survey requirements and specify potential mitigation measures that are appropriate for species]*

Mitigation Measure 33 (Speed Limits). Prior to construction of each rail segment, TRRC shall post and strictly enforce speed limits on all construction access roads to minimize roadkills of wildlife due to increased traffic from construction workers temporarily living in the area. TRRC shall also advise all rail construction personnel that the purpose of these speed limits is to protect wildlife. *[TRRC III, new]*

Mitigation Measure 34 (Aquatic Resource Sampling). Prior to beginning construction activities in locations where the railroad would cross the Tongue River, or where extensive riprapping would occur, TRRC shall conduct a three-part study plan to identify aquatic resources. The results of this study shall be utilized in the development of mitigation plans for the river crossing and riprap areas for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. This study shall include (1) a stream habitat survey to identify existing habitat features and values; (2) benthic macroinvertebrate sampling to identify community composition and numbers; and (3) a fish spawning survey to determine the importance of the area to spawning of fish. TRRC shall undertake the three-part study methods outlined below. *[TRRC I, Condition 9.1(1); TRRC II, Aquatic Condition A.9.2(1), modified to provide clarity regarding the timing and location of the study]*

(1) **Stream Habitat Survey.** The stream habitat survey shall utilize methods described in Methods for Evaluating Stream, Riparian, and Biotic Conditions by William S. Platts, Walter F. Megahan, and G. Wayne Minshall. Stream transects shall be established and impact zones shall be identified in appropriate locations to evaluate existing conditions and to monitor changes during construction. Along each transect, the following variables shall be measured:

(a) Stream width.
(b) Stream shore depth.
(c) Stream average depth.
(d) Pool quality and forming feature (in feet).
(e) Riffle (a ripple in a stream or a current of water) (in feet).
(f) Run (in feet).

(g) Substrate (mineral or organic material that forms the bed of a stream).
(h) Stream bank soil alteration rating.
(i) Stream vegetative stability rating.
(j) Stream bank undercut and angle.
(k) Vegetation overhang.
(l) Embeddedness. *[TRRC II, Aquatic Condition A.9.2(1)(a), modified to include identification of impact zones]*

(2) **Benthic Macroinvertebrates**. TRRC shall collect quantitative samples of benthic macroinvertebrates immediately upstream and downstream of each proposed location of disturbance during rail construction activities. The collected specimens shall then be counted and identified following the Montana Department of Environmental Quality's Rapid Bioassessment Protocols for Sampling and Sample Analysis Standard Operating Procedures. *[TRRC I, Condition 9.1(1)(b); TRRC II, Aquatic Condition A.9.2(1)(b), modified to clarify the most useful techniques for sampling benthic macroinvertebrates]*

(3) **Fish Survey**. Prior to construction of each rail segment, TRRC shall conduct a fish survey and fish habitat survey. The fish survey shall be conducted to estimate population and to monitor potential mortality or emigration due to construction impacts. Mark-recapture methods shall be incorporated in each survey.

TRRC's fish habitat survey shall be conducted to determine habitat value, quantity, and utilization. In general, methods shall follow the methods used in recent work on the Tongue River for comparative purposes. Methods used in the comparative analysis may include those from Community Structure and Habitat Associations of Fishes in the Lower Tongue and Powder Rivers (R. Trenka 2000). Sampling shall occur before and after construction in impacted areas to allow quantification of effects, if any. The establishment of reference sites in areas outside of immediate impact zones, identified in the Stream Habitat Survey described above in Section 1, shall be used as a control to which impacted area surveys may be compared. All major habitat types shall be represented, and the total number of sites shall depend upon how many habitat types are identified by the Stream Habitat Survey. For each major habitat type at each bridge location, at least three affected sites and one reference site shall be surveyed. Sampling gear shall be adapted to each habitat type and standardized for both before and after construction surveys to allow for meaningful data comparisons. At each fish habitat survey site, the following shall be recorded:

(a) Habitat type.
(b) Sampling gear used (hoop net, fyke net, electrofishing, seines, etc.).
(c) Species present (number, age class, length, and weight).
(d) Relative abundance by species.
(e) Catch per unit effort (before and after construction).

If determined to be necessary by the Task Force, a spawning habitat potential survey shall be conducted at each proposed bridge location as well as in areas of proposed riprapping and other perennial, intermittent, and ephemeral draws that the railroad crosses. Sampling periods for the spawning survey shall be early spring after ice

breakup, after peak runoff, and in the fall. *[TRRC II, Aquatic Condition A.9.2(1)(c), modified to broaden the purpose of the surveys]*

Mitigation Measure 35 (Aquatic Mitigation Techniques). With the exception of construction of the portion of the rail line described in Mitigation Measure 88 (Miles City Fish Hatchery), prior to construction of each rail segment and once aquatic resource sampling is completed and detailed data on the aquatic resources to be affected has been obtained, TRRC shall develop appropriate mitigation measures for approval by the Task Force in accordance with the process set forth in Mitigation Measure 14. These mitigation measures may include the following, as appropriate:

(1) Preparation of a construction schedule which, if possible and practical, provides for instream work at those times that are (a) least critical to the specific fishery or aquatic resource occurring at a site, and (b) least conducive to sediment transport. These periods may differ by stream and species affected.

(2) Development of special procedures for the handling of displaced materials and petroleum products during construction in order to prevent introduction of such materials into the aquatic system.

(3) Filtering of silty water, which would result from dewatering for footing construction, through settling pond systems.

(4) Assuring that riprap is washed and essentially silt free.

(5) Double-shifting of work crews at river crossing sites to minimize the duration of construction activities in or near river or stream banks. *[TRRC II, Aquatic Condition A.9.2(2), modified by minor edits]*

7.2.3 Soils and Geology

Mitigation Measure 36 (Stormwater Pollution Prevention Plan). TRRC shall prepare a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion Control Plan using Montana Department of Environmental Quality Guidelines Best Management Practices (BMPs) and shall obtain coverage under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity. Prior to construction of each rail segment, TRRC shall determine which BMPs shall be employed at different locations in the project area.

The SWPPP shall identify areas that have a high potential for soil erosion due to topography, slope characteristics, facility activities, and/or other factors. (Generally, areas with little or no vegetative cover, 0-25 percent on slopes greater than or equal to 15 percent, have a high potential for soil erosion.) To determine areas of high erosion potential, TRRC shall consult with the County Natural Resource Conservation Service, research, as appropriate, published soil survey reports, and/or conduct soil/geologic studies.

The SWPPP may include the use of sediment basins, berms, filter strips, covers, diversion structures, sediment control fences, straw bale dikes, seeding, sodding, and/or other control

structures or BMPs. The SWPPP shall identify and locate the BMPs to be used during and after construction to control sediment discharges to surface waters. The SWPPP shall include a description of storm water BMPs appropriate for the rail line, which TRRC shall implement. The SWPPP shall also include a schedule for implementation and address the following:

(1) Individual(s) responsible for preventing pollution and for implementing storm water management BMPs.
(2) Risk identification and assessment/material inventory.
(3) Spill prevention and response procedures.
(4) Storm water management.
(5) Sediment and erosion prevention.
(6) Visual inspections.
(7) Record keeping and internal reporting.
(8) Non-storm water discharges. *[TRRC III, new]*

Mitigation Measure 37 (Saline and Sodic Soils). TRRC shall, to the maximum extent feasible, avoid saline and sodic soils in its construction of the rail line. Where possible, saline or sodic soils shall be buried, and topsoil more conducive for revegetation left on the finished surface to aid in revegetation efforts and reduce erosion. *[TRRC III, new]*

Mitigation Measure 38 (Geotechnical Investigations). Prior to beginning construction of this line, TRRC shall conduct geotechnical investigations to identify soils/bedrock in cut areas with the potential for slumping to occur following construction. In areas with a potential for slumping, TRRC shall include, as appropriate, engineering controls such as flattened slopes, adequate drainage, retaining structures, geotechnically designed stabilization techniques, terracing and surface water-runoff control. *[TRRC III, new]*

Mitigation Measure 39 (Slumping). If slumping occurs during construction of this line, TRRC shall institute remedial actions immediately following a slope failure. These actions shall include, as appropriate, implementation of emergency sediment control structures such as furrows, removal of slumped material to a location that will not allow erosion and transport of this material to any waterways, implementation of measures to promote revegetation, and a geotechnical evaluation, if feasible, to determine the best way to prevent additional slumping. Remedial action also may involve, as appropriate, the installation of drains or adding material to the toe of the slump to stabilize it. *[TRRC III, new]*

Mitigation Measure 40 (Erosion). Prior to beginning construction of this line, TRRC shall perform an analysis to determine the potential for erosion (wind and water) at proposed cut and fill locations. The analysis shall compare slope lengths and gradients to determine the optimum gradients and mitigation measures for minimizing erosion at each proposed cut and fill location. *[TRRC III, new]*

Mitigation Measure 41 (Sediment Delivery). Prior to beginning construction, TRRC shall assess the potential for construction and operation of the rail line to generate, transport and deliver sediments to a given body of water. Contributions of sediments shall be measured as "bedload," or material that is transported along the bed of a stream rather than in suspension.

Woman pebble counts (woman pebble is a methodology for sampling and categorizing substrate) may be used for sediment data. *[TRRC III, new]*

Mitigation Measure 42 (Soil Survey). Prior to any construction of this line, TRRC shall conduct a soil survey along the alignment, including a review of soil survey data from Big Horn and Rosebud counties. As part of this survey, TRRC shall obtain, query, review, and interpret digital soil survey maps for the area within 300 meters of the rail alignment. Soils with similar characteristics along the route shall be grouped, and detailed descriptions of each grouping shall be prepared. The descriptions shall include information regarding the soil group's distribution, structure, permeability, and erodibility. After completing its survey, TRRC shall prepare a series of reports to be made available to SEA depicting the soils for the entire alignment. *[TRRC III, new]*

7.2.4 Hydrology and Water Quality Mitigation

Mitigation Measure 43 (Water Quantity and Quality). To assure that overall water quantity and quality are not unnecessarily altered or diminished by this project, TRRC shall submit detailed information about its plans and construction, for review and approval, to applicable agencies, including the U.S. Corps of Engineers, local conservation districts, and the Water Protection Bureau of the Montana Department of Environmental Quality prior to any construction of this line. *[TRRC II, Hydrology and Water Quality Condition (1), modified to reflect current state agency]*

Mitigation Measure 44 (Streambed Crossings). During design, TRRC shall consult with and meet the reasonable requests of Montana Department of Natural Resources and Conservation, Montana Department of Environmental Quality, the US Army Corps of Engineers, and the local conservation districts for bridge crossings over the streambed of the Tongue River. *[TRRC II, Hydrology and Water Quality Condition (2), modified to reflect current state agency]*

Mitigation Measure 45 (Permitting and Bank Stabilization). TRRC shall consult with the US Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) to implement the Corps' permit requirements under Section 404 of the Clean Water Act and EPA's riverbank stabilization methods at bridge crossings and riprap areas in order to prevent or reduce the impacts of soil erosion and sedimentation loading to area streams and the Tongue River. Appropriate methods may include placing or planting logs, trees, and other vegetative plantings with rock riprap along bridge sites and stream-encroachment areas. To prevent unnecessary degradation of water quality due to erosion, revegetation efforts shall begin as soon as possible after construction is completed in a given area. *[TRRC II, Hydrology and Water Quality Condition (3), modified to provide additional clarity regarding riverbank stabilization methods]*

Mitigation Measure 46 (Streambed Crossing Construction). Rail construction activities involving stream crossings, including bridges and culverts and activities requiring stream-bank encroachments (riprap, for example), shall occur during periods of low or no flow in the streams affected. *[TRRC II, Hydrology and Water Quality Condition (6)]*

Mitigation Measure 47 (Bank Stabilization). In constructing this line, TRRC shall stabilize banks with naturally occurring trees, shrubs, and grass. Riprap or gabions shall be used only as a supplement where such methods would improve fish habitat, or in cases where engineering requirements so dictate, such as downstream from culverts. *[TRRC II, Vegetation Condition A.9.3.2(1)(d)1, modified for minor edit]*

Mitigation Measure 48 (Tongue River Crossing). TRRC shall design the crossing of the Tongue River so that it does not require a center abutment, and so that the side abutments are placed outside of the riparian zone. The side abutments shall be located to provide adequate passage for wildlife (10 feet above the ordinary high-water mark). *[TRRC III, new]*

Mitigation Measure 49 (Culverts). TRRC shall ensure that all culverts and other drainage structures installed at non-perennial stream crossings during construction of this line comply with the design criteria of the American Railway Engineering and Maintenance of Way Association, established in the year 2000. This means that at a minimum, culverts shall be designed to discharge a 25-year flood without static head at entrance and a 100-year flood using the available head at entrance, the head to two feet below base of rail, or the head depth of 1.5 times the culvert diameter/rise, whichever is less. Additionally, TRRC shall incorporate the culverts into the existing grade of the streambed to avoid, to the maximum extent possible, changing the character of the streambed and impacting migrating amphibians and reptiles. *[TRRC II, Hydrology and Water Quality Condition (4), modified to reflect current industry practice and include migrating species]*

Mitigation Measure 50 (Perennial Streams). Where possible, TRRC's final alignment shall be designed to avoid the floodplain of perennial streams. Where the railroad grade infringes upon the floodplain, TRRC shall install drainage structures to assure that the grade does not restrict or reroute the 25-year flood. *[TRRC II, Hydrology and Water Quality Condition (5), modified to reflect current Montana Floodplain and Floodway Protection Act (MCA 76-5-401 through 406) requirements]*

Mitigation Measure 51 (Bridge Design). Prior to beginning construction of this line, TRRC shall prepare an analysis for the Montana Department of Natural Resources and Conservation, documenting that the final design for any bridges constructed over rivers and perennial streams located in a designated 100-year floodplain shall not increase the upstream elevation of the 100-year flood by more than 0.5 feet or significantly increase flood velocities. If TRRC's analysis concludes that any bridge would increase the upstream elevation of the 100-year flood by more than 0.5 feet or significantly increase flood velocities, TRRC shall redesign the bridge to reduce these impacts to a less than 0.5 foot increase in the 100-year flood elevation. *[TRRC III, new]*

7.2.5 Cultural Resources Impact Mitigation

Mitigation Measure 52 (Programmatic Agreement). To protect cultural and historic resources, TRRC shall comply with the provisions of the revised Programmatic Agreement for the entire line entered into for this project. *[TRRC II, Cultural Resources Condition (1), modified to reflect that SEA has prepared a revised Programmatic Agreement]*

7.2.6 Transportation and Safety Mitigation

Mitigation Measure 53 (Construction-worker Transportation). During construction, TRRC shall encourage its contractors to provide laborers with daily transportation to the work site from a central location. *[TRRC II, Transportation Condition (1)]*

Mitigation Measure 54 (Access Road). To the extent possible, TRRC shall confine all construction-related traffic to a temporary access road within the right-of-way (ROW). Where traffic cannot be confined to this access road, TRRC shall ensure that contractors make necessary arrangements with landowners or affected agencies to gain access from private or public roadways. The access road shall be used only during construction of the railroad grade, after which construction shall be confined to the ROW. *[TRRC II, Transportation Condition (2)]*

Mitigation Measure 55 (Memorandum of Agreement). As agreed to by TRRC and the Montana Department of Transportation (MDT), TRRC shall enter into a memorandum of agreement (MOA) with MDT evaluating project-related safety needs. The MOA shall establish duties and responsibilities of the parties relative to construction of the rail line and possible encroachment on interstate and non-interstate facilities maintained by MDT. The MOA shall also include the evaluation of each crossing for safety needs and potential traffic problems during construction and operation, including passage of emergency vehicles. Based on these evaluations, the MOA will set forth specific safety measures, such as warning signal and devices, and appropriate measures to alleviate any traffic problems, such as grade separations. A construction traffic plan will also be prepared by TRRC for review and approval by MDT. *[TRRC I, Condition 4.3(2) and TRRC II, Transportation Conditions (3 and 5), combined and modified to reflect current state agency and MOA]*

Mitigation Measure 56 (Tongue River Reservoir Dam). During construction of the rail line, TRRC shall provide 24-hour-a-day access to the Montana Department of Natural Resources and Conservation for the maintenance of the Tongue River Reservoir Dam either via the construction of temporary roads and/or flagging devices or by other reasonable alternatives. *[TRRC II, Tongue River Dam Reconstruction Condition (1), modified to reflect completion of dam reconstruction]*

Mitigation Measure 57 (Speed Limits). All TRRC vehicles and equipment, and vehicles and equipment owned and operated by TRRC contractors working on the project, shall strictly adhere to speed limits and other applicable laws and regulations when operating such vehicles and equipment on public roadways. *[TRRC I, Condition 4.2 (3), modified by minor edits]*

Mitigation Measure 58 (Traffic Control Devices). TRRC shall comply with the Montana Department of Transportation's Manual of Uniform Traffic Control Devices for work zone safety. *[TRRC II, Transportation Condition (4), modified to reflect current agency requirement]*

Mitigation Measure 59 (Safety Meetings). TRRC shall adhere to applicable Federal and state construction safety regulations and Best Management Practices to minimize the potential for construction-related accidents. TRRC shall require its construction contractors

to conduct safety meetings for their workers to ensure that each person understands safety measures and procedures. *[TRRC II, Safety Condition (1), modified to clarify that TRRC shall use Best Management Practices]*

Mitigation Measure 60 (Emergency Response Plan). Prior to beginning construction of this rail line, TRRC shall develop an internal Emergency Response Plan consistent with Montana State plans required under Title 10, Montana Code Annotated. This plan shall include a roster of agencies and specific persons to be contacted for specific types of emergencies during rail construction, operations and maintenance activities, procedures to be followed by particular rail employees, emergency routes for vehicles, and location of emergency equipment. *[TRRC II, Safety Condition (2), modified for minor edits]*

Mitigation Measure 61 (Emergency Response Coordination). TRRC shall establish cooperative relationships with the Federal, state, and local agencies with responsibility for disaster/emergency response in the area. TRRC shall provide operational plans and copies of the Emergency Response Plan identified above, when it is available in draft form, to all such agencies and incorporate their comments as appropriate in its final Emergency Response Plan. The agencies to be contacted shall include, at a minimum, Disaster and Emergency Services Division of the Department of Military Affairs, Helena; rural fire departments along the route of the entire line; local ambulance and emergency medical services and air evacuation services in Billings and Sheridan; the Montana Department of Environmental Quality, specifically including the Remediation Division; Montana Department of Fish, Wildlife and Parks; Montana Department of Natural Resources and Conservation; the Northern Cheyenne Tribe; the Bureau of Land Management; U.S. Fish and Wildlife Service; and other local agencies or other groups identified by these agencies and entities as key to disaster response. *[TRRC II, Safety Condition (3), modified to clarify that all such agencies shall receive a copy of the plan]*

Mitigation Measure 62 (Spill Prevention). TRRC shall develop, in cooperation with appropriate Federal, state, and local agencies, a plan to prevent spills of oil or other petroleum products (gasoline, diesel fuel, solvents), during construction, operation, and maintenance of this rail line.

TRRC's Spill Prevention Plan shall include measures pertaining to oil spills set forth in the mitigation plan in the Tongue River II DEIS. The plan developed by TRRC shall include conditions that shall be imposed on companies and contractors involved in construction of the Tongue River rail line. The plan shall provide emergency notification procedures, including a priority list of specific names and phone numbers of designated contacts (government and private) that are to be notified in case of events such as a fuel spill, range fire, or medical emergency during construction, operation and maintenance of the rail line. The following items shall be included in the plan:

(1) Procedures for reporting a spill.
(2) Definition of what constitutes a spill.
(3) Methods of containing, recovering, and cleaning up a spill.
(4) A list of equipment needed to remediate a spill and its location.
(5) A list of all governmental agencies and management personnel to be contacted, including but not limited to the following:

(a) Disaster and Emergency Services Division of the Department of Military Affairs, Helena. (This is the most important contact to develop a coordinated response.)
(b) Rural fire departments along the route.
(c) Local ambulance and emergency medical services, as well as air evacuation services in Billings and Sheridan.
(d) Montana Department of Environmental Quality, especially the Remediation Division.
(e) Montana Department of Fish, Wildlife, and Parks.
(f) Montana Department of Natural Resources and Conservation.
(g) Northern Cheyenne Tribe.
(h) Bureau of Land Management (BLM) or U.S. Fish and Wildlife Service. BLM would have fire suppression responsibilities on public land for fires handled by Type I Interagency Management Teams and Type II Geographic Area Teams.
(i) Other local agencies or groups that are identified by the agencies and entities above as key to disaster remediation.

(6) Assurances that techniques and procedures to be employed in cleanup are the best practicable technology currently available.

[TRRC II, Safety Condition (8), which incorporates by reference Sections A.7.3.(1) a, A.7.3(2) a-i, and A.7.3(4), modified (1) to incorporate language of sections referred to and to clarify that the above measures apply to the entire rail line, and (2) to clarify roles of BLM and USFS.]

Mitigation Measure 63 (Construction Sites). TRRC shall remove all litter, debris, and soils associated with petroleum spills prior to reclamation of construction sites. A state-approved landfill shall be used. *[TRRC II, Vegetation Condition, A.9.3.2(1)(d)2, modified by minor edit]*

Mitigation Measure 64 (Oil and Fuel). Prior to construction of this line, TRRC shall develop appropriate guidelines to be used by individual rail construction contractors, including (1) steps to use during refueling to guard against overflows, (2) storage of fuel in metal storage tanks surrounded by impervious dikes that are capable of containing greater than the capacity of the tank, (3) removal of waste oil to appropriate sites, and (4) maintenance of equipment in good running order during performance of construction and routine maintenance activities. *[TRRC II, Safety Condition (9), modified by minor edit]*

Mitigation Measure 65 (Herbicide Spills). If a herbicide spill occurs, TRRC shall respond by immediately containing the spill, notifying the appropriate Federal, state, and local agencies, and implementing appropriate clean-up procedures. *[TRRC II, Safety Condition (10), modified to provide additional clarity regarding TRRC's actions]*

Mitigation Measure 66 (Train Operations). TRRC shall adhere to all reasonable Federal, state, and local requirements regarding train operations, including requirements that relate to maximum durations of crossing blockage, speed limits within and outside of incorporated areas, and candlepower for train lighting. *[TRRC I, Condition 4.3(3), modified to clarify the intent and responsible parties]*

Mitigation Measure 67 (Descending Grades). If a train's speed reaches 5 mph more than the train's maximum authorized speed on descending grades of 2 percent or more, TRRC's trains shall come to a complete stop as quickly as possible, using an emergency application of the train's air brakes.

(1) After the train has stopped, the train shall be secured by applying additional hand brakes, and once secured, the train shall be inspected and no further train movement shall be made until authorized by a designated railroad employee.

(2) TRRC shall conduct an immediate investigation into the cause of any incident in which the train's speed reaches 5 mph more than the train's authorized maximum speed and shall initiate appropriate corrective action.

(3) Event recorder data shall be routinely inspected to ensure full compliance with these requirements. *[TRRC III, new]*

Mitigation Measure 68 (Hazardous Materials Transport). In the event that TRRC should transport hazardous materials, TRRC shall comply with the requirements of the Hazardous Materials Transportation Act (49 USC 1080 et seq.) and its governing regulations. TRRC shall also comply with the Federal Railroad Administration (FRA) hazardous materials regulations for rail transport (including 49 CFR 174), along with FRA's general rail safety regulations (49 CFR 209 to 236). *[TRRC III, new]*

7.2.7 Air Quality Mitigation

Mitigation Measure 69 (Fugitive Dust). When vegetation is removed from the right-of-way, TRRC shall clear the smallest possible amount of cover to minimize impacts of wind erosion and fugitive dust. *[TRRC II, Air Quality Condition (2), modified to clarify the intent of the measure]*

Mitigation Measure 70 (Revegetation). Where devegetation has taken place, TRRC shall begin revegetation as soon as possible. Where immediate revegetation is not possible, TRRC shall implement alternative stabilization measures such as matting and mulching. *[TRRC II, Air Quality Condition (3)]*

Mitigation Measure 71 (Site Watering). TRRC shall suppress dust at all work areas by using water trucks, and shall make water available to local landowners, governmental agencies, or associations for the purposes of dust suppression. TRRC shall conduct dust suppression activities regularly and frequently during the dry periods. *[TRRC II, Air Quality Condition (4)]*

Mitigation Measure 72 (Open Burning). TRRC shall conduct any open burning in strict accordance with local or other applicable regulations, and shall obtain all necessary permits and observe all necessary safety precautions. *[TRRC II, Air Quality Condition (5)]*

Mitigation Measure 73 (Inspection and Maintenance). TRRC shall subject all heavy equipment and vehicles used in the construction, operation, and maintenance of the railroad to a regular inspection and maintenance schedule to ensure that operation complies with manufacturer's specifications and that equipment is running as cleanly and efficiently as possible. *[TRRC II, Air Quality Condition (1)]*

7.2.8 Noise and Vibration Mitigation

Mitigation Measure 74 (Construction Timing). To the extent practicable, TRRC shall schedule major noise-producing construction activities during the weekday and daylight hours to limit disturbances during more sensitive times of day. *[TRRC II, Noise Condition (1)]*

Mitigation Measure 75 (Construction Equipment). All equipment used for construction shall comply with all reasonable Federal, state, and local noise regulations and ordinances. *[TRRC I, Condition 6.1(3), modified to clarify that all equipment used in construction shall comply with reasonable noise regulations]*

Mitigation Measure 76 (Dam Vibration). Prior to construction of the Western Alignment, TRRC shall conduct a seismic analysis based on local geology and specific blasting plans to quantify the risk of construction-related activities to the Tongue River Reservoir Dam. TRRC shall consult with Montana Department of Natural Resources and Conservation during the development of the geotechnical-drilling/blasting plans for construction of those portions of the Western Alignment located within two miles of the dam, to limit peak particle velocity and minimize vibration impacts that may occur. *[TRRC III, new]*

Mitigation Measure 77 (Speed Limits). During operation, TRRC shall minimize speed of trains in incorporated areas and in the unincorporated community of Ashland, to minimize noise. *[TRRC I, Condition 6.1(4), modified to provide additional clarity]*

Mitigation Measure 78 (Quiet Zone) TRRC shall consider establishing a community quiet zone for the proposed project corridor, if the Secretary of Transportation determines that the creation of a community quiet zone and the cessation of the use of train horns at rail crossings would not present a significant risk with respect to loss of life or serious personal injury. This measure shall be based upon the rules outlined in the Federal Register, Department of Transportation Federal Railroad Administration *Use of Locomotive Horns at Highway-RailGrade Crossings; Interim Final Rule* (December 18, 2003). *[TRRC III, new]*

Mitigation Measure 79 (Schools). In the case of schools in the Ashland area, including the St. Labre school, where activities during the normal school day could be interrupted by construction or maintenance noise, TRRC shall make every attempt to consult with school officials to schedule its construction and maintenance activities in a manner most acceptable to those who would be impacted. This could include scheduling weekend or evening rail construction or maintenance work in some cases. *[TRRC I, Condition 6.1(2), modified by minor edits]*

Mitigation Measure 80 (Recordation of Noise Contours). In order to prevent unintentional development within the 65 dBA contour, TRRC shall provide a copy of a map to each county and city planning department with jurisdiction along the proposed rail line, depicting the 65 dBA contour. The planning departments can make this information available to landowners so that they can make informed decisions about future development. *[TRRC III, new]*

7.2.9 Socioeconomic Mitigation

Mitigation Measure 81 (Community Issues). TRRC shall appoint a representative to consult with the affected county and local governments for the purpose of assisting impacted communities in addressing potential social and economic problems. To accomplish this, TRRC shall provide all practical assistance to the government planning agencies involved. *[TRRC I, Condition 3.1, modified to clarify TRRC as the party responsible for this measure]*

Mitigation Measure 82 (Northern Cheyenne Tribe). TRRC shall appoint a liaison between TRRC management and the Northern Cheyenne Tribe to ensure that tribal members receive an equal opportunity to apply for and secure temporary construction and full-time operational jobs with the railroad. *[TRRC II, Social and Economic Condition (2)]*

Mitigation Measure 83 (Mine Development). TRRC shall make available to local governments and to the Northern Cheyenne Tribe all public data and studies that it is aware of concerning the facilities and services that may be required as a result of mine development in the area. *[TRRC II, Social and Economic Condition (1)]*

7.2.10 Miles City Fish Hatchery Mitigation

Mitigation Measure 84 (Protection of MCFH Water Supply Pipelines). As agreed to by TRRC and the Montana Department of Fish, Wildlife and Parks, TRRC shall relocate, as necessary, portions of the water supply pipelines from the Yellowstone River and Tongue River so that each pipeline crosses the rail right-of-way at a right angle or perpendicular to the rail alignment. To ensure structural integrity of the water supply pipelines, the portion of each pipeline lying perpendicular beneath the rail alignment shall be encased in a reinforced concrete pipe (RCP). The RCP shall be of sufficient size to allow for inspection and maintenance of the water supply pipelines. Access to the pipelines beneath the rail alignment shall be provided by installation of reinforced concrete manholes, located on each side of the rail alignment. The RCP manholes shall meet or exceed the American Railway Engineering and Maintenance of Way Association's standard specifications for installation of utilities underneath railway embankments. The design plans for the relocated section of the water pipelines and all associated elements shall be prepared by TRRC and provided to Montana Department of Fish, Wildlife, and Parks for review and approval prior to being constructed. *[TRRC III, new]*

Mitigation Measure 85 (Weed Control on MCFH). As agreed to by TRRC and Montana Department of Fish, Wildlife and Parks, TRRC shall use only mechanical means of weed control in its right-of-way adjacent to the MCFH between the points where the rail line crosses Interstate 94 to the connection with the Burlington Northern-Santa Fe Railroad Company main line. If it becomes necessary to utilize herbicides to control noxious weeds along the right-of-way in this area, herbicides will only be used with prior approval from the MT DFWP, as to the type of herbicide, application rate, means of application, wind speed and direction. *[TRRC III, new]*

Mitigation Measure 86 (MCFH Continuing Consultation). TRRC shall continue to make itself available to consult with Montana Department of Fish, Wildlife and Parks to reach consensus on any remaining issues concerning the environmental effects on MCFH from railroad construction and operations, for up to a period of six months after the effective date of the Board's final decision on TRRC's application in Tongue River III. TRRC shall use its best efforts to achieve resolution of any outstanding issues during that period. If no resolution is achieved during that period, the requirement for continued consultation shall cease unless both TRRC and MCFH agree that the period should be extended and so advise the Board in writing. At the end of the consultation period (whether extended by mutual agreement or not), TRRC shall advise the Board of its positions in writing. Montana Department of Fish, Wildlife and Parks is invited to provide its position, and either TRRC or MT DFWP (or both) may request that the Board develop a condition designed to mitigate any remaining concerns of MT DFWP related to the environmental effects on MCFH that the Board determines warrant mitigation. *[TRRC III, new]*

Mitigation Measure 87 (MCFH). TRRC shall adhere to the reasonable mitigation conditions imposed by the Montana Department of Fish, Wildlife and Parks in any easement granted by the State allowing TRRC to cross the MCFH. *[TRRC III, new]*

7.2.11 Fort Keogh Livestock and Range Research Station (LARRS) Mitigation

Mitigation Measure 88 (Department of Agriculture). TRRC shall adhere to the reasonable mitigation conditions imposed by the U.S. Department of Agriculture (USDA) in any easement granted by USDA allowing TRRC to cross the LARRS property line. *[TRRC III, new; the USDA is currently preparing new mitigation conditions that would apply to TRRC for crossing the LARRS property. To avoid any inconsistency between the USDA mitigation conditions, SEA is recommending TRRC I Condition 2.2.2 be superseded by this general condition.]*

7.2.12 Spotted Eagle Lake Mitigation

Mitigation Measure 89 (Tree Buffers). As agreed to by TRRC, TRRC shall provide a tree buffer between the Spotted Eagle Lake recreation area and the railroad right-of-way in order to reduce the impact of train noise upon those pursuing recreational activities and to moderate the visual impact to that area. *[TRRC I, Condition 6.1(6), modified to clarify the tree buffer requirement at the Spotted Eagle Lake recreation area.]*

8.0 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED WESTERN ALIGNMENT AND THE APPROVED FOUR MILE CREEK ALTERNATIVE

CEQ regulations implementing NEPA at 40 CFR 1502.16 require that EISs address any environmental impacts of alternatives, including the proposed action, which cannot be avoided should the proposal be approved and implemented. In the EIS for Tongue River II, SEA identified the unavoidable adverse environmental impacts of TRRC's preferred alignment and the Four Mile Creek Alternative. (Draft EIS, Tongue River II, Chapter Five, July 17, 1992.) Based on all the information available to date, including information contained in this Draft SEIS and the EISs prepared for Tongue River II, SEA believes that the proposed Western Alignment would result in generally the same unavoidable adverse impacts as the Four Mile Creek Alternative, as described in Tongue River II, in the following areas:

- Socioeconomic
- Native Americans
- Biological Resources - Aquatic Ecology

For other issue areas, SEA believes that the proposed Western Alignment would result in generally similar unavoidable adverse impacts as the approved Four Mile Creek Alternative, as described in Tongue River II. In most cases, the differences in the level of impact between the two routes would not change the conclusions regarding unavoidable adverse impacts presented in Tongue River II. However, the degree to which the unavoidable impact would occur would be slightly different, as described below.

- Land Use – The proposed Western Alignment would affect less area than the Four Mile Creek Alternative (672 acres versus 765 acres), and therefore would have a somewhat reduced impact on agricultural production from that described in Tongue River II for the Four Mile Creek Alternative.

- Biological Resources – Construction of the proposed Western Alignment would directly impact less acreage than the Four Mile Creek Alternative (672 acres versus 765 acres), thereby somewhat reducing unavoidable impacts on wildlife habitat from that described in Tongue River II for the Four Mile Creek Alternative. However, both routes would still result in the same unavoidable impacts of increased road kills of wildlife and train-deer collisions as described in Tongue River II.

- Soils and Geology – The proposed Western Alignment would result in more earth movement for construction than the approved Four Mile Creek Alternative (17.3 million cubic yards versus 10.4 million cubic yards). In addition, the proposed Western Alignment would result in additional potential erosion when compared to the Four Mile Creek Alternative (18,300-28,700 tons/year versus 14,500-23,800 tons/year). As a result, the proposed Western Alignment would result in a somewhat increased impact on soils from that described in Tongue River II for the Four Mile Creek Alternative.

- Hydrology and Water Quality – The proposed Western Alignment would cross more perennial streams when compared to the Four Mile Creek Alternative (42 versus 40). However, the proposed Western Alignment would impact less wetland area than the Four

Mile Creek Alternative (1.69 acres versus 6.09 acres). As a result, the proposed Western Alignment would result in a somewhat reduced impact on wetlands from that described in Tongue River II for the Four Mile Creek Alternative.

- Cultural Resources – The proposed Western Alignment would impact more prehistoric and historic cultural resources when compared to the Four Mile Creek Alternative (five versus three). As a result, the proposed Western Alignment would result in a somewhat increased unavoidable impact on cultural resources from that described in Tongue River II for the Four Mile Creek Alternative.

- Transportation and Safety – The proposed Western Alignment would cross fewer public roads than the Four Mile Creek Alternative (four versus seven), and therefore would result in a somewhat reduced impact on delaying vehicles at railroad/road crossings from that described in Tongue River II for the Four Mile Creek Alternative. The proposed Western Alignment, compared to the Four Mile Creek Alternative as described in Tongue River II, would have a reduced impact on safety because of the more favorable grade and resulting decrease in derailments, and because of the fewer at-grade crossings.

- Air Quality – The proposed Western Alignment would result in additional dust emissions during construction due to the additional amount of earth movement necessary to build this alignment when compared to the Four Mile Creek Alternative (7.07 tons/mile/year versus 4.39 tons/mile/year). As a result, the proposed Western Alignment would result in a somewhat greater unavoidable impact on air quality from that described in Tongue River II for the Four Mile Creek Alternative.

- Noise – The proposed Western Alignment would reduce the number of sensitive receptors exposed to adverse construction-period noise when compared to the Four Mile Creek Alternative (one receptor versus four receptors). As a result, the proposed Western Alignment would result in a somewhat reduced unavoidable impact of construction noise from that described in Tongue River II for the Four Mile Creek Alternative. During operation, the proposed Western Alignment has no unavoidable noise impact because there would be no sensitive receptors located within the 65 dBA contour along this alignment. Comparatively, the Four Mile Creek Alternative would have unavoidable noise impacts during operation because there would be five sensitive receptors located within the 65 dBA contour for this route.

9.0 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

NEPA guidelines suggest that EISs address short-term uses of the environment and long-term productivity. This section summarizes the extent to which implementation of the proposed Western Alignment or the previously approved Four Mile Creek Alternative would result in long-term productivity gains at the expense of short-term use of the environment and possible environmental impacts. SEA has determined that the relationship between short-term uses of the environment and enhancement of long-term productivity would generally be positive for either route.

SEA preliminarily concludes that similar short-term impacts would result from construction activities for either of the routes. Construction activities would result in the short-term use of some resources, such as labor and materials. Other short-term environmental effects include construction impacts associated with cut and fill, increased erosion, and impacts to aquatic and terrestrial biological resources. These short-term construction impacts would be mitigated to less than significant levels through the implementation of mitigation measures being recommended by SEA. (See Chapter 7.)

SEA preliminarily concludes that these short-term impacts would be offset by long-term increases in productivity and efficiency of rail operations in the region, and would result in environmental benefits including fuel savings and less potential for accidents due to the more favorable grade of Tongue River III.

10.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA guidelines request that EISs address the irreversible and irretrievable commitment of resources. Both the previously approved Four Mile Creek Alternative and the proposed Western Alignment would require the commitment of a range of natural, physical, human, and fiscal resources. For both routes, land uses would change from their existing character to railroad facilities. This change would be an irretrievable commitment during the time period that the land is used for a railroad facility. However, if a greater need arises for use of the land and if the railroad facility is no longer needed, the land could be converted to another use.

Construction of either the proposed Western Alignment or the Four Mile Creek Alternative would require the irretrievable use of fossil fuels, labor, and construction materials such as steel, cement, and aggregate. However, these materials are not in short supply and their use would not have an adverse effect upon continued availability of these resources. The construction of either route would require the one-time expenditure of funds which would not be retrievable.

The commitment of these resources is based on the concept that the residents in the project area, region, and state would benefit from the improved productivity and efficiency of rail operations in the region, particularly with regard to Tongue River III.

11.0 LIST OF PREPARERS

Surface Transportation Board
Section of Environmental Analysis

Victoria Rutson Chief,
Section of Environmental Analysis

Kenneth Blodgett Environmental Protection Specialist/Project Coordinator,
Section of Environmental Analysis

Contractors

Public Affairs Management and its subcontractors were responsible for supporting SEA in conducting its analysis and the preparation of this Draft SEIS. The following individuals were key members of the Public Affairs Management Team:

Name and Firm	Background	Project Function
Public Affairs Management KAY A. WILSON	M.S. Community and Regional Planning, B.S. Political Science; over 25 years' experience in community and environmental planning, with emphasis in transportation	Project Director
Public Affairs Management SCOTT STEINWERT	B.A. Biology; over 15 years' experience in environmental analysis and planning	Project Manager
Public Affairs Management MARY BEAN	B.A. Environmental Studies and Planning; 12 years' experience in planning and preparing environmental documents in both the public and private sectors	Deputy Project Manager
Public Affairs Management TED HEYD	B.A. History; 4 years' experience in planning and preparing environmental documents	Associate Planner
Public Affairs Management CARA NAIDITCH	B.A. Environmental Studies and Economics	Assistant Planner
Ethnoscience KEN DEAVER	Ph.D. Anthropology; over 30 years' experience in cultural resources of the Northern Plains and Pacific Northwest	Principal Investigator, Senior Archaeologist

Name and Firm	Background	Project Function
Ethnoscience SHERRI DEAVER	Ph.D. Anthropology; over 25 years' experience in consultation with Northern Plains, Basin, and Plateau tribes	Senior Ethnologist
Ethnoscience LYNELLE PETERSON	B.A. Psychology, M.A. Anthropology; over 18 years' experience in cultural resource evaluation	Senior Cultural Resource Specialist
Ethnoscience PATRICK WALKER-KUNTZ	B.A. and M.A. in Anthropology; over 12 years' experience in preparing archaeological analyses	Project Archaeologist
Rosen, Goldberg, and Der ALAN ROSEN	B.S. in Electrical Engineering; 18 years' experience in noise control engineering	Technical Reviewer-Noise
Rosen, Goldberg, and Der HAROLD GOLDBERG	B.S. in Mechanical Engineering; 18 years' experience as an acoustical consultant	Technical Reviewer-Noise
Don Ballanti DON BALLANTI Certified Consulting Meteorologist	M.S. in Meteorology; 30 years' experience in environmental consulting on air quality and climate issues	Technical Reviewer- Air Quality
Entrix GRETCHEN LEBEDNIK	M.S. Botany, B.S. Environmental Biology; over 13 years' experience in environmental consulting, with emphasis in vegetation, wetlands, rare species, and other biological issues	Technical Reviewer-Biology
Kleinfelder, Inc. ANDY MORK	MS Geology, BS Geology, BS Zoology; over 17 years' experience in the geoscience consulting industry with emphases in environmental engineering geology projects providing geologic mapping, hydrogeologic, geomorphic and geotechnical analysis	Technical Reviewer-Geology

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14.0 SERVICE LIST

14.1 Federal

BAKER, HARRY
BIA WIND RIVER AGENCY
PO BOX 158
FORT WASHAKIE, WY 82514

BEAR, DUANE BIRD
BIA CROW AGENCY
PO BOX 69
CROW AGENCY, MT 59022

BEARTUSK, KEITH
BUREAU OF INDIAN AFFAIRS
316 NORTH 26TH STREET
BILLINGS, MT 59101

BENEDICT, SOIL SCIENTIST, PAUL W
USDA NATURAL RESOURCES CONSERV SRVC
700 W CAPITOL AVE
LITTLE ROCK, AR 72201-3225

BIRD, CHAIRMAN, RICHARD REAL
CROW TRIBAL COUNCIL
GENERAL DELIVER
CROW AGENCY, MT 59022-9999

BOY, JANINE WINDY
CROW TRIBAL COUNCIL
GENERAL DELIVERY
CROW AGENCY, MT 59022-9999

BULLHEAD, TOM
RESERVATION RESOURCES
FORT YATES, ND 58538

BURNS, HONORABLE CONRAD
UNITED STATES SENATE
WASHINGTON, DC 20510

CHRISTENSEN, TODD
US BUREAU OF LAND MANAGEMENT
111 GARRYOWEN RD.
MILES CITY, MT 59301

COMMANDER, DIVISION
U S ARMY CORPS OF ENGINEERS
12565 WEST CENTER ROAD
OMAHA, NE 68101-0103

CRAIG, IRA
AGRICULTURAL RESEARCH SERVICE, USDA
5601 SUNNYSIDE AVENUE
BELTSVILLE, MD 20705-5126

GAVALLA, GEORGE
FEDERAL RAILROAD ADMINISTRATION
400 7TH STREET, SW
WASHINGTON, DC 20590

HANEBURY, LOUIS
U S FISH AND WILDLIFE SERVICE
2900 FOURTH AVE. NORTH, ROOM 301
BILLINGS, MT 59101-1228

HUTCHINSON, SR., BURTON
ARAPAHOE BUSINESS COUNCIL
P O BOX 217
FORT WASHAKIE, WY 82514-0217

KELLEY, STEVEN
NORTHERN CHEYENNE TRIBE
PO BOX 128
LAME DEER, MT 59043

KELSO, JERRY
U S BUREAU OF RECLAMATION/MT AREA
PO BOX 36900
BILLINGS, MT 59107-6900

LAKTA, BECKY
ARMY CORPS OF ENGINEERS
215 NORTH 17TH STREET
OMAHA, NE 68102-4978

LAND USE SPECIALIST
BUREAU OF LAND MANAGEMENT
P O BOX 59107
BILLINGS, MT 59107

LANDERS, DALICE
BUREAU OF LAND MANAGEMENT
111 GARRYOWEN ROAD
MILES CITY, MT 59301

LITTLEWOLF, JAY
NORTHERN CHEYENNE TRIBE
P O BOX 128
LAME DEER, MT 59043-0128

MURPHY, TIM
U S BUREAU OF LAND MANAGEMENT
111 GARRYOWEN RD
MILES CITY, MT 59301

NATL ASSOC OF REVERSIONARY PROPERTY
1075 BELLEVUE WAY NE #278
BELLEVUE, WA 98004-4274

NEBEL, ROBERT S
ARMY CORPS OF ENGINEERS
215 NORTH 17TH STREET
OMAHA, NE 68102-4978

OSBORNE, FLOYD
EASTERN SHOSHONE BUSINESS COUNCIL
P.O. BOX 538
FORT WASHAKIE, WY 82514

PENNINGTON, DAVE
BUREAU OF INDIAN AFFAIRS
316 NORTH 26TH STREET
BILLINGS, MT 59101-1397

REED, CHAIRMAN, GEORGE
CROW TRIBAL COUNCIL
GENERAL DELIVERY
CROW AGENCY, MT 59022-9999

ROBINSON, EARNEST
NORTHERN CHEYENNE TRIBE
LAME DEER, MT 59043-9999

SCHWARTZ, RODNEY
ARMY CORPS OF ENGINEERS
215 NORTH 17TH STREET
OMAHA, NE 68102-4978

ROSEBUD PROTECTIVE ASSOCIATION
HC 84, BOX 2045
FORSYTH, MT 59237

SCHENK, KATHRYN M.
CHIEF, REGULATORY BRANCH -
US ARMY CORPS OF ENGINEERS
215 NORTH 17TH STREET
OMAHA, NE 68102

STEFANIC, RICK
BUREAU OF INDIAN AFFAIRS
316 NORTH 26TH STREET
BILLINGS, MT 59101

THOMAS, CANDACE
ARMY CORPS OF ENGINEERS
215 NORTH 17TH STREET
OMAHA, NE 68102-4978

U. S. FOREST SERVICE
ASHLAND RANGER DISTRICT
P O BOX 168
ASHLAND, MT 59003-0168

U.S. ARMY CORPS OF ENGINEERS
CENWO-OD-R
106 SOUTH 15TH STREET
OMAHA, NE 68102-1618

U.S. DEPARTMENT OF DEFENSE
TRANSPORTATION ENGINEERING AGENCY
720 THIMBLE SHOALS BOULEVARD, SUITE
130NEWPORT NEWS, VA 23606-2574

U.S. DEPARTMENT OF THE INTERIOR,
NATIONAL PARK SERVICE
NATIONAL CENTER FOR RECREATION
AND CONSERVATION
1849 C STREET N.W., ROOM 3606
WASHINGTON, DC 20240

U.S. DEPARTMENT OF AGRICULTURE
CHIEF OF THE FOREST SERVICE
14TH STREET AND INDEPENDENCE AVE, S.W.
WASHINGTON, DC 20250

U.S. FISH & WILDLIFE SERVICE, REGION 6
ASSISTANT REGIONAL DIRECTOR
P.O. BOX 25486
DENVER FEDERAL CENTER
DENVER, CO 80225

VONK, JEFFREY R
U S DEPARTMENT OF AGRICULTURE
100 CENTENNIAL MALL NORTH
LINCOLN, NE 68508-3866

WALKSALONG SR, JOE
NORTHERN CHEYENNE TRIBE
PO BOX 128
LAME DEER, MT 59043

WHITEMAN, JASON
NORTHERN CHEYENNE TRIBE
P O BOX 128
LAME DEER, MT 59043-0128

YOUNG, H PETER
FEDERAL ENERGY REGULATORY COMMISSION
888 FIRST STREET, NE STE 11F
WASHINGTON, DC 20426

14.2 State

ABERG, MARC
MONTANA DNRC
PO BOX 1794
MILES CITY, MT 59301

BIXBY, REPRESENTATIVE NORMA
PO BOX 1165
LAME DEER, MT 59043

CHERRY JR, FRANCIS R
MONTANA STATE OFFICE
P O BOX 36800
BILLING, MT 59107

COONEY, MIKE
SECRETARY OF STATE
P. O. BOX 202801
HELENA, MT 59620-2801

COPELAND , TRACY L
MANAGER STATE CLEARINGHOUSE
ARKANSAS DEPT OF FINANCE AND ADM
P O 3278
LITTLE ROCK, AR 72203

CRAIG, JOHN D.
MONTANA DEPT OF TRANSPORTATION
PLANNING DIVISION
PO BOX 201001
HELENA, MT 59620-1001

CUMMINS, JAKE
MT FARM BUREAU FEDERATION
502 SOUTH 19TH
BOZEMAN, MT 59718

DALTON, ANNE
MONTANA NATURAL HERITAGE PROGRAM
1515 EAST 5TH AVENUE
HELENA, MT 59620

DYE, MARVIN
MT DEPARTMENT OF TRANSPORTATION
PO BOX 201001
HELENA, MT 59620-1001

FRANTZ, BOB
MT DNRC
ENERGY DIVISION
1520 E 6TH ST
HELENA, MT 59620-2301

GRUNEWALD, KEN
ARKANSAS HISTORIC PRESERV PROGRAM
323 CENTER STREET, SUITE 1500
LITTLE ROCK, AR 72201

HEMMER, DENNIS
WY DEPT OF ENVIRONMENTAL QUALITY
122 WEST 25TH
CHEYENNE, WY 82001-3096

HYBNER, ROGER
UNIVERSITY OF WYOMING
663 WYARNO RD
SHERIDAN, WY 82801

HYYPPA, DON
MONTANA FWP
P. O. BOX 1630
MILES CITY, MT 59301

KINNISON, HONORABLE TOM
WYOMING STATE SENATE
307 WEST BURKITT
SHERIDAN, WY 82801

MARTZ, HONORABLE JUDY
GOVERNOR, STATE OF MONTANA
PO BOX 200801
HELENA, MT 59620-0801

MT FARM BUREAU FEDERATION
502 SOUTH 19TH
BOZEMAN, MT 59718

OHMAN, DIANA J
SECRETARY OF STATE
CHEYENNE, WY 82002

OLSEN, SANDI
CAPITOL STATION
DEPT OF STATE LANDS
HELENA, MT 59620

PERKINS, JIM
213 STATE CAPITOL
CHEYENNE, WY 82002

PETERMAN, LARRY
MONTANA FISH WILDLIFE & PARKS
P O BOX 200701
HELENA, MT 59620-0701

REED, LINDA
GOVERNOR'S OFFICE
STATE CAPITAL BUILDING
HELENA, MT 59601

ROONEY, CLIVE
MONTANA DEPT OF NATURAL RESOURCES
AND CONSERVATION
1625 11TH AVENUE
HELENA, MT 59620

SHERIDAN RESEARCH EXTENSION CENTER
UNIVERSITY OF WYOMING
663 WYARNO ROAD
SHERIDAN, WY 82801

SIMONICH, MARK A
MONTANA DEPT OF ENVIRONMENTAL QUALITY
P. O. BOX 200901
HELENA, MT 59620-0901

SMITH, KEVIN
MONTANA DEPT OF NATURAL RESOURCES/
WATER RESOURCES
PO BOX 201601
HELENA, MT 59620-1601

STATE SUPERINTENDENT
OFFICE OF PUBLIC INSTRUCTION
STATE CAPITOL
HELENA, MT 59620

STRAEHL, SANDY
MT DEPARTMENT OF TRANSPORTATION
P O BOX 201001
HELENA, MT 59620-1001

TETER, CAROLYN
OFFICE OF THE GOVERNOR
CHEYENNE, WY 82002

UNGRICHT, T L
UTU-WYOMING STATE LEGISLATIVE BOARD
1659 HIGHLAND AVENUE
SHERIDAN, WY 82801

WILMOTH, STAN
MT STATE HISTORIC SOCIETY
PO BOX 201202
HELENA, MT 59620-1202

14.3 Local Agencies, and Organizations

ANA-LAB CORP.
2600 DUDLEY ROAD
KILGORE, TX 75662-9000

ANDERSON, FRED
CUSTER COUNTY DISTR HIGH SCHOOL
20 SOUTH CENTER
MILES CITY, MT 59301

ANDERSON, HONORABLE BOB
MT PUBLIC SVC COMM
PO BOX 202601
HELENA, MT 59620-2601

ARKANSAS WHOLESALE LUMBER
125 HENRY FARRAR DRIVE
SEARCY, AR 72143-7326

BAILEY, DON
ROSEBUD COUNTY COMM.
BOX 47
FORSYTH, MT 59327-0047

BAILIFF, SARAH WHITLEY
BURLINGTON NORTHERN AND SANTA FE
RAILWAY CO.
PO BOX 961039
FORT WORTH, TX 76131-2828

BARBER, JEFFREY
NORTHERN PLAINS RESOURCE COUNCIL
2401 MONTANA AV #
BILLINGS, MT 59101-2336

BAUMLER, MARK F
MONTANA HISTORICAL SOCIETY
PO BOX 201202
HELENA, MT 59601-1201

BIG HORN COUNTY COMMISSIONERS
121 W 3RD ST DRAWER H
HARDIN, MT 59034

BIRNEY SCHOOL DISTRICT NO. 3
BIRNEY, MT 59102

BOARD OF COUNTY COMMISSIONERS
224 SOUTH MAIN SUITE B-1
SHERIDAN, WY 82801

BOARD OF COUNTY COMMISSIONERS
PO BOX 270
BROADUS, MT 59317

BOYD, JR., BYRON A
INTERNATIONAL PRESIDENT UTU
14600 DETROIT AVENUE
CLEVELAND, OH 44107-4250

BREITBACH, TOM
RESOURCE COUNCIL - NORTHERN PLAINS
2401 MONTANA AVENUE #200
BILLINGS, MT 59101-2336

BRODER, KEVIN C
ASSOCIATE GENERAL COUNSEL UTU
14600 DETROIT AVENUE
CLEVELAND, OH 44107

BRUNKENHOEFER, JAMES M
UNITED TRANSPORTATION UNION
304 PENNSYLVANIA AVE SE
WASHINGTON, DC 20003-1130

CABE, LOREN
LANDS & RESOURCE
PO BOX 36800
BILLINGS, MT 59107-6800

CARVER, ARBITRATOR, DONALD R.
UNITED TRANS. UNION
14600 DETROIT AVENUE
CLEVELAND, OH 44107

CITY OF SEARCY
MS VELINDA LAFORCE
401 WEST ARCH AVENUE
SEARCY, AR 72143

CLARENCE MONIN
INTERNATIONAL PRES
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
MEZZANINE STANDARD BUILDING
1370 ONTARIO STREET

DAY, DOUGLAS A
TONGUE RIVER RAILROAD COMPANY
P. O. BOX 80902
BILLINGS, MT 59108-0902

CULL, CHRIS
MME CORP.
2020 GRAND AVENUE
BILLINGS, MT 59102

DUBOSE, PRESIDENT, G. T.
UNITED TRANSPORTATION
14600 DETROIT AVENUE
CLEVELAND, OH 44107

DUFFY, PAULA
EASTERN MT COLLEGE
1500 NORTH 30TH STREET
BILLINGS, MT 59101

ELLIOTT III, DANIEL R
UNITED TRANSPORTATION UNION
14600 DETROIT AVENUE
CLEVELAND, OH 44107-4250

ESPESETH, KAREN
HISTORICAL RESEARCH ASSOC
P O BOX 7086
MISSOULA, MT 59807-7086

ETHEN, JOHN
MIDWEST ENERGY RES.
PO BOX 787
SUPERIOR, WI 54880

FLEMING PRESIDENT, MAC A
BROTHERHOOD OF MAINTENANCE OF WAY
26555 EVERGREEN ROAD #200
SOUTHFIELD, MI 48076

GAGE, DAVID L
FARMERS COOPERATIVE GRAIN COMPANY
P.O. BOX 246
KINDE, MI 48445

GRIFFIN, DONALD F.
BROTHERHOOD OF MAINTENANCE OF WAY
10 G STREET, N.E., SUITE 460
WASHINGTON, DC 20002

HALBERT, JOHN
MILES CITY STAR
BOX 1216
MILES CITY, MT 59301-1216

KEENAN, NANCY
OFFICE OF PUBLIC INSTRUCTION
P. O. BOX 202501
HELENA, MT 59620-2501

KELLY, JANET R
COUNTY COURTHOUSE
1010 MAIN
MILES CITY, MT 59301

KNUTSON, GENERAL CHAIRMAN, R S
UTU GO-245
8250 W. 80TH AVE, UNITS 7 & 8
ARVADA, CO 80005

MARTENS, DUANE C
ROSEBUD COUNTY
PO BOX 47
FORSYTH, MT 59327

MASON, K. W.
UTU, GENERAL CHAIRPERSON
8250 W 80TH AVE UNITS 7 & 8
ARVADA, CO 80005

MAYOR OF MILES CITY MONTANA
P O DRAWER 910
MILES CITY, MT 59301

MCCAFFREE, CHAIRMAN, ED
ROSEBUD CTY COMM.
P O BOX 47
FORSYTH, MT 59327-0047

MCEWAN, EUNICE M
SHERIDAN CO, COMM
224 S MAIN ST STE B-1
SHERIDAN, WY 82801

MCINNIS, DOUG
COAL MAGAZINE
1519 NORTH MILL CREEK RD
CASPER, WY 82604

MIRELSON, SCOTT M.
STEPTOE & JOHNSON
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036-1795

MULAR, JAMES T.
TRANSP. COMM. UNION
440 ROOSEVELT DRIVERR 1
BUTTE, MT 59701-9794

NORTHERN PLAINS RESOURCE COUNCIL
419 STAPLETON BLDG
2401 MONTANA AVENUE STE. 200
BILLINGS, MT 59101-2336

OTT, BARBARA A. F.
ASHLAND COMMUNITY TEAM MEMBERS
P.O.BOX 17
ASHLAND, MT 59003

PARISH, HONORABLE BOB
WHITE COUNTY COURTHOUSE
300 NORTH SPRUCE STREET
SEARCY, AR 72143

PFOHL, PETER A
SLOVER & LOFTUS
1224 SEVENTEENTH STREET, N.W.
WASHINGTON, DC 20036-3003

PLUMLEY, PATRICK
ESA CONSULTANTS
26 37 MIDPOINT DRIVE SUITE F
FORT COLLINS, CO 80525

POWDER RIVER COUNTY COMMISSIONERS
PO BOX 270
BROADUS, MT 59317

ROPER, MICHAEL E
BURLINGTON NORTHERN AND SANTA FE
RAILWAY CO.
2500 LOU MENK DRIVE
FORT WORTH, TX 76161-2828

ROSEBUD COUNTY LIBRARY
P O BOX 7
FORSYTH, MT 59327

ROSEBUD COUNTY WEED DISTRICT
P O BOX 962
FORSYTH, MT 59327

SCHWARTZ, DAVID M.
SULLIVAN & WORCESTER
1666 K STREET, N.W., SUITE 700
WASHINGTON, DC 20006-1208

SNYDER, D B
GENERAL CHAIRPERSON UTU
45 SW 7TH AVE
FOREST LAKE, MN 55025

THOMPSON RECYCLING INDUSTRIES
300 EAST MULDERRY
SEARCY, AR 72143

TONGUE RIVER RAILROAD COMPANY
PO BOX 80902
BILLINGS, MT 59108-0902

TORSKE, CHAIRMAN ALVIN
BIG HORN CTY COMM.
DRAWER H
HARDIN, MT 59034-0608

TURNER, TOMMIE A
GEORGIA PACIFIC CORP
6802 PARAGON PLACE, SUITE 400
RICHMOND, VA 23230-1655

W D PICKETT, PRESIDENT
BROTHERHOOD OF RAILROAD SIGNALMAN
BOX U
MT PROSPECT, IL 60056

WASHINGTON, VIOLA
NATIVE ACTION
P O BOX 316
LAME DEER, MT 59043-0316

WOOLSTON, LARRY
LARRY'S IGA INC
P O BOX 549
BROADUS, MT 59317

WRIGHT, LONNIE J.
DIAMOND CROSS RANCH LLC
PO BOX 70
BIG HORN, WY 82833-0070

14.4 Individuals

ALDERSON, JEANIE
BONES BROTHERS RANCH
PO BOX 505
BIRNEY, MT 59012

ALDERSON JR, IRVING
BONES BROTHERS RANCH
PO BOX 505
BIRNEY, MT 59012

ALDERSON, NATALIE AND MARY
BONES BROTHERS RANCH
BIRNEY, MT 59012

AMENDE, KAREN
BOX 148
BROADUS, MT 59317

ANDERSON, MR AND MRS RICHARD J
TONGUE RIVER HC 32
MILES CITY, MT 59301

ANQIONETTES
BOX 803
SHERIDAN, WY 82801

BECKER, WARREN J
PO BOX 226
FORSYTH, MT 59327

BELLINGHAM, W H
MOULTON BELLINGHAM LONGO & MATHER PC
27 NORTH 27TH STREET SUITE 1900
SHERATON PLAZA
BILLINGS, MT 59103

BENNETT, C ROBERT
2715 DICKINSON ST
MILES CITY, MT 59301

BERDAHL, ROGER
440 NORTH 8TH STREET
FORSYTH, MT 59327

BERRUM, THOMAS
3001 1ST AVENUE S.
GREAT FALLS, MT 59401

BICE, DONALD
HC 32 BOX 4495
MILES CITY, MT 59301

BLOXHAM, MARK
BOX 302
ASHLAND, MT 59003-0302

BOCK, FRED
602 - 5TH AVE N W
MINOT, ND 58703

BOULWARE, J W
RT 2 BOX 3015
MILES CITY, MT 59301

BOUSQUET, MAURICE
2222 REHBERT LANE
BILLINGS, MT 59102

BRADY, STEVE
PO BOX 542
LAME DEER, MT 59043

BREHM, KYLE
PO BOX 20826
BILLINGS, MT 59104

BRICKS, MAL
TRANSP. SYSTEMS DESIGN
6190 MOUNTAIN BROOKS LANE NW
ATLANTA, GA 30328

BROWN, D D
#8 10TH ST NW
GREAT FALLS, MT 59401

BROWN, GEORGE
HUNT OIL COMPANY
BOX 850
CODY, WY 82414

BRUMFIELD, RON
PO BOX 1086
FORSYTH, MT 59327

BUTTS, KYLE
BOX 78
VOLERG, MT 59351

CALHOUN, ROBERT L
REDMON BOYKIN & BRASWELL LLP
510 KING ST STE 301
ALEXANDRIA, VA 22314

CAMPBELL, DOUGLAS
HC 40 BOX 6531
MILES CITY, MT 59301

CARREL, WILLIAM P
FL RANCH
7 RED BLUFF LOOP
BIRNEY, MT 59012

CARSON, CHARLES F
BONES BROTHERS RANCH
BIRNEY, MT 59012

CHESTNUT, STEVEN H.
1230 4TH & BLANCHARD BLDG
2121 FOURTH AVENUE
SEATTLE, WA 98121-2307

CLAYPOOL, DUANE
911 S SUTTON
MILES CITY, MT 59301

COBURN, DAVID
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, NW
WASHINGTON, DC 20036-1795

COMPTON, KYLE ANN
P O BOX
DECKER, MT 59025

CORMIER, GARY
P O BOX 20600
BILLINGS, MT 59104

COZZENS, SUE
2822 3RD AVE N SUITE 212
BILLINGS, MT 59101

DANIELSON, MORRIS P
PO BOX 201
MILES CITY, MT 59301

DANZIGER, SANFORD J
5929 JAVA PLUM LN
BRADENTON, FL 34203-7329

DAVIS, TOMMY L
740 BIG GOOSE ROAD
SHERIDAN, WY 82801

DAY, JOHN & ERIKO
6 AIRWAY DR
SHERIDAN, WY 82801

DAY, JOHN A
BOX 803
SHERIDAN, WY 82801

DEBOLT, MAX A
PO BOX 848
SHERIDAN, WY 82801

DEEDS, LARRY
P O BOX 66
SHERIDAN, WY 82801

DEGEL, MICHAEL A
P O BOX 394
STORY, WY 82841-0394

DITZEL, DAVID B.
P O BOX 642
LIVINGSTON, MT 59047

DONNER, NEIL
P O BOX 289
FORSYTH, MT 59327-0289

DOYLE, JOHN
DRAWER H
HARDIN, MT 59034

DRUMMOND, BRUCE
1427 SPAULDING
SHERIDAN, WY 82801

DUNNING, FOREST
247 FRISBEE RD
SHERIDAN, WY 82801

EBZERY, THOMAS E
VILLAGE CENTER 1, 1500 POLY DRIVE
BILLINGS, MT 59102

ERICKSON, TERESA
2401 MONTANA AVENUE #200
BILLINGS, MT 59101-2336

EVANOFF, TED
1480 HILLPOND DR
SHERIDAN, WY 82801

EVANS, LARRY L
2021 SOUTH FIFTH ST. WEST
MISSOULA, MT 59801

FARRELL, JAMES
13447 FRANCES STREET
OMAHA, NE 68144-2516

FELTON, MAURICE
FELTON ANGUS RANCH INC
HC 32 BOX 4454
MILES CITY, MT 59301

FITTERER, LYNN R
L.C. # 195 B.L.E
140 N 17TH AVE
FORSYTH, MT 59327

FIX, MARK
HC 32 BOX 4196
MILES CITY, MT 59301

FLETCHER, TED
OTTER CREEK ROUTE
ASHLAND, MT 59003

FORD, W. D.
338 ADKINS
SHERIDAN, WY 82801

FORSYTHE, JOHN S
DRAWER M
FORSYTH, MT 59327

FORTUNE, MARILYN
T TRIANGLE RANCH
HC 32
MILES CITY, MT 59301

FOURLAS, DEBRA P
1310 BENDERSVILLE WENKSVILL RD.
ASPERS, PA 17304-9603

FRAZER, MARY ANN
102 GRIFFITH AVE
SHERIDAN, WY 82801

FUGLEVAND, HAL
BOX 400
MILES CITY, MT 59301-0400

GARRITY, WILLIAM E.
1945 W PARNALL RD
JACKSON, MI 49201

GEORGE, DEANNA
6 AIRWAY DR
SHERIDAN, WY 82801

GEORGE, TERRANCE & DEANNA
218 N MAIN ST
SHERIDAN, WY 82801

GILBERT, STEVE
721 SECOND ST
HELENA, MT 59601

GILLIN, BILL K
RURAL ROUTE BOX 3039
FORSYTH, MT 59327

GODDARD, GREG
412 NORTH MAIN
BUFFALO, WY 82834-1733

GOETZ, JOHN
5120 IDS CENTER 80 S EIGHTH ST
MINNEAPOLIS, MN 55402-2246

GOLDER, NICK
HC 84 BOX 2075
FORSYTH, MT 59327

GORDON, GREG
PO BOX 571
GARDINER, MT 59030-0571

GREEN, KIRT
PO BOX 578
ASHLAND, MT 59003

GUSTAFSON, L W
PO BOX 203
BIG HORN, WY 82833

HADLEY, DANIEL R
2537 KEEL DRIVE
BILLINGS, MT 59103

HALL, ROBERT W
2114 MARIPOSA
BILLINGS, MT 59102

HALLSTEN, GREGORY P.
1625 ELEVENTH AVE
HELENA, MT 59620

HAMILTON, JOHN
CEDAR HILLS ANGUS RANCH
HC 32 BOX 4356
MILES CITY, MT 59301

HAMILTON, JULIE L
122 WEST 25TH STREET
HERSCHLER BLDG 3 WEST
CHEYENNE, WY 82002-0600

HANSON, TERRY J.
P O BOX 550
MILES CITY, MT 59301-0550

HARMONY, BARBARA
979 FREG LANE
CONCORD, CA 94518

HAYES, ART
BONES BROTHERS RANCH
PO BOX 505
BIRNEY, MT 59012

HAYES JR, ART
BROWN CATTLE CO
PO BOX 517
BIRNEY, MT 59012

HAYES, SR., ARTHUR F.

BIRNEY, MT 59012

HECKER, JAMES M.
1121 12TH STREET NW
WASHINGTON, DC 20005-4632

HELM, GERHARD
HELM HEREFORD RANCH
HC 32 BOX 4161
MILES CITY, MT 59301

HERBST, DELLA
P O BOX 848
SHERIDAN, WY 82801

HICKEY, MICHAEL J
2801 BROOKS ST
MISSOULA, MT 59801

HIRSCH, LES
HC 32 BOX 4311
MILES CITY, MT 59301

HIRSCH, TED
HC 32 BOX 4741
MILES CITY, MT 59301

HLAD, MIKE
BOX 769
FORSYTH, MT 59327

HORSLEY, D. E.
UTU 951
443 E COLLEGE
SHERIDAN, WY 82801-5273

HOUGH, JEAN
P O BOX 69
BROADUS, MT 59317-0069

IEKEL, JERRY
BIG BEND RANCH INC
HC42 BOX 640
BUSBY, MT 59016

ISRAEL, NELLIE
PO BOX 76
JOLIET, MT 59041

JOLLEY, E. R.
17 TIMM DR
SHERIDAN, WY 82801

JUDGE, DONALD R
PO BOX 1176
HELENA, MT 59624

KAEDING, BETH
669 STONEGATE DRIVE
BOZEMAN, MT 59715

KAESIN, KENNETH
BOX 347
BROADUS, MT 59317

KAHN, FRITZ R
FRITZ R KAHN PC
1920 N STREET NW 8TH FLOOR
WASHINGTON, DC 20036-1601

KENNEDY, DONNA
BOX 666
FORSYTH, MT 59327

KLEINJAN, ARTHUR
BOX 278
CHINOOK, MT 59523

KLUVER, PATTY
RT 1 BOX 2046
FORSYTH, MT 59327

KNAPP, STEPHEN
1420 EAST SIXTH AVE
HELENA, MT 59620

KNOBLOCH, JACK

BIRNEY, MT 59012

KRUEGER, CLAUDE
BOX 746
FORSYTH, MT 59327

KURTZ, GENE H
P O BOX 830
FORSYTH, MT 59327

LANDERS, PATRICK
HC 32 BOX 4731
MILES CITY, MT 59301

LEGGE, KELLY & ROBYN
PO BOX 296
BIG HORN, WY 82833-0296

LEMANN, ANDREW
BONES BROTHERS RANCH
PO BOX 592
BIRNEY, MT 59012

LIPPINCOTT, KERRY
441 KIRK AVENUE
CASPER, WY 82601-3320

LITTLE BIRD, SR., DELBERT
BOX 11
ASHLAND, MT 59003-0011

LOCKE, CLIFFORD L
P O BOX 1141
FORSYTH, MT 59327

LOHOF, KAY B
QUARTER CIRCLE U RANCH INC
BIRNEY, MT 59012

LOHOF, PATRIC

OTTER, MT 59062

LOHOF, TIM & LISA
HC71 BOX 1A
BIRNEY, MT 59012

LONNIE, THOMAS P
P O BOX 36800
BILLINGS, MT 59107-6800

LOUIS, JIM
845 VICTORIA ST
SHERIDAN, WY 82801-3444

LUNDE, JERRY & KATHY
LUNDE RANCH
HC 59 BOX 19
DECKER, MT 59025

MACCONNEL, JUNE A
BOX 448
FORSYTH, MT 59327

MACDOUGALL, GORDON P
1025 CONNECTICUT AVE NW SUITE 410
WASHINGTON, DC 20036

MAHONEY, WILLIAM G.
HIGHSAW, MAHONEY & CLARKE
1050 SEVENTEENTH STREET NW SUITE 210
WASHINGTON, DC 20036

MANGUM, NEIL
PO BOX 39
CROW AGENCY, MT 59022

MARCEAU, FRANCIS G
98 SUSSEX DRIVE
KALISPELL, MT 59901-2731

MARKERSKY, MICHAEL
582 FRENCH CREEK ROAD
BUFFALO, WY 82834-9321

MARTENS, ALBERT A
BOX 379
FORSYTH, MT 59327

MARTIN, R CRAIG & DONNA
PO BOX 90
KREMLIN, MT 59532

MARTINEK, ROBERT R
351 NO 15TH AVENUE
FORSYTH, MT 59327-0105

MARTINSON, BETTY
BOX 911
FORSYTH, MT 59327

MATHERN, D A
PO BOX 584
LEWISTOWN, MT 59401

MCCURDY, ROBERT D
BOX 47
BROADUS, MT 59317

MCDOWELL, JOE
BOX 48
BROADUS, MT 59317

MCKINNEY, BILL & ANNE
4D RANCH-HC71
BIRNEY, MT 59012

MCKINNEY, MATTHEW
4D RANCH
BIRNEY, MT 59012

MCMASTER, KEMPER M
100 N PARK SUITE 320
HELENA, MT 59601

MCRAE, DOUG AND KIM
ROUTE 1
FORSYTH, MT 59327

MCRAE, MALCOLM J
9947 RUDIO RD
BILLINGS, MT 59101-6153

MCRAE, CLINT
ROCKER SIX CATTLE CO.
BOX 2055
FORSYTH, MT 59327

MCRAE, WALLACE D
ROCKER SIX CATTLE CO
HC 84 BOX 2055
FORSYTH, MT 59327

MCWILLIAMS, MARY ELLEN
1004 BIG GOOSE ROAD
SHERIDAN, WY 82801

MISCHEL, PAT A
47 ROAD 261
GLENDIVE, MT 59330

MORRIS, GREG
P O BOX 212
RANCHESTER, WY 82839

MULLENDORE, TAWNEY & WATT, P.C.
310 WEST SPRUCE STREET
MISSOULA, MT 59802

MUSGRAVE, BERNIECE M
MUSGRAVE RANCH
PO BOX 32
DECKER, MT 59012-0517

MUSGRAVE, WILLIAM R
MUSGRAVE RANCH
PO BOX 32
DECKER, MT 59025

NANCE, JAY
NANCE CATTLE COMPANY
BOX 20
BIRNEY, MT 59012

NEUBAUER, ROBERT J
1008 BUTTERNUT CIRCLE
FRANKFORT, IL 60423

NEWELL, ALAN
P O BOX 7086
MISSOULA, MT 59807-7086

NIPPLE, ALLEN
BOX 67
DECKER, MT 59025

NOMEE, CLARA
P O BOX 159
CROW AGENCY, MT 59022

NYBERG, D E
206 E BARRY
GLENDIVE, MT 59330

NYSTUEN, ROBERT A
PO BOX 1139
MILES CITY, MT 59301

OBERMILLER, ROD & MARY
PO BOX 522
DAYTON, WY 82836

OLLERMAN, LESTER
300 SOUTH MERRILL
GLENDIVE, MT 59330

ORR, ALICE
5400 KNOB ROAD
NASHVILLE, TN 37209

OWENS, NANCY
PO BOX 38
BASIN, MT 59631-0038

OWINGS, JOHN
627 VAL VISTA ST
SHERIDAN, WY 82801-3643

PARKER, WILLIAM H
BOX 852
FORSYTH, MT 59327

PENSON, NATALIE
BIG BEN RANCH INC
HC42 BOX 640
BUSBY, MT 59016

POLAND, TERRANCE
6 AIRWAY DR
SHERIDAN, WY 82801

PRESLER, JUDITH M
BIG BEND RANCH INC
HC42 BOX 640
BUSBY, MT 59016

QUARTER CIRCLE RANCH
HC 71 BOX 1A
BIRNEY, MT 59012

RADUE, KELLY F & CYNTHIA
HC 32 BOC 4261
MILES CITY, MT 59301

RANCH, LUNDA
HC 59 BOX 19
DECKER, MT 59025

REISNER, MIKE
ATTORNERY AT LAW
2401 MONTANA AVE, STE 200
BILLINGS, MT 59101

REYNOLDS, JOHN P
847 ARLINGTON BLVD
SHERIDAN, WY 82801

REYNOLDS, VIR JEAN
417 NORTH JEFFERSON
SHERIDAN, WY 82801

RICE, PAUL & BARBARA
11520 SE 165TH STREET
RENTON, WA 98055-5218

RICHARDSON, MARL L.
P O DRAWER 910
MILES CITY, MT 59301

RODDA, TOM W.
P O BOX 490
SAN JACINTO, CA 92383

RODRIGUEZ, JOE ARVIZU
PO BOX 820
LAME DEER, MT 59043

RYDER, GARY
P. O. BOX 72
HYSHAM, MT 59038

SALO, KEN
MORRISON-MAIERLE
PO BOX 6147
HELENA, MT 59604

SASSEVILLE, KATHERINE E.
215 SOUTH CASCADE STREET
FERGUS FALLS, MN 56537-2801

SCHEIDT, RICK
BOX 1388
FORSYTH, MT 59327

SCHONENBACK, SCOTT & HELEN
BOX 303
ASHLAND, MT 59003

SCHULTZ, M D
3636 34D AVENUE SO.
GREAT FALLS, MT 59401

SCHUSTER, JOE
P O BOX 779
FORSYTH, MT 59327

SHAW, KYLE & GAIL
HC 32 BOX 4331
MILES CITY, MT 59301

SHELBY, T R
9255 N. AVALANCHE CANYON RD
JACKSON, WY 83001-9002

SHELTON, NEIL
HC 83 BOX 48
ROSEBUD, MT 59347

SLONIM, MARC
ZIONTZ, CHESTNUT, VARNELL
2121 FOURTH AVENUE
SEATTLE, WA 98121-2307

SMALL, GAIL
PO BOX 409
LAME DEER, MT 59043

SMITH, PATRICK L
SMITH & GUENTHER P C
815 E FRONT STREET SUITE 3
MISSOULA, MT 59802

SMITH, TOM
GREER-MINOR
1600 BEVERLY DR
PALM SPRINGS, CA 92264-8714

ST. CLAIR, ROGER
40 E WORKS
SHERIDAN, WY 82801

STEINMETZ JR, HARRY
920 3RD ST
SOUTH HARDIN, MT 59034

STEVENS, KP & XAN
PO BOX 91
ASHLAND, MT 59003

STEVENSON, CLEATUS
P O BOX 436
ASHLAND, MT 59003-0436

STEVENSON, TYRONE
P O BOX 456
ASHLAND, MT 59003-0456

STRONG, TONYA & BILL
BOX 924
FORSYTH, MT 59327

TAHAN, THEODORE M.
TAHAN & SINDEL
900 FAIRLYNN CT
ST LOUIS, MO 63124-1243

TATEISHI, KATSUAKI & KEIKO
6 AIRWAY DR
SHERIDAN, WY 82801

TAYLOR, WALTER & LILA
BOX 595 KIRBY ROUTE
BUSBY, MT 59016

TESLOW, STEVE
745 TA CLEDE
SHERIDAN, WY 82801

THOMAS, CRAIG
RM 4003 FED. BLDG.
CASPER, WY 82601-1969

THORNTON, S S
1538 4TH AVE N W
GREAT FALLS, MT 59401

VALENTINE III, STEPHEN
HILL HOUSE
PO BOX 547
BIRNEY, MT 59012

WAMBOLT, FRED
111 GARRYOWEN ROAD
MILES CITY, MT 59301

WATT, MIKE
BOX 361
ASHLAND, MT 59003-0361

WELLS, RON
BALL RANCH
HC 32 BOX 4406
MILES CITY, MT 59301

WIEDRICH, KELLY
3337 DUCK CREEK RD
BILLINGS, MT 59101

WINTER, M. M.
2060 LINDY AVE
ST PAUL, MN 55113

WOZNIAK, THOMAS
46 DAVIS TEE
SHERIDAN, WY 82801

YOUNG, JOHN A
HC 59 BOX 15
DECKER, MT 59025