

**APPENDIX A
ENVIRONMENTAL CONDITIONS,
SURFACE TRANSPORTATION BOARD DECISION DOCUMENT**

APPENDIX: ENVIRONMENTAL CONDITIONS**GENERAL MITIGATION MEASURES****SAFETY****Grade Crossing/Warning Devices**

- 1A. To address potential safety impacts at highway/rail grade crossings, Applicant, in accordance with its Grade Crossing Mitigation Plan, shall apply its proposed PCAPS-based grade-crossing protection formula to the crossings on the existing rail line in South Dakota and Minnesota, for the anticipated tonnage levels of coal to be moved (20 million tons, 50 million tons, or 100 million tons annually).

Applicant shall consult with appropriate Federal and State transportation agencies to determine the final design and other details of the grade-crossing protections. Implementation of all grade-crossing protections shall be subject to the review and approval of FRA and the appropriate State Departments of Transportation. As agreed to by Applicant, Applicant shall pay 90 percent of the costs associated with these project-related grade-crossing protection upgrades on Applicant's existing line.

This Condition shall not apply to crossings in communities that have executed Negotiated Agreements with Applicant that address the communities' safety concerns. In those cases, the terms of the Negotiated Agreement will apply, so long as implementation of the Negotiated Agreement achieves at least an equivalent level of grade-crossing protection. Applicant shall complete these grade-crossing protections upon reaching the annual tonnage level of coal (20 million tons, 50 million tons, or 100 million tons annually) specified in its plan and shall certify to the Board such completion as part of its quarterly reports required by Condition 147.

- 1B. To address potential safety impacts at highway/rail grade crossings, Applicant shall apply its proposed PCAPS-based grade-crossing protection formula to the crossings on the new rail line in Wyoming, South Dakota, and the Mankato area of Minnesota (assuming that Alternative M-2 is approved and constructed), for the anticipated tonnage levels of coal to be moved (20 million tons, 50 million tons, or 100 million tons annually).

Applicant shall consult with appropriate Federal and State transportation agencies to determine the final design and other details of the grade-crossings protections and grade separations on the new rail line. Implementation of all grade-crossing protections and separations on the new rail line shall be subject to the review and approval of FRA and the appropriate State Departments of Transportation. As

agreed to by Applicant, Applicant shall pay 100 percent of the costs associated with these project-related grade-crossing protections along the new rail line.

This Condition shall not apply to crossings where communities or other entities have executed Negotiated Agreements with Applicant that address safety concerns. In those cases, the terms of the Negotiated Agreement will apply, so long as implementation of the Negotiated Agreement achieves at least an equivalent level of grade-crossing protection. Applicant shall complete these grade-crossing protections upon reaching the annual tonnage level of coal (20 million tons, 50 million tons, or 100 million tons annually) specified in its plan and shall certify to the Board such completion as part of its quarterly reports required by Condition 147.

2. Applicant shall maintain the new and existing rail line and grade-crossing warning devices according to FRA track-safety standards (49 CFR Part 213).

Emergency Response

3. At least one month prior to initiation of construction activities in the area, Applicant shall provide the information described below, as well as any additional information, as appropriate, to each local emergency response organization or other similar body for communities within the project area regarding project-related construction and operation of both the new and existing rail line:
- The schedule for construction throughout the project area, including the sequence of construction and reconstruction of public grade crossings and approximate schedule for these activities at each crossing.
 - Expected schedule for change in rail line operations along Applicant's existing system, including when changes in train speeds and levels of traffic are anticipated to occur, and current and new train speeds and levels of rail traffic.
 - A toll-free number for the Applicant's contact who shall be available to answer questions or attend meetings for the purpose of informing emergency-service providers about the project construction and operation.
 - Revisions to this information, including changes in construction schedule, as appropriate.
4. Applicant shall consult with the communities of Rochester, Owatonna, and Mankato, Minnesota, and Brookings and Pierre, South Dakota, and any other affected communities that so request, to coordinate train movements and emergency response and discuss the possible installation by the Applicant of a state-of-the-art electronic display board, or equivalent technology, such as a real time or Global Positioning System (GPS) train location monitoring system in the

local emergency-response center of each community showing the location of trains and/or the position of grade crossing warning signals.

5. Applicant shall coordinate with the appropriate State Departments of Transportation, counties, and affected communities to develop a program for installation of temporary notification signs or message boards on railroad property at public grade crossings, determined by the State and/or County to warrant such measures, clearly advising motorists of the impending increase in train traffic and train speeds along its existing system and commencement of operations along its new rail line. The format and lettering of these signs shall comply with the U.S. Department of Transportation (DOT), Federal Highway Administration's Manual on Uniform Traffic Control Devices, and shall be in place no less than 30 days before, and 6 months after, completion of project-related construction and reconstruction activities in the area. As an alternative, Applicant shall coordinate with the State Departments of Transportation to develop a mutually satisfactory media campaign to be conducted by Applicant throughout the counties and communities surrounding the rail line providing information and notice to the public of project-related changes along its existing system and commencement of operations along its new rail line. This campaign shall include the use of different media (radio, television, newspaper, public meetings, etc.) and may include such things as public-service announcements, advertisements, or legal notices. Prior to moving coal trains to and from the PRB, Applicant shall certify to the Board that it has complied with this condition as part of its quarterly reports required by Condition 147.
6. For each of the public grade crossings on the new and existing rail line, Applicant shall provide and maintain permanent signs prominently displaying both a toll-free telephone number and a unique grade-crossing identification number in compliance with Federal Highway Regulations (23 CFR Part 655). The toll-free number shall be answered 24 hours per day by Applicant's personnel. Where Applicant's right-of-way is close to another rail carrier's crossing, Applicant shall coordinate with the other rail carrier to establish a procedure regarding reported accidents and grade-crossing device malfunctions.
7. Applicant shall consult with interested communities along its new and existing rail line to identify alternative safety measures to eliminate the need to sound train horns in the community, in accordance with FRA's final rule on the *Use of Locomotive Horns at Highway-Rail Grade Crossings*.
8. Applicant shall install reflective material on the back of all passive crossing warning devices, such as crossbucks, on the new and existing rail line. Reflective material shall be installed so that headlights from vehicles approaching the grade crossing on the opposite side of the rail line will strike the material and illuminate it to provide a continual illumination in the absence of a passing train and a flashing appearance when a train is passing due to the space between the rail cars. Prior to moving coal trains to and from the PRB, Applicant shall certify to the

Board that it has complied with this condition as part of its quarterly reports required by Condition 147.

9. To the extent practicable, Applicant shall minimize trains blocking grade crossings throughout its system.

Track Warning Devices and Track Infrastructure

10. Applicant shall properly maintain its new and existing rail line. Maintenance shall include trimming vegetation on railroad property that obscures visibility of oncoming trains and assuring that rail, railroad ties, track fastenings, and ballast material are in good repair, and that warning devices operate properly and are legible.

Hazardous Material Handling Issues

11. Prior to initiating any project-related construction and reconstruction activities, Applicant shall develop a Spill Prevention, Control, and Countermeasure Plan (Plan) to prevent spills of oil or other petroleum products and other hazardous materials during construction and reconstruction activities, and operation and maintenance of the rail line. At a minimum, the Plan shall address the following:

- Definition of what constitutes a spill.
- Requirements and procedures for reporting spills to appropriate government agencies.
- Methods of containing, recovering, and cleaning up spilled material.
- Equipment available to respond to spills where the equipment is located.
- List of government agencies and Applicant's management personnel to be consulted with in the event of a spill.

In the event of a spill, Applicant shall comply with its Plan and applicable Federal, State, and local regulations pertaining to containment of the spill and appropriate clean up.

12. Applicant shall comply with DOT Hazardous Materials regulations (49 CFR Parts 171 and 179) when handling, storing, or disposing of hazardous materials. Applicant shall dispose of all materials that cannot be reused in accordance with applicable Federal, State, and local waste management regulations.

13. Applicant shall coordinate with the U.S. Environmental Protection Agency, Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, South Dakota Department of Environment and Natural Resources, and Wyoming Department of Environmental Quality to determine the exact location of hazardous-material sites known to occur within the existing or proposed rail line rights-of-way and comply with applicable laws concerning these sites.
14. Applicant shall develop internal emergency-response plans to allow for agencies and individuals to be notified in an emergency and to locate and inventory emergency equipment for use in dealing with emergencies. Applicant shall provide the emergency-response plans to the relevant State and local entities prior to moving coal trains to and from the PRB.
15. Applicant shall notify the United States Fish and Wildlife Service, and the appropriate State departments of natural resources, in the event of a reportable hazardous materials release with the potential to affect wetlands or wildlife habitat(s), particularly those of Federally threatened or endangered species.
16. Applicant shall use established standards for recycling or reuse of construction materials such as ballast and rail ties. When recycling construction materials is not a viable option, Applicant shall use disposal methods that comply with applicable solid hazardous waste regulations.

Fire Prevention

17. Prior to initiating any construction activities related to this project, Applicant shall, in consultation with the Natural Resource Conservation Service, local grazing organizations, appropriate Federal agencies, and local fire and emergency response departments, develop an adequate plan for fire prevention and suppression and subsequent land restoration, including natural habitats, during construction and operation of both the new and existing rail line. To the extent practicable, Applicant's plan shall ensure that all locomotives are equipped with functioning spark arresters on exhaust stacks and fire extinguishers suitable for flammable liquid fires and provide for the installation of low-spark brake shoes.

Miscellaneous

18. During project-related construction at grade crossings, when practicable, Applicant shall maintain at least one open lane of traffic at all times or provide for detours and associated signage, as appropriate, to allow for the quick passage of emergency and other vehicles.
19. In undertaking project-related construction activities, Applicant shall use construction materials and safety practices recommended by the American Railway Engineering and Maintenance of Way Association (AREMA) and the recommended standards for track construction in the AREMA Manual for

- Railway Engineering. Applicant shall maintain the track and provide for track inspection in compliance with AREMA and FRA requirements at 49 CFR 213.
20. Applicant shall adhere to Federal Occupational Safety and Health Administration (OSHA), FRA, and State construction and operational safety regulations to minimize the potential for accidents.
21. Where practicable, Applicant shall refuel locomotives at designated refueling locations. Applicant shall exercise care during refueling to prevent overflows. In no event shall Applicant conduct refueling activities in a location where an inadvertent spill would enter a watercourse, wetland, or other environmentally sensitive area.
22. Applicant shall make Operation Lifesaver programs available to communities, schools, and other organizations located along the new and existing rail line.
23. Applicant shall consult and coordinate with school districts regarding placement on railroad property of equipment to permit use of in-vehicle warning devices on school buses.
24. Applicant shall assure that roadway approaches and rail line crossings for both new and existing grade crossings are constructed or re-constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) design manual, applicable State rules, guidelines, or statutes, and the AREMA standards. The goal of grade-crossing design should be to eliminate rough or humped crossings to the extent practicable.

TRANSPORTATION

25. To the extent practicable, Applicant shall confine all project-related construction traffic to a temporary access road within the right-of-way or established public roads. Where traffic cannot be confined to temporary access roads or established public roads, Applicant shall make necessary arrangements with landowners to gain access from private roadways. The temporary access roads shall be used only during project-related construction. Any temporary access roads constructed outside the rail line right-of-way shall be removed upon completion of construction, unless otherwise agreed to in accordance with Condition 80.
26. Applicant shall consult with the State Departments of Transportation in Minnesota, South Dakota, and Wyoming and local road authorities in the affected counties or townships to ensure that project-related construction and reconstruction activities are consistent with State and local transportation plans, projects and proposals.

27. Applicant shall coordinate with FRA, the State Departments of Transportation in Minnesota, South Dakota, and Wyoming, and local road authorities to develop a plan for the identification and eventual closure of limited-use public crossings, particularly those at or below 100 Average Daily Traffic, where appropriate alternative public crossings are available.
28. To provide access for the safe movement of farm equipment to fields and pastures which otherwise would have to operate on public highways, as a result of road closures following construction and during operation of Applicant's rail yards, Applicant shall provide or develop appropriate alternative access to these fields and pastures. Alternatives for access could include development of frontage roads adjacent to yard boundaries, agreements for farmers to coordinate with the yard master to cross through the yard, if rail operations and safety conditions permit, or development of additional access roads.

LAND USE

29. Prior to initiation of construction or reconstruction activities related to this project, Applicant shall establish Community Liaison(s) to consult with affected communities, farmers, ranchers, businesses, landowners, and agencies; develop cooperative solutions to local concerns; be available for public meetings; and conduct periodic public outreach; and assist communities and other entities in establishing quiet zones. Such assistance may include coordination with FRA for identification of appropriate supplemental and alternative safety measures at grade crossings where quiet zones are desired; identifying potential sources of funding; providing assistance preparing funding applications and grant requests; and coordinating with representatives of potential lending organizations. The Community Liaison(s) shall have access to Applicant's upper management. Applicant shall provide the name and phone number of the Community Liaison(s) to mayors and other appropriate local officials in each community through which the new and existing rail line passes.
30. In many communities, adjacent property owners have encroached on Applicant's existing right-of-way. Applicant shall make reasonable attempts to identify and notify these individuals of its proposed project-related reconstruction schedule through these areas prior to beginning reconstruction activities in the area.
31. Applicant shall erect temporary construction fencing, where appropriate, or permanent fencing, prior to initiation of construction or reconstruction activities related to this project. If practicable, in incorporated areas, permanent fencing shall consist of 8-foot high chain link fence installed along all rail line right-of-way adjacent to residential property. Applicant shall consult with appropriate State and local authorities in unincorporated areas to determine appropriate fencing design. Applicant shall inspect all fencing regularly and promptly repair

- any damaged fencing. This condition shall not apply to those communities that have executed Negotiated Agreements with Applicant.
32. In rural areas, Applicant shall minimize the installation of fencing to areas where safety is a concern and areas where fencing is required to prevent livestock wandering on to the rail line. Applicant shall consult with Tribal wildlife officials, the South Dakota Department of Game, Fish and Parks, the Wyoming Game and Fish Department, and the Minnesota Department of Natural Resources, other applicable agencies, and affected landowners to determine appropriate fencing designs for each State. Fencing in rural areas should generally consist of 5-strand barbed wire fence. In order to protect antelope and other big game, Applicant shall encourage landowners in areas where antelope are present to allow construction of 4-strand fence with a smooth bottom wire at least 16 inches above ground level and the top wire not more than 42 inches high, or other designs approved by the applicable State wildlife agency. Applicant shall consult with appropriate State and local authorities in rural areas to determine appropriate fencing design. In areas where the rail line is not fenced, appropriate signage shall be installed to protect the public.
33. At least 48 hours prior to initiating herbicide applications, Applicant shall make reasonable attempts to notify property owners adjacent to the right-of-way of its anticipated schedule for herbicide application. Reasonable attempts could include posting a notice on its web site or publishing its schedule in local newspapers.
34. Applicant shall ensure that all areas disturbed by project-related construction or reconstruction activities which are not owned by the railroad (such as access roads, haul roads, crane pads, and borrow pits), are promptly restored as closely to their original condition as is practical following conclusion of project-related construction or reconstruction activities.
- Applicant shall coordinate with the State Departments of Transportation and Federal and State land management agencies, subject to approval of the land owner, to determine if temporary access roads developed for project-related construction should be removed and the area restored to its previous condition or retained for maintenance by the agency, State, or county to provide additional access to public lands.

Agriculture/Ranching

35. Applicant shall provide its project-related reconstruction and construction schedule to affected farmers and ranchers to allow them to determine whether they should continue to crop or graze in right-of-way areas or discontinue such activities due to impending construction and reconstruction activities.

36. Applicant's Community Liaison(s), established by Condition 29, shall work with farmers and ranchers to remedy any damage to crops, pastures, or rangelands caused by Applicant's project-related construction or reconstruction activities and develop appropriate measures to prevent encroachment into the rail line right-of-way. The Community Liaison(s) also shall have authority to provide information on anticipated train schedules to farmers and ranchers to facilitate movement of equipment or livestock from one side of the rail line to the other.
37. In negotiations with farmers and ranchers, Applicant shall be guided by the Land Use Mitigation Policy and Plan negotiated between the Applicant with the Landowner Advisory Board, which addresses the following areas of concern:
- Direct and indirect land loss.
 - Displacement of capital improvements (wells, windmills, corrals, outbuildings, irrigation systems, etc.).
 - Noxious weed control.
 - Fencing.
 - Livestock casualty.
 - Fire prevention and suppression.
 - Fire casualty.
 - Construction-related impacts.

Residential

38. Applicant's project-related construction vehicles, equipment, and workers shall not access work areas by crossing residential properties unless negotiated with and agreed to by the property owner.
39. In residential areas, Applicant shall store its equipment and materials in established storage areas or on Applicant's property to the extent practicable.
40. The Community Liaison(s), established in Condition 29, shall work with affected landowners to appropriately redress any damage to the landowner's property caused by Applicant's project-related construction or reconstruction activities.

Business and Industrial

41. Applicant's project-related construction vehicles, equipment, and workers shall not access work areas by crossing business or industrial areas, including parking areas or driveways, unless negotiated with, and agreed to by, the business owner.
42. In business and industrial areas, Applicant's project-related equipment and materials shall be stored in established storage areas or on Applicant's property. Parking of Applicant's equipment, or vehicles, or storage of materials along driveways or in parking lots is prohibited unless agreed to by the property owner.
43. The Community Liaison(s), established in Condition 29, shall work with affected businesses or industries to appropriately redress any damage to the business's property caused by Applicant's project-related construction or reconstruction activities.
44. Applicant shall insure that entrances and exits for businesses are not obstructed by project-related construction activities, except as required to move equipment.

Minerals and Mining

45. To help maintain the existing natural environment to the extent practicable, Applicant shall utilize materials such as rock, gravel, and sand available from local sources in its project-related activities.
46. Applicant shall consult with the owners of existing mines and quarries in the project area, particularly the quarry in Mankato, Minnesota, if Alternative M-3, the existing rail corridor alternative through Mankato, is built, to ensure that project-related construction and reconstruction activities minimize impacts to mine-related operations.
47. Prior to initiating construction of the new rail line, Applicant shall obtain any necessary permits from the U. S. Department of Interior, Bureau of Land Management (BLM) regarding mineral removal and oil and natural gas lessees.
48. Prior to undertaking project-related construction and reconstruction activities, Applicant shall make a reasonable effort to notify all mineral lessees/claimants where BLM has mineral ownership.

Federal Lands

49. Applicant shall obtain a Special Use Permit from the U.S. Forest Service (USFS) granting an easement for the rail line to cross lands administered by the USFS designated as National Grasslands prior to initiating any project-related construction activities on USFS lands. Any conditions required under this Special Use Permit, in addition to those imposed by the Board, shall be adhered to by Applicant for activities on USFS lands.

50. Applicant shall obtain a permit from the U.S. Department of Interior's Bureau of Reclamation (Reclamation) for crossing any facilities, irrigation ditches, or canals which are part of the Angostura Irrigation Project. Any conditions required under this permit, in addition to those imposed by the Board, shall be adhered to by Applicant for activities affecting Reclamation lands. In addition, Applicant shall comply with the Memorandum of Agreement executed by Applicant and Reclamation.
51. Applicant shall obtain a right-of-way grant from BLM for the rail line to cross any public lands administered by BLM prior to initiating any project-related construction activities on public lands. Applicant shall comply with the terms and conditions required of this right-of-way grant, in addition to the mitigation imposed by the Board, for activities on public lands administered by BLM.
52. No USFWS lands, such as waterfowl production areas and wetland easements, will be crossed by the project-related construction or reconstruction. However, a new rail yard facility under Alternative C could be located across a wetlands easement. In that event, Applicant shall acquire and provide to the USFWS additional wetlands easement(s), replacing in kind, function, and value, and subject to USFWS approval and necessary environmental reviews and permitting, the wetland easement(s) lost from project-related rail yard construction.

State Lands

53. If any project-related construction activities, including location of new rail line, staging or laydown yards, or access points, either temporary or permanent, are required on State lands, Applicant shall consult with the appropriate State personnel prior to conducting these activities. To the extent practicable, Applicant shall avoid use of public lands as part of project development.
54. Applicant shall consult with managers of State lands to determine peak use periods for the State lands that provide for over-night use. Applicant shall attempt to schedule project-related construction activities to avoid these periods, to the extent practical.

Utility Corridors

55. Applicant shall make reasonable efforts to identify all utilities that are reasonably expected to be materially affected by the proposed construction within its existing right-of-way or that cross its existing right-of-way. Applicant shall notify the owner of each such utility identified prior to project-related construction and reconstruction activities and coordinate with the owner to minimize damage to utilities. Applicant shall also consult with utility owners to design the rail line so that utilities are protected during project-related construction and reconstruction activities and subsequent maintenance and operation of Applicant's rail line.

56. Should such previously unidentified utilities be discovered during project-related construction activities, Applicant shall cease construction, take appropriate action to protect the utility, and contact the utility owner immediately. In the event of damage to any utility during project-related construction, reconstruction, or operation, Applicant shall contact the utility owner immediately and take appropriate remedial action.
57. Applicant shall make reasonable efforts to protect existing drainage tile systems present in agricultural lands adjacent to the rail line right-of-way during project-related construction and reconstruction activities. Applicant shall repair, as quickly as practicable, any damage to these systems due to project-related rail construction and reconstruction activities.
58. Applicant shall dispose of all non-recyclable and non-reusable solid waste generated during project-related construction and reconstruction activities in permitted landfills or other disposal sites in accordance with all applicable Federal, State, and local regulations.

WATER RESOURCES

59. Applicant shall obtain all Federal permits, including the Clean Water Act Section 404 and Rivers and Harbors Act of 1899 Section 10 permits, required by the U.S. Army Corps of Engineers, for project-related alteration or encroachment of wetlands, ponds, lakes, streams, or rivers, including the Missouri River, prior to initiation of any project-related construction and reconstruction. Additionally, Applicant shall obtain appropriate permits from the State of Minnesota, including Protected Waters Permits, for impacts to water resources in Minnesota due to project-related construction and reconstruction activities.
60. Applicant shall obtain a National Pollutant Discharge Elimination System (NPDES) permit from each State (Minnesota, South Dakota, Wyoming) affected by project-related construction or reconstruction activities.
61. To minimize sedimentation into streams and waterways, Applicant shall use best management practices, such as silt screens and straw bale dikes, to minimize soil erosion, sedimentation, runoff, and surface instability during project-related construction and reconstruction activities. Applicant shall disturb the smallest area possible around any streams and tributaries, and shall consult with the Natural Resource Conservation Service, Minnesota Department of Natural Resources, South Dakota Department of Game, Fish, and Parks, Minnesota Pollution Control Agency, Wyoming Department of Game and Fish, and the State Departments of Transportation to ensure proper revegetation of disturbed areas as soon as practicable following project-related construction or reconstruction activities.

62. Applicant shall establish staging areas for project-related construction equipment in areas that are not environmentally sensitive in order to control erosion. When project-related construction activities, such as culvert and bridge work, require work in stream beds, Applicant shall conduct these activities, to the extent practicable, during low flow or periods when the stream is dry.
63. When engaging in any project-related construction activities near streams, Applicant shall construct temporary stream crossings as close to a right angle with the stream as possible. Applicant also shall design temporary bridges to span across the ordinary high water elevations of waterways to the extent practical. Following the project-related construction, Applicant promptly shall remove all temporary construction crossings and restore the area to as close to its original condition as possible.
64. Applicant shall ensure that, when used in its project-related construction activities, cofferdams or check dams consist of native material, sheet pile, sandbags, or other engineered designs matching the local site conditions. All materials used in the construction of cofferdams or check dams shall be completely removed upon completion of construction.
65. Applicant shall establish staging and laydown yards for project-related construction at least 300 feet from wetlands or waterways, if topography permits. If topographic conditions do not permit a 300-foot distance, these areas shall be located no less than 50 feet from the water's edge. Applicant shall not clear any vegetation between the yard area and the waterway or wetlands.
66. Applicant shall inspect all equipment for any oil, gas, diesel, anti-freeze, grease, hydraulic fluid, and other petroleum product leaks. If leaks are found, Applicant shall immediately remove the equipment from the construction zone, and repair or replace it.
67. Applicant shall ensure that all culverts and bridges are clear of debris to avoid potential flooding and stream flow alteration. Applicant shall design all project-related drainage crossing structures to pass a 100 year flood. Applicant shall reconstruct the existing rail line and construct the new rail line in such a way as to maintain current drainage patterns to the extent practicable and not result in new drainage of wetlands. Applicant shall inspect all drainages, bridges, and culverts semi-annually (or more frequently, as seasonal flows dictate) for debris accumulation. Applicant shall promptly remove debris and properly dispose of it in an upland area.
68. To ensure the integrity of the Flood Control Project in Mankato, Minnesota if Alternative M-3, the existing rail corridor alternative through Mankato, is built, Applicant shall coordinate with the U.S. Army Corps of Engineers, the City of Mankato, and other appropriate local agencies in Mankato and obtain any

- necessary permits to prevent adverse impacts from project-related rail line construction and operation to flood control structures.
69. Applicant shall employ best management practices to control turbidity and disturbance to bottom sediments during project-related construction or rehabilitation of Applicant's bridge over the Missouri River at Pierre, South Dakota.
70. Applicant shall obtain a Bridge Permit from the U.S. Coast Guard for any project-related activities that would result in the extensive modification of Applicant's existing rail bridge over the Missouri River in Pierre, South Dakota or for construction of a new rail bridge over the river.
71. Applicant shall complete project-related construction and reconstruction activities through wetlands, when such wetlands extend outside the rail line right-of-way in continuous segments, in order to minimize both the time required to complete construction and the time land adjacent to wetlands is disturbed.
72. Applicant shall ensure that any herbicides used in right-of-way maintenance to control vegetation are approved by EPA and are applied by licensed individuals who shall limit application to the extent necessary for rail operations. Applicant shall ensure that only herbicides determined by EPA to be acceptable for use around waterways shall be applied within 150 feet of perennial streams, rivers, and wetlands. Herbicides shall be applied so as to prevent or minimize drift off of the right-of-way onto adjacent areas.
73. Applicant shall ensure that any wells that could be affected by project-related construction or reconstruction activities are appropriately protected or capped to prevent well and groundwater contamination. If these wells are located on private land, Applicant shall first secure permission from the landowner before undertaking any such activities. In the event that Applicant does not receive such permission upon reasonable request, it may petition the Board to be relieved of this obligation.
74. Applicant shall ensure that new project-related stream, river, and floodplain crossings are appropriately designed to minimize impacts to community-designed floodways. In those areas where a community-designed floodway does not exist, Applicant shall ensure that new waterway crossing structures are sufficient to pass a 100 year flood without increasing the flood level by more than one-half foot.
75. Applicant shall consult with the Minnesota Department of Natural Resources to design project-related waterway crossing structures to allow passage of fish.

76. Applicant shall prohibit project-related construction vehicles from driving in or crossing streams at other than established crossing points.
77. Applicant shall, to the extent practicable, ensure that any fill placed below the ordinary high water line of wetlands and streams is clean and free of fine materials. Applicant also shall use fill from local sources where practicable. All stream crossing points shall be returned to their pre-construction contours to the extent practicable, and the crossing banks reseeded or replanted with native species immediately following project-related construction.

RECREATION

78. Applicant shall ensure that adequate clearances and access are provided for safe navigation of recreational boats on the Missouri River at the location of any project-related rehabilitation or construction of Applicant's bridge across the Missouri River at Pierre, South Dakota. Applicant also shall install appropriate warning devices to notify boaters of project-related bridge construction activities and the location of a safe navigation route.
79. If Alternative M-3, the existing rail corridor alternative through Mankato, Minnesota is built, Applicant shall provide appropriate fencing along the rail line in Mankato adjacent to parks, trails, or other recreational areas to provide a safe environment for users of the facilities. Applicant shall consult with the City of Mankato about appropriate fencing design and the possibility of providing landscaping, including vegetative screening.
80. Applicant shall consult with Federal land managers such as the U.S. Forest Service and Bureau of Land Management, and State land managers including the Minnesota Department of Natural Resources, South Dakota Game, Fish and Parks, and Wyoming Game and Fish Department to determine locations where project-related construction and reconstruction activities will result in lost or reduced access to public lands due to temporary road closures or other construction related activities. Applicant shall develop a plan to provide alternative access to these lands during project-related construction and reconstruction activities and operation of unit coal trains to the extent practicable.

AIR QUALITY

81. Applicant shall continue to consult with the Air Quality Working Group, consisting of agencies with appropriate technical expertise which was established for this project, to develop a mutually satisfactory approach to minimize the impacts of regional haze on Class I airsheds resulting from the locomotive emissions of Applicant's PRB coal trains. If no mutually satisfactory approach is developed within one year of the effective date of the Board's decision giving final approval to the PRB Expansion Project, then Applicant shall fund 50 percent of the cost of a mediator to assist the parties to reach an agreement. However, the

parties jointly may seek more time to continue their negotiations without a mediator if they believe that would be more productive. If the Working Group and Applicant jointly decide that further consultations and/or mediation would be fruitless, then the Working Group may be disbanded. Applicant shall apprise the Board of the status of the ongoing Working Group consultations in the quarterly reports required by Condition 147, and shall also notify the Board if a Memorandum of Agreement is executed, or if the Working Group is disbanded.

82. Applicant shall meet the Environmental Protection Agency emissions standards for diesel-electric railroad locomotives (40 CFR Part 92) when purchasing and rebuilding locomotives for movement of unit coal trains throughout its system.
83. Applicant, to the extent practicable, shall adopt fuel saving practices, such as throttle modulation, dynamic braking, increased use of coasting trains, isolation of unneeded horsepower, and shutting down locomotives when not in use for more than an hour when temperatures are above 40 degrees, to reduce overall emissions during project-related operations.
84. To minimize fugitive dust emissions created during project-related construction and reconstruction activities, Applicant shall implement appropriate fugitive dust suppression controls, such as spraying water, applying a magnesium chloride treatment, tarp covers for haul vehicles, installation of wind barriers, or other State-approved measures. Applicant shall also regularly operate water trucks on haul roads to reduce dust.
85. Applicant shall obtain appropriate burning permits from the applicable State and local agencies, including the Minnesota Department of Natural Resources, Division of Forestry, South Dakota Department of Environment and Natural Resources, and Wyoming Department of Environmental Quality, prior to any project-related open burning. Open burning shall only be used by Applicant if no other reasonable means of solid waste disposal is available. Applicant also shall notify local fire departments at least four hours before any project-related open burning and obtain verbal or written permission from the fire departments prior to open burning activities.

NOISE AND VIBRATION

86. Applicant shall consult with affected communities regarding Applicant's project-related construction schedule, including the hours during which construction takes place, to minimize, to the extent practicable, construction-related noise disturbances in residential areas.
87. Applicant shall ensure that curves are lubricated where doing so would reduce noise for residential or other noise sensitive receptors.

- 88. Prior to initiating project-related construction activities, Applicant shall develop a Construction Noise and Vibration Control Plan (the Plan) to minimize construction noise and vibration within the communities along the rail line. Applicant shall designate a noise control officer/engineer to develop the Plan, whose qualifications shall include at least five years' experience with major construction noise projects, and board certification membership with the Institute of Noise Control Engineering or registration as a Professional Engineer in Mechanical Engineering or Civil Engineering.
- 89. Applicant shall comply with FRA regulations (49 CFR Part 210) establishing decibel limits for train operations.
- 90. Applicant shall consult with interested communities along its new and existing rail line to identify measures to eliminate the need to sound train horns consistent with FRA standards.
- 91. Applicant shall regularly inspect rail car wheels to maintain wheels in good working order and minimize the development of wheel flats (areas where a round wheel becomes no longer round but has a flat section, leading to a clanking sound when a rail car passes). Prior to moving PRB coal trains, Applicant shall inspect new and existing rail for rough surfaces and grind these surfaces to provide a smooth rail surface during project-related rail operations.
- 92. As proposed by Applicant, continuously welded rail shall be used, unless it is impractical, in Applicant's project related construction and reconstruction activities.
- 93. Applicant shall maintain project-related construction and maintenance vehicles in good working order with properly functioning mufflers to control noise.
- 94. Because rail switches contain a break in the continuously welded rail which can often create additional noise and ground vibration as trains pass over or through the switch, during project-related rehabilitation of the existing rail line, Applicant shall remove or consolidate switches determined to no longer be needed.
- 95. Applicant shall mitigate train wayside noise (locomotive engine and wheel/rail noise) for the noise-sensitive receptors along Applicant's existing rail line and project-related new rail line construction that fall within the 70 dBA Ldn noise contour for wayside noise, as specified below. With the written concurrence of the responsible local government(s), Applicant shall mitigate wayside noise with building sound insulating treatments, including insulated windows. The design goal for noise mitigation shall be a 10 dBA noise reduction. The minimum noise reduction achieved shall be 5 dBA.

The receptors that will require mitigation will depend on the anticipated tonnage levels of coal to be moved (20 million tons, 50 million tons, or 100 million tons

annually). As coal train operations increase, the 70 dBA Ldn noise contour will widen. Therefore, within 2 years of transporting 20, 50, or 100 million tons of coal annually, Applicant shall certify to the Board in its quarterly reports required by Condition 147 that it has met this condition for all affected receptors that fall within the 70 dBA noise contour for the level of coal then being moved.

Noise barrier performance shall be determined in accordance with ANSI S12.8-1987, *American National Standard Methods for Determination of Insertion Loss of Outdoor Noise Barriers*. Sound insulation performance shall be determined in accordance with ASTM 966-90, *Standard Guide for Field Measurements of Airborne Sound Insulation of Building Facades and Facade Elements*. This condition shall not apply to those communities or other entities that have executed Negotiated Agreements with Applicant.

Should noise mitigation be required at locations identified as containing structures that are potentially eligible for listing on the National Register of Historic Places, Applicant shall consult with the appropriate State Historic Preservation Officer to assess effects and implement appropriate mitigation measures.

The total number of noise sensitive receptors that meet the wayside noise mitigation criteria at the three applicable tonnage levels are listed below:

County^a Community^b	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons^c	Total Number of Receptors - 100 million tons^c
MINNESOTA			
Winona	2	5	1
Olmsted	11	0	1
Chester	0	1	1
Rochester	15	29	44
Dodge	3	0	4

Table 12-1 Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria			
County ^a Community ^b	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons ^c	Total Number of Receptors - 100 million tons ^c
Steele	0	0	6
Meriden	2	4	5
Waseca	1	0	2
Smiths Mill	0	1	1
Blue Earth - Existing Rail Line	1	4	0
Smiths Mill	1	2	1
Judson	0	2	4
Cambria	0	0	3
Blue Earth - Alternative M-2	13	9	9
Blue Earth - Alternative M-3	1	5	3
Eagle Lake	3	4	11
Mankato	31	7	40
Brown	0	4	6
Essig	0	0	1
Redwood	0	0	0
Lyon	0	0	1
Burchard	0	0	0
Lincoln	0	0	1
Verdi	0	0	2

Table 12-1 Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria			
County ^a Community ^b	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons ^c	Total Number of Receptors - 100 million tons ^c
SOUTH DAKOTA			
Brookings	0	7	22
Kingsbury	0	0	0
Manchester	0	0	2
Beadle	0	0	1
Hand	0	2	0
Vayland	0	0	0
Hyde	0	0	1
Holabird	0	0	0
Hughes	0	0	1
Canning	0	0	0
Alto	0	0	0
Pierre	0	13	29
Stanley	0	1	0
Wendte	0	0	2
Jones	0	0	0
Capa	0	0	0
Haakon	0	2	0
Nowlin	0	0	0
Powell	0	0	0
Jackson	0	0	0

Table 12-1 Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria			
County ^a Community ^b	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons ^c	Total Number of Receptors - 100 million tons ^c
Pennington	0	1	0
Custer	0	0	0
Fall River	0	1	0
Smithwick	0	0	0
Heppner	0	0	0
Dudley	0	1	1
Marietta	0	1	0
WYOMING			
Niobrara	0	0	0
Weston	0	0	0
Campbell	0	0	0
Converse	0	0	0
TOTAL	36^d	81^e	143^f

Table 12-1 Number of Noise Sensitive Receptors that Meet Wayside Noise Mitigation Criteria			
County ^a Community ^b	Total Number of Receptors - 20 million tons	Total Number of Receptors - 50 million tons ^c	Total Number of Receptors - 100 million tons ^c
^a	Represents number of noise sensitive receptors located outside the limits of established communities within the county.		
^b	Represents number of noise sensitive receptors located within the limits of the established community for which the receptor(s) are listed.		
^c	Represents number of noise sensitive receptors eligible for mitigation and not mitigated under previous levels of rail operations.		
^d	Add 13 noise sensitive receptors for Alternative M-2. Add 35 noise sensitive receptors for Alternative M-3.		
^e	Add 9 noise sensitive receptors for Alternative M-2. Add 16 noise sensitive receptors for Alternative M-3.		
^f	Add 9 noise sensitive receptors for Alternative M-2. Add 54 noise sensitive receptors for Alternative M-3.		

96. To minimize noise and vibration, Applicant shall install and properly maintain rail and rail beds according to the AREMA standards and shall regularly maintain locomotives, keeping mufflers in good working order to control noise.

BIOLOGICAL RESOURCES

97. Applicant shall comply with the Biological Assessment that has been prepared under Section 7 of the Endangered Species Act, 16 U.S.C. 1531, and the Biological Opinion prepared by the U.S. Fish and Wildlife Service for this project.

98. Applicant shall develop and implement, in consultation with the U.S. Fish and Wildlife Service, South Dakota Department of Game, Fish and Parks, Wyoming Game and Fish Department, and Minnesota Department of Natural Resources, a habitat restoration plan designed to compensate for the loss of trees, shrubs, and other woody vegetation, prairies, and other important wildlife habitats as a result of construction and reconstruction related to this project. Applicant's plan shall

focus in particular on riparian areas or other areas that are not addressed as part of wetland mitigation.

99. Applicant shall conduct a survey for raptor nests, including bald eagles, prior to the initiation of project-related construction activities. Applicant also shall attempt to minimize disturbance to active nests until after active nesting has been completed for the season. Applicant shall consult and coordinate with the applicable State agency (South Dakota Department of Game, Fish and Parks, Wyoming Game and Fish Department, or Minnesota Department of Natural Resources) to determine the appropriate action to compensate for raptor nests removed or destroyed during project-related construction activities.
100. Prior to initiating project-related construction activities, Applicant shall consult with the Natural Resource Conservation Service, local grazing associations, and interested landowners, to develop an adequate plan for controlling noxious weeds. The plan should include an approved list of herbicides.
101. Prior to initiating new rail line construction activities in South Dakota and Wyoming, Applicant shall consult with the South Dakota Department of Game, Fish and Parks, Wyoming Department of Game and Fish, and Tribal wildlife officials to develop mutually acceptable under- and overpass designs and locations to protect wildlife, particularly big game. Considerations for under- and overpass locations should include providing access to wildlife water sources, particularly for big game. Applicant shall develop additional water sources for wildlife to replace those lost, adversely affected, or rendered inaccessible to wildlife due to new rail line construction if suitable alternative sources are not available to wildlife.
102. Prior to initiating new rail line construction activities in South Dakota and Wyoming, Applicant shall coordinate with the South Dakota Department of Game, Fish and Parks, Wyoming Game and Fish Department, and Tribal wildlife officials to develop adequate fencing standards and designs to allow for movement of wildlife, particularly big game, across the right-of-way. Applicant shall encourage the use of these types of fencing when negotiating with landowners on fence installation on private property. (See also Condition 32.)
103. Applicant shall remove carcasses from the rail line right-of-way as part of normal rail line inspection and maintenance activities.
104. Prior to initiation of project-related reconstruction activities in Minnesota and South Dakota, Applicant shall conduct a survey of the existing rail line right-of-way to identify native prairie remnants within the existing right-of-way. To the extent practicable, these areas shall be avoided during project-related reconstruction activities. Applicant also shall coordinate with the Minnesota Department of Natural Resources and the South Dakota Department of Game, Fish and Parks to develop a plan for the re-establishment of prairie vegetation in

prairie remnants which cannot be avoided during project-related reconstruction activities. Such a plan should include, as appropriate, the stripping and stockpiling of topsoil for placement in the disturbed area during revegetation and the use of seed previously taken from the area or other local prairie remnants to revegetate disturbed prairie remnants within the existing right-of-way.

CULTURAL RESOURCES

105. Applicant shall provide written or other resources to inform its workers (both temporary and full-time) of the applicable Federal, State, and local requirements for the protection of archaeological resources, graves, other cultural resources, and wildlife (including those concerning threatened and endangered species), as well as the applicable requirements of trespass laws, traffic regulations (such as speed limits and weight restrictions), and regulations pertaining to waste disposal. Applicant's resources shall inform construction workers of the importance of protecting archaeological resources, graves and other cultural resources, and how to recognize and treat these resources. Applicant shall also establish policies to deter casual collection by construction workers of cultural resources.
106. Applicant shall comply with the Programmatic Agreement and Identification Plan that has been developed through the Section 106 consultation process under the National Historic Preservation Act.
107. Applicant shall implement all the mitigation included in the Memorandum of Agreement that has been developed to ensure that the concerns of Native American Tribes related to the proposed project which are outside the Section 106 process under the National Historic Preservation Act are considered and addressed.
108. Prior to initiating project-related construction or rehabilitation of Applicant's bridge over the Missouri River located at Pierre, South Dakota, Applicant shall ensure that the Section 106 process of the National Historic Preservation Act is completed for all archaeological sites and historic structures that would be impacted by the proposed project.

ENVIRONMENTAL JUSTICE

109. Applicant shall consult and coordinate with the Lakota Sioux Tribe to develop a Hazardous Material Emergency Response Plan to account for the special needs of Tribal members on the Pine Ridge Reservation in South Dakota, particularly those inhabiting Red Shirt, South Dakota. This plan shall include Applicant-sponsored training in hazardous materials response for appropriate Tribal personnel with emphasis on methods to protect the Cheyenne River, an important resource to the Pine Ridge Reservation, in the event of a spill of petroleum products such as oil or diesel fuel, or other hazardous materials.

110. Prior to initiation of project-related construction or reconstruction activities, Applicant shall establish a Tribal Liaison to consult with interested and affected Tribes, develop cooperative solutions to the Tribes' concerns, discuss possible job opportunities for Tribal members, be available for Tribal meetings, conduct public outreach to educate the public on the importance of archaeological and paleontological resources to Native American Tribes, and conduct periodic Tribal outreach. This Tribal Liaison shall have access to Applicant's upper management. Applicant shall provide the name and phone number of the Tribal Liaison to Tribal officials including Tribal chairmen, Tribal Historic Preservation Officers, and other Tribal designees.

GEOLOGY AND SOILS

111. Applicant shall limit ground disturbance only to the areas necessary for project-related construction and reconstruction activities.
112. During project-related earthmoving activities, Applicant shall remove topsoil and segregate it from subsoil. Applicant shall also stockpile topsoil for later application during reclamation of the right-of-way. Applicant shall place the topsoil stockpiles in areas that would minimize the potential for erosion, and use appropriate erosion control measures around all stockpiles to prevent erosion.
113. Applicant shall commence reclamation of disturbed areas as soon as practicable after project-related construction ends along a particular stretch of rail line. The goal of reclamation shall be the rapid and permanent reestablishment of ground cover on disturbed areas. Applicant shall attempt to reclaim disturbed areas prior to cessation of project-related construction activities for the winter to avoid disturbed soils being subject to erosion throughout the winter. If weather or season precludes the prompt reestablishment of vegetation, Applicant shall use measures such as mulching, netting, or ground blankets to prevent erosion until reseeded can be completed.
114. Prior to initiating project-related construction activities, Applicant shall consult with the local offices of the Natural Resources Conservation Service, State Departments of Natural Resources, Fish and Game, and State Departments of Transportation, to develop an appropriate plan for restoring and revegetating the disturbed areas (including appropriate greenstrip seed mix specifications). Applicant shall monitor reclaimed areas for three years following the revegetation. For those areas where efforts to establish vegetative cover have been unsuccessful after one year, Applicant shall reseed annually until vegetative cover is established.
115. Applicant shall take reasonable steps to ensure that fill material used in project-related construction activities is free of contaminants.

116. Applicant shall design and construct the new rail line so as to consider local geologic potentials for slumping and landslides and develop and implement adequate measures to minimize the potential for these to occur.

PALEONTOLOGICAL RESOURCES

117. Prior to engaging in any project-related construction across Federal lands, Applicant shall conduct testing within the proposed right-of-way where there is a potential for paleontological resources of Class 3 or higher. This testing shall be done to the depth below ground surface at which the rail line is anticipated to be constructed. Prior to initiating project-related construction activities in the areas that warrant testing, Applicant shall prepare a paleontological resources report identifying any resources encountered, as well as the strata most likely to contain significant paleontological resources. Applicant shall submit the report to the Board and the appropriate Federal land managing agency. After submitting the report, Applicant shall consult with the appropriate Federal land managing agency to develop appropriate measures to minimize damage to paleontological resources during project-related construction. These measures may include a requirement that the Applicant retain a paleontologist to be present during earthmoving activities affecting the strata most likely to contain significant fossil resources.
118. If paleontological resources are encountered during project-related construction activities on Federal lands, Applicant shall immediately cease construction activities, inform the appropriate Federal land managing agency of the identified resource, and arrange for evaluation of the resource and determination of how to protect the resource by a qualified paleontologist. The paleontologist may be employed by the Federal land managing agency, the relevant State Historic Preservation Office, or may be retained by Applicant. Any paleontological resources recovered from project-related construction activities across Federal lands shall remain the property of the United States Government.
119. If significant paleontological resources are encountered during project-related construction activities on private lands, construction crews shall notify the appropriate agencies and take appropriate actions at the work site to protect paleontological resources.

NEGOTIATED AGREEMENTS

120. Applicant shall comply with the terms of all Negotiated Agreements developed with local communities regarding environmental issues associated with the PRB Expansion Project. The following list provides the Negotiated Agreements received by the Board to-date:

Table 12-2			
Negotiated Agreements			
Minnesota			
Balaton	Byron	Claremont	Cobden
Dodge Center	Dover	Eyota	Garvin
Janesville	Kasson	Lake Benton	Lamberton
Lewiston	Minnesota City	New Ulm	Owatonna
Revere	Sanborn	Sleepy Eye	Springfield
Stockton	St. Charles	Tracy	Tyler
Utica	Walnut Grove	Waseca	
South Dakota			
Arlington	Aurora	Blunt	Cavour
Cottonwood	Desmet	Elkton	Ft. Pierre
Harrold	Hetland	Highmore	Huron
Iroquois	Lake Preston	Midland	Miller
Phillip	Quinn	Ree Heights	St. Lawrence
Volga	Wall	Wessington	Wolsey

SITE-SPECIFIC MITIGATION MEASURES

Minnesota

121. Applicant shall install two grade separated crossings in Rochester, Minnesota, at Broadway Avenue, East Circle Drive, West Silver Lake Drive/2nd Avenue NE, 6th Avenue, or another mutually acceptable location. Applicant shall consult with FRA, Federal Highway Administration (FHWA), appropriate State and local transportation authorities, and the City of Rochester on the design (for example, whether the road would go over or under the rail line), location, and funding of these grade separations. Applicant shall complete installation of one grade separated crossing prior to transporting more than 20 million tons of coal annually through Rochester for more than one year. Applicant shall complete installation of a second grade separated crossing prior to transporting more than 50 million tons of coal annually through Rochester for more than one year. These grade separated crossings should be designed and located to facilitate the movement of emergency vehicles to and from medical facilities providing emergency services in Rochester, including St. Mary’s Hospital and Methodist Hospital, which are both facilities of the Mayo Clinic. During the Board’s oversight period, Applicant

- shall apprise SEA of the progress being made toward implementation of this condition in the quarterly reports required by Condition 147.
122. Prior to initiation of project-related reconstruction activities in Rochester, Minnesota, Applicant’s upper management shall meet with representatives of the Mayo Clinic to consult and coordinate with the Mayo Clinic on how best to minimize project-related impacts on the Clinic. Applicant’s upper management shall continue to meet with Clinic representatives on a regular basis during the Board’s oversight period.
 123. Applicant, prior to transporting 50 million tons of coal annually through Rochester, Minnesota, shall coordinate with the City of Rochester, Olmsted County, Minnesota Department of Transportation, and FRA to develop additional grade-crossing protection devices at the existing grade crossing of Broadway Avenue. This is necessary because the accident frequency at this crossing would exceed the Board’s criteria of significance, even with the protection proposed in DM&E’s Grade Crossing Mitigation Plan, which is discussed in Condition 1.
 124. In determining the final design and location of sidings constructed as part of project-related rail line reconstruction, Applicant shall consider the feasibility of shifting the location of the siding proposed in the area of Minneopa State Park in Minnesota to avoid the park. If Applicant determines that it is necessary to build a siding in the park, Applicant shall consider the feasibility of constructing the siding on the south of the tracks on the eastern end, to avoid channel changes in the Minnesota River, or on the north side of the existing track on the west end, to minimize wetland impacts. Applicant shall report the results of its considerations to the Board as part of its reporting under Condition 147.
 125. In determining the final design and location of sidings constructed as part of project-related rail line reconstruction, Applicant shall consider locating the siding proposed in the area between Sanborn and Lamberton in Redwood County, Minnesota, on the north side of the existing rail line to avoid impacting the well-vegetated, intact riverbanks on the south side of the existing line. Applicant shall report the results of its considerations to the Board as part of its reporting under Condition 147.
 126. If Applicant determines that the bridge over the access road to Lake Benton, Lincoln County, Minnesota requires reconstruction to permit the movement of unit coal trains, Applicant shall consult with the Minnesota DOT to consider ways to design and construct the bridge so as to ensure the safe passage of emergency vehicles.
 127. Applicant shall coordinate with the City of Courtland, Minnesota to ensure protection of the city’s sewer line during project-related reconstruction of the existing rail line.

128. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant shall consult with Blue Earth County, Minnesota, to explore the feasibility and cost effectiveness of constructing any new rail line on a trestle or bridge rather than fill in the Blue Earth River valley.
129. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant, prior to transporting 50 million tons of coal annually over Alternative M-2, shall coordinate with Blue Earth County, Minnesota DOT and the FRA to develop additional grade-crossing protection devices at the proposed crossing of Township Road 194. This is necessary because the accident frequency at this crossing would exceed the Board's criteria of significance, even with the protection proposed in DM&E's Grade Crossing Mitigation Plan, which is discussed in Condition 1.
130. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant shall coordinate with Mount Kato Ski Area to minimize, to the extent practicable, the potential impacts of construction of Alternative M-2 across ski area property.
131. Applicant shall consider installation of a pedestrian and bike underpass of the Red Jacket Trail in Blue Earth County, south of Mankato, Minnesota, if Alternative M-2, the Mankato, Minnesota southern route, is built. At a minimum, Applicant shall install and maintain warning signs clearly advising the public to proceed with caution due to the possible presence of trains.
132. If Alternative M-2, the Mankato, Minnesota southern route, is built, Applicant shall attempt to avoid the holding pond for County Highway 90 at Saddle Club, Blue Earth County, Minnesota. If the holding pond cannot be avoided, Applicant shall consult with Blue Earth County regarding its replacement and be responsible for the costs associated with replacing the holding pond.
133. If Alternative M-2, the Mankato, Minnesota southern route is built, Applicant shall consult with Blue Earth County, Minnesota regarding whether the portion of Alternative M-2 west of Mankato, Minnesota can be constructed so as to avoid or minimize impacts to the proposed Minneopa Trail.
134. Applicant shall work with the City of Mankato, Minnesota to determine if additional access can be developed to Land of Memories Park. Should a mutually acceptable plan for additional access be developed, Applicant shall work with the City to help the City secure funding for the project.
135. If Alternative M-3, the existing rail corridor alternative through Mankato, is built and Applicant determines that it must rebuild the existing bridge over the Blue Earth River to permit operation of unit coal trains, Applicant shall consider incorporating a pedestrian/bicycle crossing as part of the new rail bridge design.

136. If Alternative M-3, the existing rail corridor alternative through Mankato, Minnesota is built, for the pedestrian crossings of the Sakatah Singing Hills State Trail in Blue Earth County, Applicant shall install and maintain warning signs clearly advising the public to proceed with caution due to the possible presence of trains.
137. Applicant shall consider locating the Middle East Staging and Marshaling Yard near New Ulm, Minnesota in such a way to allow residents of Shag Road access to Shag Road from both ends of the rail yard. Applicant shall report the results of its considerations to the Board as part of its reporting under Condition 147.

South Dakota

138. Applicant shall install a grade separated crossing in Pierre, South Dakota, at Sioux Avenue or another mutually acceptable location, to be completed within one year after DM&E transports more than 50 million tons of coal through Pierre annually for more than one year. Applicant shall consult with the FRA, FHWA, appropriate State and local transportation authorities, and the City of Pierre on the design (for example, whether the road would go over or under the rail line), location, and funding of this separation. Applicant shall apprise SEA of the progress being made toward implementation of this condition in the quarterly reports required by Condition 147.
139. Applicant shall consider improving the existing rail line underpass off of Park Street in Fort Pierre, South Dakota to allow a paved crossing suitable for passage of emergency vehicles as part of any project-related reconstruction or replacement of the existing Bad River Bridge.
140. Applicant shall consult with the City of Wall, South Dakota and the South Dakota Department of Transportation to consider whether the proposed new rail line west of Wall can be designed and constructed to allow the expansion of the Wall Municipal Airport, as currently proposed.
141. Applicant shall consult with the South Dakota Department of Transportation to consider whether the grade separation of US Highway 18 east of Edgemont, South Dakota proposed in Applicant's Grade Crossing Mitigation Plan can be designed so as to accommodate future expansion of this highway to four lanes.
142. If Applicant determines that the bridge over 6th Avenue in Brookings, South Dakota, requires reconstruction to permit movement of unit coal trains, Applicant shall coordinate with the City of Brookings and the South Dakota Department of Transportation to explore whether the bridge can be designed and constructed to permit the passage of all emergency vehicles.
143. For the pedestrian crossings at 12th Avenue, 6th Avenue, and the Interstate 29 pedestrian and bike trail in Brookings, South Dakota, Applicant shall install and

maintain warning signs clearly advising the public to proceed with caution due to the possible presence of trains.

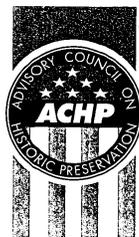
Wyoming

144. Applicant, prior to transporting 50 million tons of coal annually over Alternative C, shall coordinate with Niobrara County, Wyoming Department of Transportation (Wyoming DOT), and FRA to develop additional grade-crossing protection devices at the proposed crossing of U.S. Highway 85. Additionally, Applicant, prior to transporting 50 million tons of coal annually over Alternative C, shall coordinate with Campbell County, Wyoming DOT and the FRA to develop additional grade-crossing protection devices at the proposed crossing of Bishop Road, and shall do the same for State Highway 450 prior to transporting 100 million tons of coal annually. This is necessary because the accident frequency at these crossings would exceed the Board's criteria of significance, even with the protection proposed in DM&E's Grade Crossing Mitigation Plan, which is discussed in Condition 1.

MONITORING AND ENFORCEMENT

145. If there is a material change in the facts or circumstances upon which the Board relied in imposing specific environmental mitigation conditions, or if there are unanticipated environmental problems that arise during the oversight period, the Board will take appropriate action. Any community or other interested party may seek redress by filing a petition to demonstrate material change or unanticipated problems during the environmental oversight period. The Board may review the continuing applicability of its final mitigation and impose additional or modified conditions if warranted.
146. Applicant shall retain a third-party contractor to assist SEA in the monitoring and enforcement of mitigation measures on an as-needed basis until Applicant has completed project-related construction and reconstruction activities, as well as during the environmental oversight period.
147. To ensure Applicant's compliance with the environmental mitigation conditions imposed by the Board, Applicant shall submit to SEA reports on a quarterly basis for the duration of the oversight period, documenting the status of its mitigation implementation for each condition. The oversight period in this case shall be the first two years of project-related operations.

**APPENDIX B
PROGRAMMATIC AGREEMENT**



May 14, 2003

Victoria Rutson, Chief
Section of Environmental Analysis
Surface Transportation Board
Washington, DC 20423

RE: *STB Finance Docket 33407, Dakota, Minnesota & Eastern Railroad Corporation, Powder River Basin Expansion Project; Programmatic Agreement.*

Dear Ms. Rutson:

The enclosed agreement regarding the above referenced project has been executed by the ACHP. This action constitutes the comments of the ACHP required by Section 106 of the National Historic Preservation Act and the Council's regulations. Please provide a copy of the fully-executed agreement to the other signatories and your Federal Preservation Officer.

The Council appreciates your cooperation in reaching a satisfactory resolution of this matter. You and your staff have been a pleasure to work with. Should you have any questions, please contact me at 303/969-5110 or via e-mail at clegard@achp.gov.

Sincerely,

Carol Gleichman Legard
Program Analyst
Western Office of Federal
Agency Program

Enclosure

ADVISORY COUNCIL ON HISTORIC PRESERVATION
12136 West Bayaud Avenue, Suite 330 • Lakewood, Colorado 80228
Phone: 303-969-5110 • Fax: 303-969-5115 • achp@achp.gov • www.achp.gov



MARCH, 2003
PROGRAMMATIC AGREEMENT

AMONG

ADVISORY COUNCIL ON HISTORIC PRESERVATION
SURFACE TRANSPORTATION BOARD
WYOMING STATE HISTORIC PRESERVATION OFFICER
SOUTH DAKOTA STATE HISTORIC PRESERVATION OFFICER
MINNESOTA STATE HISTORIC PRESERVATION OFFICER
THE U.S.D.A. FOREST SERVICE, REGION 2
U.S.D.I. BUREAU OF LAND MANAGEMENT, MONTANA/DAKOTAS STATE
OFFICE
U.S.D.I. BUREAU OF LAND MANAGEMENT, WYOMING STATE OFFICE
U.S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
U.S.D.I. BUREAU OF RECLAMATION
AND
DAKOTA, MINNESOTA & EASTERN RAILROAD CORPORATION

REGARDING THE
POWDER RIVER BASIN EXPANSION PROJECT
Finance Docket No. 33407

WHEREAS, the Surface Transportation Board (STB)¹, the lead Federal agency, has received an application for the construction and operation of a rail line by the Dakota, Minnesota & Eastern Railroad Corporation (DM&E), extending its existing system into the Powder River Basin of Wyoming (undertaking) as defined in STB decisions of December 10, 1998 and January 30, 2002; and,

WHEREAS, the STB has determined that the proposed project is an undertaking which may have an effect upon historic properties included on or eligible for inclusion on the National Register of Historic Places (NRHP), and is in consultation with the Advisory Council on Historic Preservation (Council); the United States Department of Agriculture, Forest Service Region 2 (USFS); the United States Department of the Interior - Bureau of Land Management Montana/Dakotas State Office and Bureau of Land Management Wyoming State Office (collectively referred to as BLM), the United States Army Corps of Engineers, Omaha District and the United States Army Corps of Engineers, St. Paul District (collectively referred to as COE), the United States Department of Interior - Bureau of Reclamation (BOR), the State Historic Preservation Officers of Wyoming, South Dakota, and Minnesota (collectively referred to as SHPOs), and the DM&E, pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act, 16 U.S.C. 470f (NHPA). And all of the above are signatories to this Agreement (Signatories); and,

WHEREAS, the STB has consulted with and has invited the Cheyenne and Arapaho Tribes of Oklahoma, Cheyenne River Sioux Tribe, Comanche Nation of Oklahoma, Crow Tribe, Crow Creek Sioux Tribe, Eastern Shoshone Tribe, Flandreau Santee Sioux Tribe, Fort Peck Tribes, Ho-Chunk Nation, Kiowa Tribe, Lower Brule Sioux Tribe, Lower Sioux Community, Menominee Indian Tribe, Northern Arapaho Tribe, Northern Cheyenne Tribe, Oglala Sioux Tribe, Omaha Tribe, Pawnee Nation of Oklahoma, Ponca Tribe, Prairie Island Sioux Community, Rosebud Sioux Tribe, Sac & Fox Nation of Oklahoma, Sac & Fox Nation in Iowa, Santee Sioux Tribe, Shakopee Mdewakanton Sioux, Sisseton-Wahpeton Sioux Tribe, Spirit Lake Tribe, Standing Rock Sioux Tribe, Three Affiliated Tribes, Turtle Mountain Band of Chippewa Tribe, Upper Sioux Community, Winnebago Tribe, and the Yankton Sioux Tribe (collectively referred to as "Invited Signatories" or "Tribes") to sign this agreement; and,

WHEREAS, the Medicine Wheel Coalition for Sacred Sites of North America, the Minnesota Indian Affairs Council, The Medicine Wheel Alliance, the Gray Eagle Society and the Black Hills Sioux Nation Council (collectively referred to as "Invited Signatories" or "Indian Organizations") are also invited to sign this agreement; and,

WHEREAS, the STB, in consultation with the Signatories and Invited Signatories, has developed an Identification Plan (ID Plan) for inventory of cultural resources prior to construction; and,

¹ The Surface Transportation Board (STB) was created with the passage of the ICC Termination Act of 1995 (Pub. L. No. 104-88). STB, an independent body within the U.S. Department of Transportation, is responsible for administering rail, pipeline, and certain adjudicatory function involving motor and water carriers. These responsibilities are similar to those duties formerly administered by the Interstate Commerce Commission. The STB is the lead agency under the National Environmental Policy Act (NEPA) for the Powder River Basin Expansion Project.

WHEREAS, the applicable requirements of the NHPA, the American Indian Religious Freedom Act, 42 U.S.C. 1996 et. seq. (AIRFA), and the Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001 et. seq. and 43 CFR 10 (NAGPRA), have been considered in the development of the ID plan and this agreement does not waive the responsibilities of the Signatories and Invited Signatories under these regulations; and,

WHEREAS, the lead Federal agency (STB) in cooperation with the USFS, BLM, COE, and BOR has prepared an Environmental Impact Statement (EIS) in accordance with the requirements of the National Environmental Policy Act (NEPA) to address the potential impacts of the undertaking on a variety of human and natural resources; and,

WHEREAS, the STB may use an independent third party contractor, working under its supervision, direction, and control, and at DM&E's expense, to assist in meeting the STB's responsibilities defined in the stipulations below; and,

NOW, THEREFORE, the Signatories and Invited Signatories to this agreement consent that the proposed undertaking shall be implemented in accordance with the following stipulations in order to consider the effect of the undertaking on historic properties and to satisfy all Section 106 NHPA responsibilities for all aspects of the project.

STIPULATIONS

The STB has a statutory obligation as the lead Federal agency to fulfill the requirements of Section 106 (36 CFR 800), therefore the STB shall ensure that the measures in the following parts are carried out.

A. IDENTIFICATION PLAN

The portions to be surveyed on the existing rail line and new construction will be determined through consultation with SHPOs, Tribal Historic Preservation Officer(s) (THPO)/cultural resource representative(s) designated by the Tribe(s), DM&E, and Federal agencies. If requested by a SHPO, this consultation will include a meeting with SHPO representatives to further discuss the Area of Potential Effect (APE) and other ID Plan concerns. Any unresolved objections that result from these consultations shall be addressed in accordance with Stipulation M.

The ID Plan describes the APE, the methodology for the location, inventory, identification, recording, and evaluation of all cultural resources that have surface and exposed profile indications along the alignment(s) approved for construction. The ID Plan also describes the APE, the methodology for location, inventory, identification, recording, and evaluation of all cultural resources in portions of the existing rail line. The ID Plan generally consists of a literature review to identify previously recorded sites along the approved alignment(s), for both new construction and the existing rail line, an intensive survey for identification and evaluation of cultural resources, and preparation of reports of these investigations.

A.1. IDENTIFICATION

The Signatories and Invited Signatories to this Agreement consent that historic properties will be identified in accordance with the ID Plan (Attachment A) which was developed for this project in coordination with the Federal agencies, SHPOs, and consulting tribes. Sites will be identified in accordance with each individual state definition of what constitutes a site.

A.2. SURVEY REPORTS

STB shall prepare intensive survey and cultural resource NRHP evaluation recommendations (Reports), and findings of effect for those areas surveyed as outlined in the ID Plan. Separate reports will be prepared for each of the states of Wyoming and Minnesota. Two reports will be prepared for South Dakota with one covering the existing system and one covering the new construction. Reports will include the results of literature review, intensive and reconnaissance surveys (to the extent that access from landowners is available), and the evaluation recommendations regarding cultural resources. Surveys of any additional ancillary facilities or reroutes, or non-accessible areas on either the new construction or the reconstruction portions found to be necessary after submittal of these reports will be addressed in addendum reports and submitted to the parties that reviewed the original reports.

A.3. SURVEY REPORT REVIEW

STB shall provide Reports on the surveys conducted in accordance with the ID Plan to DM&E; the USFS, BLM, COE, and BOR (collectively the Federal agencies); and appropriate THPO(s)/cultural resources representative(s) designated by the Tribe(s) (collectively the Tribal representatives); and the appropriate SHPOs. These reviewing parties may review the Reports and comment upon them to the STB as outlined below. Comments shall address the adequacy of the intensive survey results, the eligibility of cultural resources identified during the intensive survey for inclusion on the NRHP and the effects of the project on any cultural resources considered to be historic properties.

The reviewing parties will provide their recommendations for determinations of site eligibility based upon NRHP criteria (36 CFR 60.4) and their comment on STB's application of the criteria at 36 CFR 800.5(a)(1) to the STB.

A.3.1 Report Reviews by DM&E, Federal Agencies and Tribal Representative

STB shall provide Reports on surveys to DM&E, the Federal agencies and appropriate Tribal representatives for concurrent reviews. DM&E will have a 15-day review and comment period. DM&E's comments will be forwarded immediately to the reviewing Federal agencies and appropriate Tribal representatives for consideration during their review of the Reports.

The Federal agencies and appropriate Tribal representatives will have a 30-day review and comment period.

Based on the comments received, the STB may revise the Report(s) or may conduct additional intensive survey(s), or both. Any revised Report(s) will be submitted by the STB to DM&E for a second 15-day review period and to the Federal agencies and appropriate Tribal representatives for a second 30-day review period.

If any reviewing party has an objection to the Report(s), they shall notify STB within 30 days of receiving the Report(s) for review in accordance with Stipulation M.

A.3.2 Reports Reviews by SHPOs

Upon completion of the review cycles by DM&E, the Federal agencies and appropriate Tribal representatives described in Stipulation A.3.1, STB shall provide the Report(s) to the appropriate SHPO(s) for review of survey adequacy, and consensus of determinations of eligibility and of effect for all properties identified in the APE is described in the ID Plan. SHPO(s) shall be provided 60 days for this review and comment period.

A.3.3 Public Participation

The STB shall take reasonable steps to provide opportunities for members of the public to express their views on the identification of historic properties that may be eligible for inclusion in the National Register. Opportunities for public input may include the distribution of Reports for public comment upon concurrence of the appropriate SHPO(s); and public meetings, hosted by DM&E, to explain how the surveys were conducted, discuss the historic properties identified in the Reports, and to outline the framework for how Treatment Plan(s) will be developed. Any public comments received will be considered in determining the need for additional surveys and in the development of Treatment Plan(s).

A.3.4 Addendum Reports

Intensive surveys resulting from public participation, or of any additional ancillary facilities or reroutes on either the new construction or the reconstruction portions found to be necessary after submittal of these Report(s), will be prepared as addendum to the original Report(s) and will be submitted to the same reviewing parties. Addendum reports will be reviewed as outlined in Stipulations A.3.1 and A.3.2.

A.4. ELIGIBILITY DISAGREEMENTS

The STB shall forward a finding of eligibility to the Keeper of the National Register (Keeper) for resolution in accordance with 36 CFR 800.4(c)(2) if:

- A SHPO or Federal agency with jurisdiction over the involved lands objects in writing within 30 days to a finding of eligibility, or
- A THPO or Indian tribe that ascribes traditional religious and cultural significance to a property objects in writing within 30 days to a finding of eligibility regarding that property; and
- The STB is not able to resolve that objection through consultation with the SHPO and the objecting party.

A.5. CONSTRUCTION AREAS WITH NO HISTORIC PROPERTIES (Phased Approval)

If after full review by the appropriate Federal agencies, appropriate Tribal representatives and appropriate SHPOs, the construction area or portions of the construction area have been determined by STB to be negative for historic properties, and the Report(s) have been accepted by the STB, appropriate Federal agencies with jurisdiction, appropriate SHPO(s), and appropriate Tribal representatives, then construction of project facilities in these areas may be allowed by STB, upon concurrence by the appropriate SHPOs and appropriate Tribal representative, subject to DM&E obtaining permits or approvals as required.

B. TREATMENT PLANS FOR HISTORIC PROPERTIES²

B.1. FORMAT

Upon completion of identification activities, and as early as reasonable during project development, the STB will develop a Treatment Plan for each property, group of closely related properties, or category of properties determined to constitute a historic property. Each Treatment Plan will be developed in consultation with the appropriate Federal agency(s), the appropriate SHPO(s), and appropriate Tribal representative(s), DM&E, and the Council. If requested by a SHPO, this consultation will include a meeting with SHPO representatives, and others the SHPO may deem appropriate, to further review the framework for how treatment plans will be developed, and to review opportunities and alternatives that could avoid or minimize adverse effects to a historic property, group of closely related historic properties, or category of historic properties. Any unresolved objections that result from these consultations shall be addressed in accordance with Stipulation M.

² Properties may include sites, building, structures, bridges and other objects that are eligible for inclusion in the National Register of Historic Places.

Each Treatment Plan will address the historic property adversely affected and set forth means to mitigate the undertaking's effects where the STB, in consultation with the appropriate Federal agency(s), appropriate SHPO(s), appropriate Tribal representative(s) and DM&E determine it is not feasible or prudent to avoid effects by project relocation. The Treatment Plans will conform to the principles of the Council's *Treatment of Archaeological Properties: A Handbook, Parts I and II*, the "Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation" (Federal Register, Vol. 48 No. 190, September 29, 1983, pp. 44716-44742) and appropriate SHPO guidelines. The STB will ensure the measures to be implemented will be responsive to the concerns of the Consulting Parties (as defined in the Glossary to this document).

B.2. CONTENT

The Treatment Plans for the undertaking will include, but not be limited to:

a. Historic Properties

Specification of all historic properties to be affected by the project, including a description of the nature of the effects.

b. Treatment

A detailed description of the treatments proposed for historic properties or portions of historic properties eligible for the NRHP under 36 CFR Part 60.4 criteria (a), (b), (c) and/or (d), with an explanation or rationale provided for the choice of the proposed treatments. These treatments will take into account the setting, including, but not limited to, visual, auditory, and atmospheric elements, as appropriate, and be responsive to the qualities that contribute to the significance of the affected properties.

c. Research Design

An archaeological research design for adversely affected properties eligible for the NRHP under 36 CFR Part 60.4 criteria (d) will be developed. The research design will specify and explain the following:

- Where data recovery is determined by the STB to be appropriate mitigation response. Research questions to be explored through the data recovery efforts (taking into consideration that data recovery is an adverse effect).
- Justification of the appropriateness of the chosen research questions.
- Data needed to explore the questions posed.

- Properties and portions of those properties to be further investigated.
- Methods used to collect data needed to explore the research questions posed, where the adverse effect of data recovery is deemed the appropriate treatment.
- Laboratory methods used in the examination of the physical material that is recovered.
- Proposed disposition of the recovered materials and records.
- The timing for the preparation and distribution of reports

d. Human Remains

The procedures for consulting about the treatment and disposition of Native American human remains and associated grave goods, if encountered, in accordance with the ID Plan and Stipulations H and J.

e. Monitoring

A description and rationale for selection of the areas proposed for construction monitoring (a qualified archaeologist as defined in the *Secretary of Interior's Professional Qualifications and Standards* (48 FR 22716 September, 1983) and qualified Tribally-recognized American Indian Monitors present to observe ground surfaces exposed during the actual construction activities) and construction inspection conducted by a qualified archaeologist of areas of ground disturbance after specific phases of construction are completed.

f. Distribution of Information

The Treatment Plan must contain provisions for the creation of a popular account for disseminating the results of the Treatment Plans to the general public. These popular accounts will be consistent with the Archaeological Resources Protection Act (ARPA), Executive Order on Sacred Sites 13007 FR 61-104 dated May 24, 1996, NAGPRA, the Freedom of Information Act (FOIA), and Section 304 of the NHPA (16 U.S.C. 4702-3).

C. TREATMENT PLANS - REVIEW

C.1 DEVELOPMENT AND REVIEW

The STB will develop, in cooperation with the appropriate Federal agency (s), appropriate SHPO(s), and appropriate Tribal representative (s), each Treatment Plan to ensure that it addresses the concerns of the appropriate Federal agency(s),

appropriate SHPO(s), appropriate Tribal representatives(s), and DM&E in accordance with Stipulation B.2(b).

STB shall provide Treatment Plan(s) to DM&E, the appropriate Federal agency(s), appropriate SHPO(s) and appropriate Tribal representative(s) for concurrent reviews. DM&E will have a 15-day review and comment period. DM&E's comments will be forwarded immediately to the other appropriate reviewing parties for consideration during their review of the Treatment Plan(s). The appropriate Federal agency(s), appropriate SHPO(s), and appropriate Tribal representatives will have a 30-day review and comment period. If any appropriate reviewing party to this Agreement fails to comment within the review period, the STB shall assume that reviewing party's concurrence. Based upon comments received, revised Treatment Plan(s) will be prepared and submitted to all reviewing parties.

C.2 REVISED TREATMENT PLAN(S) REVIEW

The resultant revised Treatment Plan(s) will be submitted by the STB to the appropriate Federal agency(s), appropriate SHPO(s), and appropriate Tribal representative(s) for a final 30-day comment period. If any reviewing party has an objection to the final Treatment Plan(s) they shall notify STB within the 30-day comment period in accordance with subsection D below. Disputes will be resolved in accordance with Stipulation M.

C.3 PUBLIC PARTICIPATION

The STB shall take reasonable steps to provide opportunities for members of the public to express their views on the Treatment Plan(s). Opportunities for public input may include the distribution of Treatment Plan(s) for public comment upon concurrence of the appropriate SHPO(s); and public meetings, hosted by DM&E, to explain how the Treatment Plan(s) were developed and to discuss the proposed removal or alteration of an historic property, and other modifications to the historic character of the existing DM&E rail line. Any public comments received will be considered, in consultation with the appropriate SHPO(s), in determining the need for Treatment Plan(s) revisions. Any substantial revisions to a Treatment Plan(s) will be reviewed in accordance with Stipulation C.1.

D. TREATMENT PLANS - IMPLEMENTATION

D.1. CONSTRUCTION PLAN

Upon SHPO concurrence, each Treatment Plan will be incorporated by DM&E into their Construction and Use Plan required for the project rights-of-way on Federal lands, and the STB and/or the appropriate Federal or state agency shall provide authorization to proceed with the implementation of the Treatment Plan on lands under their jurisdiction. DM&E or its authorized representative will obtain ARPA excavation and removal permits for Federal lands and/or required state permits.

Termination of the project after initiation of the Treatment Plan(s) will require completion of any work in progress, and amendment of each Treatment Plan as described below.

D.2. AMENDMENTS

Amendments to the Treatment Plans will be incorporated by written agreement among the STB, the appropriate SHPO(s), appropriate Tribal representative(s), DM&E, and the Council. The appropriate Federal agency(s) will also be party to the written agreement if their managed lands are involved. Amendments to the appropriate ARPA permits will be submitted as part of the approval of the amendments.

D.2.1 DM&E or its authorized representative shall prepare a progress report(s) to the STB, appropriate SHPO(s), and appropriate Tribal representative(s) every two weeks documenting progress in the implementation of each Treatment Plan. The appropriate Federal agencies will be provided with a report every two weeks if their managed lands are involved or if requested. These progress reports will include:

- Dates of mitigation work included in the progress reporting period.
- Historic properties where treatment was conducted.
- Type and amount of treatment performed.
- Brief summary of the treatment results during the period covered by the report.
- Concerns or comments of the principal investigator for plan implementation.

E. CHANGES IN ANCILLARY AREAS/CONSTRUCTION RIGHT-OF-WAY

The STB will notify the appropriate Federal agency(s), appropriate SHPO(s), appropriate Tribal representative(s) of changes in the size or location of ancillary areas or the construction right-of-way that may become necessary during actual construction. If any changes result in the use of unsurveyed areas, the STB will ensure that these areas are subject to intensive survey in order to locate any potentially significant cultural resources and that those resources are evaluated for NRHP eligibility. The Reports addressing these areas will be reviewed in accordance with Stipulation A and Treatment Plans will be developed in accordance with Stipulations B and C and implemented for those sites, structures, buildings, bridges and other objects determined to be Historic Properties.

F. CONSTRUCTION AREAS WITH HISTORIC PROPERTIES

In those areas where historic properties are present, the STB will be notified and will provide the results of the completed Treatment Plan to the appropriate SHPO(s) when implementation of the Treatment Plan is completed. Within 45 days of this notification of Treatment Plan completion, the STB, the appropriate Federal agency(s), appropriate SHPO(s), appropriate Tribal representative(s), will be invited to inspect the site of the historic property to concur that Treatment Plan implementation is complete. Upon concurrence of complete Treatment Plan implementation, STB may authorize construction along that portion of the project addressed by the completed Treatment Plan. If concurrence of complete Treatment Plan implementation cannot be reached the dispute will be resolved in accordance with Stipulation M.

G. DOCUMENTATION OF TREATMENT

The STB will prepare a report documenting the implementation and results of the Treatment Plan(s). This report will be the Draft Final Cultural Resource Report for the project. The report will contain a detailed account of the information gained during implementation of the Treatment Plan(s), and the effectiveness of the work measures implemented to mitigate the adverse effects of construction. A review copy of the report will be distributed to the appropriate Federal agency(s), appropriate SHPO(s), appropriate Tribal representative(s), the Council, and DM&E. There will be a 30-day period to review and comment on the report. The Final Cultural Resource Report will be prepared within 120 days of receipt of the comments from the appropriate Federal agency(s), appropriate SHPO(s), appropriate Tribal representative(s), and the Council.

H. DISCOVERY

If a previously-undiscovered archaeological, historical, or cultural property is encountered during construction, or previously-known properties will be affected in an unanticipated manner, all activity will cease within 300 feet of the property to avoid or minimize harm to the property until the STB, in consultation with the appropriate Federal agency(s), appropriate SHPO(s), and appropriate Tribal representatives(s), can evaluate and, if necessary, authorize steps to mitigate impacts to the new discovery. Evaluation and mitigation will be carried out by the STB in consultation with the appropriate Federal agency(s), the appropriate SHPO(s), appropriate Tribal representative(s), DM&E, and the Council as expeditiously as possible in accordance with 36 CFR 800.13(b).

I. CONFIDENTIALITY

All Signatories and Invited Signatories shall ensure that shared data, including data concerning the precise location and nature of historic properties and properties of religious and cultural significance are protected from public disclosure to the greatest extent permitted by law, including conformance to Section 304 of the NHPA, as amended and Section 9 of the ARPA and Executive Order on Sacred Sites 13007 FR 61-104 dated May 24, 1996.

J. HUMAN REMAINS

J.1. NOTIFICATION AND TREATMENT

If human remains are encountered on Federal lands, the STB shall notify the appropriate Federal land management agency, other consulting agencies if requested, appropriate SHPO(s), and designated NAGPRA tribal contact. Treatment and disposition of remains and associated grave goods will be consistent with measures outlined in the ID Plan, Stipulation H, and applicable Federal and state laws. If human remains are encountered on state or private lands, the STB will notify and consult with the appropriate SHPO(s), and appropriate Tribal representative(s). Treatment and disposition of remains and associated grave goods will be consistent with measures outlined in the ID Plan and applicable Federal, state and local laws.

J.2. REINTERMENT

STB will insure that every effort is taken to avoid disturbing known human burial sites. Where avoidance is not possible, and in consultation with appropriate Tribal representative(s), burials will be removed prior to construction and reinterred in accordance with reburial procedures outlined in the ID Plan and any applicable Federal and state laws.

J.3. DISCOVERY

If human remains are inadvertently discovered during construction activities, all construction will cease within 300 feet in all directions of the human remains and the STB will immediately notify the appropriate parties in accordance with the ID Plan. Human remains and grave goods will be treated in accordance with the ID Plan.

K. CURATION

K.1. FEDERAL LANDS

STB shall ensure curation of all records and other archeological items resulting from identification and data recovery efforts is completed in accordance with 36 CFR Part 79, and the provisions of 43 CFR 10 (NAGPRA). STB shall ensure that documentation of the curation of these materials is prepared and provided to the appropriate Signatories and appropriate Invited Signatories to this Agreement within 10 days of receiving it. All archaeological materials recovered from Federal lands shall be curated in accordance with the ID Plan.

K.2. PRIVATE LANDS

Private landowners will be encouraged to curate archeological materials recovered from their lands in accordance with the ID Plan. Materials from private lands to be returned to the private landowners shall be maintained in accordance with 36 CFR Part 79 until all necessary analysis has been completed. STB shall document the return of materials to private landowners and submit copies of this documentation to the appropriate Signatories and appropriate Invited Signatories to this Agreement.

K.3. STATE LANDS

STB will ensure that all cultural materials discovered on state lands will be curated in accordance with the ID Plan.

L. AUTHORITIES

Compliance with the provisions of this Programmatic Agreement does not relieve the STB or other Federal agencies of their responsibilities to comply with other legal requirements, including those imposed by the NAGPRA (25 U.S.C. Section 3001 and 43 CFR 10), the ARPA (16 U.S.C. Section 470 aa-47011), and the NEPA (42 U.S.C. Section 4321-4347), and applicable Executive Orders.

M. DISPUTE RESOLUTION

Should any Signatory to this Agreement object within 30 days to any action proposed or any document provided for review pursuant to this agreement, the STB shall consult with the objecting Signatory to resolve the objection unless otherwise specified in this document. If the STB determines that the objection cannot be resolved, the STB shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council shall either; provide STB with recommendations, which STB shall take into account in reaching a final decision regarding the dispute; or notify STB that it will comment in accordance with 36 CFR 800.7(c). Any Council comment provided in response to such a request will be taken into account by STB in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the STB's responsibility to carry out all actions under this Agreement that is not subject to dispute will remain unchanged.

N. AMENDMENT

Signatories to this Agreement may request that it be amended, whereupon the Signatories will consult in accordance with 36 CFR 800.14 to consider such amendment.

O. TERMINATION

O.1. AGREEMENT

The STB, Council, SHPO(s), or DM&E may terminate this Agreement by providing 30 days written notice to the other Signatories; the Signatories shall consult during the 30-day notice period prior to termination to seek agreement on amendments or other actions that would avoid termination. If the STB, Council, or DM&E individually terminate their participation in the Agreement, then the Agreement is terminated in its entirety. If a SHPO terminates its participation in the Agreement, that termination shall only apply to the state under that SHPO's jurisdiction. In the event of termination, the STB, SHPO(s), and DM&E will comply with 36 CFR 800 subpart B.

O.2. TERM

The term of this agreement shall be five (5) years from the date of execution unless otherwise terminated, in accordance with Stipulation O.1, or amended by the Signatories.

P. FAILURE TO CARRY OUT THE TERMS OF THE AGREEMENT

In the event that the terms of this Agreement are not carried out, the STB and all other appropriate Signatories shall comply with 36 CFR 800 subpart B with regard to individual actions covered by this Agreement.

Q. EXECUTION AND IMPLEMENTATION

This Programmatic Agreement shall take effect when executed by the Council, STB, appropriate SHPOs, USFS, BLM, COE, and BOR. Execution and implementation of this Agreement evidences that the Council, STB, USFS, BLM, COE, and BOR have satisfied their NHPA Section 106 responsibilities for all individual actions of the DM&E's Powder River Basin Expansion Project.

Attachment A - Identification Plan

SIGNATORIES

Federal Agencies

Advisory Council on Historic Preservation

Signature: [Signature] Date: 5/15/03

Printed Name and Title: Joe L. Klima (for) Executive Director

The Surface Transportation Board

Signature: [Signature] Date: May 9, 2003

Printed Name and Title: Victoria Rydson, Chief, SEA

The U.S.D.A. Forest Service, Region 2

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Montana/Dakotas State Office

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Wyoming State Office

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S. Army Corps of Engineers, Omaha District

Signature: _____ Date: _____

Printed Name and Title: Kurt F. Ubbelohde, Colonel, Corps of Engineers, District Engineer



SIGNATORIES

Federal Agencies

Advisory Council on Historic Preservation

Signature: _____ Date: _____

Printed Name and Title: _____

The Surface Transportation Board

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.A. Forest Service, Region 2

Signature: *Rick D. Cables* Date: 4-9-03

Printed Name and Title: RICK D. CABLES, REGIONAL FORESTER

The U.S.D.I. Bureau of Land Management Montana/Dakotas State Office

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Wyoming State Office

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S. Army Corps of Engineers, Omaha District

Signature: _____ Date: _____

Printed Name and Title: Kurt F. Ubbelohde, Colonel, Corps of Engineers, District Engineer

SIGNATORIES

Federal Agencies

Advisory Council on Historic Preservation

Signature: _____ Date: _____

Printed Name and Title: _____

The Surface Transportation Board

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.A. Forest Service, Region 2

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Montana/Dakotas State Office

Signature: *T. Lunn* Date: 4-23-03

Printed Name and Title: Thomas P. Lunn, Acty Assoc. State Director

The U.S.D.I. Bureau of Land Management Wyoming State Office

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S. Army Corps of Engineers, Omaha District

Signature: _____ Date: _____

Printed Name and Title: Kurt F. Ubbelohde, Colonel, Corps of Engineers, District Engineer

SIGNATORIES

Federal Agencies

Advisory Council on Historic Preservation

Signature: _____ Date: _____

Printed Name and Title: _____

The Surface Transportation Board

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.A. Forest Service, Region 2

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Montana/Dakotas State Office

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Wyoming State Office

Signature:  _____ Date: 4/18/03

Printed Name and Title: Robert A. Bennett State Director

The U.S. Army Corps of Engineers, Omaha District

Signature: _____ Date: _____

Printed Name and Title: Kurt F. Ubbelohde, Colonel, Corps of Engineers, District Engineer

SIGNATORIES

Federal Agencies

Advisory Council on Historic Preservation

Signature: _____ Date: _____

Printed Name and Title: _____

The Surface Transportation Board

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.A. Forest Service, Region 2

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Montana/Dakotas State Office

Signature: _____ Date: _____

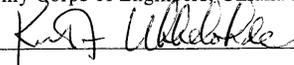
Printed Name and Title: _____

The U.S.D.I. Bureau of Land Management Wyoming State Office

Signature: _____ Date: _____

Printed Name and Title: _____

The U.S. Army Corps of Engineers, Omaha District

Signature:  _____ Date: 29 April 2003

Printed Name and Title: Kurt F. Ubbelohde, Colonel, Corps of Engineers, District Engineer

The U.S. Army Corps of Engineers, St. Paul District

Signature: Robert L. Ball Date: 4 April 2003

Printed Name and Title: Robert L. Ball, Colonel, Corps of Engineers, District Engineer

The U.S.D.I. Bureau of Reclamation

Signature: _____ Date: _____

Printed Name and Title: _____

State Historic Preservation Offices

Minnesota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

South Dakota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Wyoming State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Applicant

President, Dakota, Minnesota & Eastern Railroad Corporation

Signature: _____ Date: _____

The U.S. Army Corps of Engineers, St. Paul District

Signature: _____ Date: _____

Printed Name and Title: Robert L. Ball, Colonel, Corps of Engineers, District Engineer

The U.S.D.I. Bureau of Reclamation

Signature: Dennis E. Breitzman Date: 4/21/03

Printed Name and Title: Dennis E. Breitzman, Area Mgr., Dakotas Area

State Historic Preservation Offices

Minnesota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

South Dakota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Wyoming State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Applicant

President, Dakota, Minnesota & Eastern Railroad Corporation

Signature: _____ Date: _____

The U.S. Army Corps of Engineers, St. Paul District

Signature: _____ Date: _____

Printed Name and Title: Robert L. Ball, Colonel, Corps of Engineers, District Engineer

The U.S.D.I. Bureau of Reclamation

Signature: _____ Date: _____

Printed Name and Title: _____

State Historic Preservation Offices

Minnesota State Historic Preservation Office

Signature: Nina M. Archabal Date: 4/17/03

Printed Name and Title: NINA M. ARCHABAL, MINNESOTA SHPO

South Dakota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Wyoming State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Applicant

President, Dakota, Minnesota & Eastern Railroad Corporation

Signature: _____ Date: _____

The U.S. Army Corps of Engineers, St. Paul District

Signature: _____ Date: _____

Printed Name and Title: Robert L. Ball, Colonel, Corps of Engineers, District Engineer

The U.S.D.I. Bureau of Reclamation

Signature: _____ Date: _____

Printed Name and Title: _____

State Historic Preservation Offices

Minnesota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

South Dakota State Historic Preservation Office

Signature: Jay D. Vogt Date: 04-22-2003

Printed Name and Title: JAY D. VOGT, SHPO

Wyoming State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Applicant

President, Dakota, Minnesota & Eastern Railroad Corporation

Signature: _____ Date: _____

The U.S. Army Corps of Engineers, St. Paul District

Signature: _____ Date: _____

Printed Name and Title: Robert L. Ball, Colonel, Corps of Engineers, District Engineer

The U.S.D.I. Bureau of Reclamation

Signature: _____ Date: _____

Printed Name and Title: _____

State Historic Preservation Offices

Minnesota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

South Dakota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Wyoming State Historic Preservation Office

Signature: *Richard L. Currit* Date: 4/24/03

Printed Name and Title: Richard L. Currit WYSHPO

Applicant

President, Dakota, Minnesota & Eastern Railroad Corporation

Signature: _____ Date: _____

The U.S. Army Corps of Engineers, St. Paul District

Signature: _____ Date: _____

Printed Name and Title: Robert L. Ball, Colonel, Corps of Engineers, District Engineer

The U.S.D.I. Bureau of Reclamation

Signature: _____ Date: _____

Printed Name and Title: _____

State Historic Preservation Offices

Minnesota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

South Dakota State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Wyoming State Historic Preservation Office

Signature: _____ Date: _____

Printed Name and Title: _____

Applicant

President, Dakota, Minnesota & Eastern Railroad Corporation

Signature: *[Signature]* Date: 23 April 2003

INVITED SIGNATORIES

Tribes

Chairman, Northern Arapaho Tribe

Signature: _____ Date: _____

Chairman, Eastern Shoshone Tribe

Signature: _____ Date: _____

Chairman, Northern Cheyenne Tribe

Signature: _____ Date: _____

Chairman, Ft. Peck Tribes

Signature: _____ Date: _____

Chairman, Crow Tribe

Signature: _____ Date: _____

Chairman, Oglala Sioux Tribe

Signature: _____ Date: _____

Chairman, Rosebud Sioux Tribe

Signature: _____ Date: _____

Chairman, Standing Rock Sioux Tribe

Signature: _____ Date: _____

Chairman, Spirit Lake Nation

Signature: _____ Date: _____

Chairman, Turtle Mountain Band of Chippewa

Signature: _____ Date: _____

Chairman, Three Affiliated Tribes

Signature: _____ Date: _____

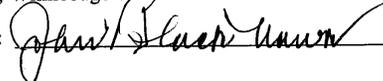
Chairman, Santee Sioux Tribe

Signature: _____ Date: _____

Chairman, Omaha Tribe

Signature: _____ Date: _____

Chairman, Winnebago Tribe

Signature:  _____ Date: 5/27/03

Chairman, Ponca Tribe

Signature: _____ Date: _____

Chairman, Upper Sioux Community

Signature: _____ Date: _____

Chairman, Lower Sioux Community

Signature: _____ Date: _____

Chairman, Prairie Island Sioux Community

Signature: _____ Date: _____

Chairman, Shakopee Mdewakanton Sioux

Signature: _____ Date: _____

Chairman, Kiowa Tribe of Oklahoma

Signature: _____ Date: _____

Chairman, Comanche Nation

Signature: _____ Date: _____

Chairman, Cheyenne-Arapaho Tribes of Oklahoma

Signature: _____ Date: _____

Chairman, Pawnee Nation of Oklahoma

Signature: *Robert D. Chapman* Date: 5-1-03

Chairman, Sac & Fox Nation of Oklahoma

Signature: _____ Date: _____

Chairman, Sac & Fox Nation in Iowa

Signature: _____ Date: _____

Chairman, Menominee Indian Tribe

Signature: _____ Date: _____

Chairman, Ho-Chunk Nation

Signature: _____ Date: _____

Chairman, Cheyenne River Sioux Tribe

Signature: _____ Date: _____

Chairman, Crow Creek Sioux Tribe

Signature: _____ Date: _____

Chairman, Yankton Sioux Tribe

Signature: _____ Date: _____

Chairman, Lower Brule Sioux Tribe

Signature: *Arthur R. Johnson* Date: 6-9-05

Chairman, Sisseton-Wahpeton Sioux Tribe

Signature: _____ Date: _____

Chairman, Flandreau Santee Sioux Tribe

Signature: _____ Date: _____

Indian Organizations

President, Medicine Wheel Alliance

Signature: _____ Date: _____

President, Medicine Wheel Coalition for Sacred Sites

Signature: _____ Date: _____

Chairman, Minnesota Indian Affairs Council

Signature: _____ Date: _____

President, Gray Eagle Society

Signature: _____ Date: _____

President, Black Hills Sioux Nation Council

Signature: _____ Date: _____

Glossary of Terms/Acronyms

Adverse Effect

When an undertaking may alter, directly or indirectly, the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

APE

The Area of Potential Effect (APE) is the geographic area within which the project may cause physical, visual or audible effects to the character or use of historic properties. It includes all areas of construction, such as rights-of-way (ROW), staging areas, extra work spaces, yards, access roads, borrow areas, and other ancillary facilities. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Ancillary Areas

A general term that covers any additional areas that may be effected by the undertaking.

Area of Potential Effect See APE.

Associated Funerary Objects

Objects for which the human remains with which they were intentionally are also in the possession or control of a museum or Federal Agency. The term includes those funerary objects and cultural properties that were made for burial purposes or to contain human remains and those cultural properties that are a part of a burial site.

Borrow Area(s)

An excavated area where material has been or will be dug for use as fill at another location.

Consulting Parties

Consulting parties include SHPO/THPO, Indian tribes, representatives of local governments, applicants for Federal assistance, permits, licenses and other approvals, and certain individuals and organizations with a demonstrated interest in the undertaking.

Cultural Resource

A cultural resource is any prehistoric or historic district, site, building, structure or object in American history, architecture, engineering, archeology, or culture. This term includes artifacts, records, and remains that are related to

and located within such properties. The term also includes properties of traditional religious and cultural importance to an Indian Tribe that may meet the National Register criteria.

Cultural Resource Management Group

A professional archaeological firm that performs cultural resource investigations for a fee.

Curation

The preservation of material remains that are excavated or removed during a survey, excavation, or other study of a prehistoric or historic resource, and associated records that are prepared or assembled in connection with the survey, excavation or other study.

Days

Calendar days.

Eligible for the National Register of Historic Places

The term eligible for the National Register includes both properties formally determined as such in accordance with the regulations of the Secretary of the Interior and all other properties that meet the National Register criteria.

Evaluation Testing

Archaeological investigation of a prehistoric or historic site with a purpose of evaluating the site against National Register of Historic Places criteria contained in 36 CFR 60.4.

Exposed Profile

Any area where the soils are exposed such as stream cut banks, road cut banks, erosion gullies etc.

Federal Agency(s)

Any Federal entity with a statutory obligation to fulfill the requirements of Section 106 who has jurisdiction over an undertaking and takes legal and financial responsibility for section 106 compliance in accordance with Subpart B 36 CFR 800. The Federal Agency(s) has approval authority for the undertaking and can commit the Federal agency to take appropriate action for a specific undertaking as a result of Section 106 compliance.

Ground Disturbance Area

The surface area that will be impacted by construction.

Haul Roads (New)

Roads constructed where none previously existed to facilitate hauling of construction materials.

Haul Roads (Upgraded)

Roads or trails that require upgrading to accommodate hauling construction materials.

High Probability Area(s) An area suspected to have a better than average chance of containing cultural resources (e.g. water crossings, paralleling watercourses, historically prominent areas etc.).

Historic Property

Any prehistoric or historic district, site, building structure, or object included in or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe that meet the National Register criteria.

Human Remains

The physical remains of a human body.

ID Plan

Identification Plan.

Indian Tribe

An Indian Tribe, band, nation, or other organized group or community, including a Native Village, Regional Corporation or Village Corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 T.I. S. C 1602) which is recognized eligible for the special programs and serviced provided by the United States to Indians because of their status as Indians.

Intensive Survey

An intensive survey is a systematic, detailed examination of an area designed to gather information about cultural resources sufficient to evaluate them against NRHP eligibility criteria of significance within specific historic contexts.

Keeper of the National Register

The Keeper is the individual who has been delegated the authority by the National Park Service (NPS) to list properties and determine their eligibility for the National Register. The Keeper may further delegate this authority as he or she deems appropriate.

Lateral Area

Any subsequent branch from the main line that may as yet not be identified but is a part of the undertaking.

NAGPRA

Native American Graves Protection and Repatriation Act.

National Register

The National Register lists properties formally determined eligible for the NRHP.

National Register Criteria

National register criteria are criteria established by the Secretary of the Interior for use in evaluating the eligibility

of properties for the National Register (36 CFR 60). The NRHP criteria are listed below:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship and feeling and:

- a. that are associated with the events that have made a significant contribution to the broad patterns of our history; or
- b. that are associated with the lives of persons significant in our past; or
- c. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d. that yielded, or may be likely to yield, information on prehistory or history.

Criteria considerations: ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations, commemorative in nature; and properties that have achieved their significance within the past 50 years shall not be considered eligible for the National Register of Historic Places (36 CFR 60.4).

NRHP	National Register of Historic Places.
OSHA	Occupational Safety & Health Administration.
PA	Programmatic Agreement.
Popular Account	A popular account is a comprehensive discussion of the information contained in professional report(s) on archaeological investigations that is written for the general public. A popular account will not contain any sensitive material, removes the technical language, yet can serve as an informational and educational tool.

Reconnaissance Survey	A reconnaissance survey is an examination of all or part of an area accomplished in sufficient detail to make generalizations about the types and distributions of historic properties that may be present.
SADI's	Scale Accurate Digital Image photographs with depictions of the construction right-of-way superimposed and geo-referenced.
SHPO	State Historic Preservation Officer.
Shovel Test	A small circular test excavation, approximately 40 centimeters in diameter that is dug to a sufficient depth to reach culturally undisturbed soils.
Site	Site definition is different for each state but is generally defined by Willey and Phillips (1958:18), as any reasonably definable spatial unit that contains features or is fairly continuously covered with artifacts that are indicative of an occupation 50 years or older. A site may be defined as "a spatial cluster of cultural features, or items, or both" (Binford 1972:46). These definitions apply to both prehistoric and historic sites. Archaeological context may be defined by the inclusion of any of the following: soil staining, associated fire-cracked rock, ceramics, features, or a concentration of materials within a reasonably defined spatial boundary.
Staging Area(s)	Those areas outside the construction disturbance area used for storage of supplies and equipment used for construction.
STB	Surface Transportation Board.
Testing	See Evaluation testing.
THPO	Tribal Historic Preservation Officer appointed or designated in accordance with the Act is the official representative of an Indian tribe for the purposes of Section 106.
Traditional Cultural Properties	A traditional Cultural Property can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that communities history, and (b) are important in maintaining the continuing cultural identity of the community.

Treatment Plan

A proposal for the mitigation of effects upon any historic property that a project would affect. It can include data recovery, documentation, restoration or other measures.

Unassociated funerary Objects

Those funerary objects for which the human remains with which they were placed intentionally are not in the possession or control of a museum or Federal agency. Objects that were displayed with individual human remains as part of a death rite or ceremony of a culture and subsequently returned or distributed according to traditional custom to living descendants or other individuals are not considered unassociated funerary objects.

Undertaking

An undertaking is a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit; license or approval; and those subject to state or local regulation pursuant to a delegation or approval by a Federal agency.

USGS

United States Geological Survey.

Attachment A
March, 2003
Identification Plan
for the Dakota, Minnesota & Eastern Railroad Corporation's Proposed
Powder River Basin Expansion Project

**March, 2003
Identification Plan
for the Dakota, Minnesota & Eastern Railroad Corporation's Proposed
Powder River Basin Expansion Project**

1. PURPOSE

The development of this plan is required by the Programmatic Agreement (PA) to ensure the successful completion of the National Historic Preservation Act (NHPA) Section 106 process for this project and in compliance with E.O. 13175. The purpose of this Identification Plan (ID Plan) is to ensure that the identification and evaluation of cultural resources is conducted in accordance with the *Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation (Standards and Guidelines)* (48 FR 44716-44742) and 36 CFR 800.4. The ID Plan and the Treatment Plan(s), developed for the identified historic properties, are integral parts of the PA. While the *Standards and Guidelines* are not regulatory and do not set or interpret policy, they do provide technical advice about archeological and historic preservation activities and methods.

Identification of historic properties is regulatory in nature. The historic properties that should be identified include any prehistoric or historic district site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places maintained by the Secretary of Interior. The term historic properties includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe or Native Hawaiian organization and that meet the National Register criteria. The term eligible for inclusion in the National Register includes both properties formally determined as such in accordance with regulations of the Secretary of Interior and all other properties that meet the National Register criteria. The level of identification needed varies depending on the nature of the property or property type, the nature of the agency's management authority, and the nature of the agency's possible effects on the property.

This ID Plan describes the three key elements: the Area of Potential Effect (APE), minimum standards and qualifications required for the cultural resource investigations, and American Indian and consulting party involvement.

2. SAFETY

All contractors and sub-contractors shall adhere to Occupational, Safety, and Health Administration (OSHA) standards while conducting related activities covered in the PA and ID Plan. Additionally, Corps of Engineers, U.S. Forest Service, Bureau of Land Management (BLM) and DM&E safety rules shall be adhered to when conducting activities on lands under management or jurisdiction of these parties.

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3. AREA OF POTENTIAL EFFECT (APE)

The APE and the methods of identification and evaluation will be in accordance with the *Standards and Guidelines*. The project has two distinct parts generally described as; (1) the portion of the proposed project that will involve reconstruction of existing lines, and (2) the portion of the proposed project that will involve new construction where rail lines currently do not exist.

3.1 APE for Reconstruction

The APE for that portion of the project involving reconstruction, from Winona, Minnesota to Wall, South Dakota, and new line construction in Minnesota will include:

1. The existing DM&E right-of-way (ROW).
2. Any newly acquired ROW needed for cut and fill.
3. Any newly acquired ROW for proposed new connecting track near Owatonna, Minnesota.
4. Existing rail corridor and newly acquired ROW required for new DM&E rail line through Mankato, Minnesota.
5. All lateral areas, borrow areas, haul roads (new or upgraded), staging areas and other ancillary areas related to the undertaking.
6. Any newly acquired ROW for proposed yards and sidings.
7. That area outside the existing ROW or outside any newly acquired ROW where there is potential for the undertaking to have an adverse effect on historic properties as defined in 36 CFR 800.5. Identification of these areas will include consultation with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO)/cultural resource representative designated by the tribes, DM&E, and other identified consulting parties and Federal agencies.

3.2 Reconstruction Identification and Evaluation

Identification and evaluation for the reconstruction will include:

1. Identification of known cultural resources through records search and literature review and through consultation with the SHPO, THPO/cultural resource representatives designated by the tribes, other identified consulting parties, and Federal agencies in accordance with 36 CFR 800.4.
2. Field identification and Section 106 evaluation of all structures within the APE by a qualified architectural historian.
3. Intensive survey of the known cultural resources and other areas identified by the SHPO, THPO/cultural resource representatives designated by the tribes, other identified consulting parties, and Federal agencies in accordance with 36 CFR 800.4.
4. If the cultural resource is in the APE, necessary information to evaluate the cultural resource against NRHP eligibility criteria (36 CFR 60.4) shall

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be obtained. The guidance in National Park Service Bulletin 38 and E.O. 13007 shall also be considered when evaluating sites for NRHP eligibility. If, in the opinion of the investigator and cultural resource representative designated by the tribes, the cultural resource is recommended NRHP eligible, sufficient information to formulate Treatment Plan(s) shall be obtained. (The cultural resource representative designated by the tribes will only make recommendations on cultural resources having a prehistoric or historic Native American component). No backhoe or block excavations shall be undertaken without a written plan and SHPO consultation and approval.

5. Intensive survey to identify all cultural resources in other designated areas within the APE which have been identified by the SHPO, THPO/cultural resource representatives designated by the tribes, DM&E, other identified consulting parties, and Federal agencies.
6. The intensive survey shall gather information from American Indian tribes and elders to assist in identifying properties of religious and cultural significance to them and identifying properties that may be eligible for the NRHP.
7. A reconnaissance level survey of those areas outside the ground disturbance area where there is the potential for the undertaking to have an adverse effect, as defined in 36 CFR 800.5 on historic properties. Identification of these areas will include consultation with the SHPO, THPO/cultural resource representatives designated by the tribes, DM&E, other identified consulting parties, and Federal agencies.

3.3 APE for New Construction

The APE for the new construction portion of the project in South Dakota and Wyoming will include:

1. The construction ROW to include a twenty-foot buffer on either side of the fenced construction ROW along the entire new construction route (ground disturbance area).
2. All lateral areas, borrow areas, haul roads (new or upgraded), staging areas, and other ancillary areas related to the undertaking.
3. That area outside the construction or ground disturbance ROW where there is the potential for the undertaking to have an adverse effect on historic properties, as defined in 36 CFR 800.5. Identification of these areas will include consultation with the SHPO, THPO/cultural resource representatives designated by the tribes, DM&E, other identified consulting parties, and Federal agencies.

3.4 Construction Identification and Evaluation

Identification and evaluation for the new construction will include:

1. Identification of known cultural resources through records search and literature review and through consultation with the SHPO, THPO/cultural resource representatives designated by the tribes, other identified consulting parties, and Federal agencies in accordance with 36 CFR 800.4.
2. An intensive survey of the construction ROW plus 20 feet either side of the fenced construction ROW.
3. An intensive survey of all the lateral areas, borrow areas, haul roads (new and upgraded), staging areas, and other ancillary areas related to the undertaking.
4. An intensive survey of the construction ROW to identify all cultural resources. Testing will be done to evaluate cultural resources against NRHP eligibility criteria (36 CFR 60.4). The guidance in National Park Service Bulletin 38 and E.O. 13007 shall also be considered when evaluating sites for NRHP eligibility. If, in the opinion of the investigator and the cultural resource representative designated by the tribes, the cultural resource is to be recommended as a historic property, sufficient information to formulate Treatment Plan(s) shall be obtained. (The cultural resource representative designated by the tribes will only make recommendations on cultural resources having a prehistoric or historic Native American component). No backhoe or block excavations shall be undertaken without a written plan and SHPO consultation and approval.
5. A geomorphological survey of the construction ROW will be conducted to identify areas where buried cultural resources may exist and where deep testing may be necessary to identify cultural resources. The geomorphologist will also recommend construction monitoring areas and assist in evaluation of cultural resources against NRHP eligibility criteria (36 CFR 60.4) by providing identification of the soil(s), soil characteristics, soil dating, and analysis of the probability of the soils to contain cultural material.
6. A reconnaissance level survey of those areas outside the ground disturbance area where there is the potential for the undertaking to have an adverse effect, as defined in 36 CFR 800.5, on historic properties. Identification of these areas will include consultation with the SHPO, THPO/cultural resource representative designated by the tribes, DM&E, other identified consulting parties, and Federal agencies.

Any areas not originally identified within the APE but potentially affected by the undertaking must be identified by the SHPO, THPO/cultural resource representative designated by the tribes, DM&E, other identified consulting parties, and Federal agencies. The Surface Transportation Board (STB) will consult with the SHPO, THPO/cultural resource representative designated by the tribes, DM&E, other identified

consulting parties (as defined in 36 CFR 800.2(c)), and Federal agencies to address their concerns.

4. STANDARDS AND QUALIFICATIONS

The intensive survey and NRHP eligibility recommendations will be consistent with the *Standards and Guidelines* and the *Secretary of the Interior's Professional Qualifications and Standards (Professional Qualifications and Standards)* (48 FR 22716, September 1983), 36 CFR 800, 36 CFR 60.4, National Park Service Bulletin 38, and E.O. 13007.

If there are unanticipated discoveries of cultural resources during implementation of the undertaking, the Agency Official (STB) shall satisfy the requirements of Section 106 in accordance with 36 CFR 800.13. Prior to conducting any work for which a permit is required, the Cultural Resources Management group(s) (Contractor(s) who meet the *Professional Qualifications and Standards*) shall obtain any necessary Federal, state and local permits/licenses.

5. REPORTS

All reports for the ID Plan will be submitted in two parts designed to be one report when combined. Each report will be modified from the outline below to address the specific requirements of the *state* where the survey was conducted. The first part of the report will include comprehensive records search and literature review. The second part will include the results of field investigations, including NRHP evaluations of all cultural resources that are known to be within the APE.

The combined report should provide information for future research and justifiable and defensible NRHP recommendations for those historic properties identified as NRHP eligible. The report must also provide justifiable and defensible explanations of potential effects on historic properties and must comply with 36 CFR 800.5

The reporting of results and discussions of the cultural resources investigations shall be organized in a logical sequence. (The Wyoming report will be sequenced by site number). In tables, site numbers shall be organized in sequence. A detailed outline of the required elements for the report is contained as following:

PART 1

Cover

Must include report title, date of report, project number(s), authors, organizations or who prepared the report.

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Cover Page

Must include authors, report title, date of report, lead agency, preparer's organization, type of report (ID Plan/Class III, Phase I and II), survey methods (transects in meters), county(s), USGS quad(s), landowner(s), legal description (reference to project maps may be appropriate), acreage (Federal, non-federal, block and linear with total), file search date(s), field personnel, and a site summary table.

Abstract

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 - Project Description (include appropriate permit and agency file numbers)
 - Personnel (their roles and duties on the project)
 - Report Format (what is in each chapter of the report and who wrote or contributed to each chapter)
2. Environmental Overview
 - Topography
 - Geology
 - Drainages
 - Flora
 - Fauna
 - Climate
 - Paleoenvironment
3. Culture History
 - Paleoindian (includes a discussion of pre-Clovis)
 - Archaic etc. (varies widely along the project)
 - Woodland and Plains (Plains Indian)
 - Village
 - Contact Period (Protohistoric)
 - Historic

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4. Research Design and Materials

- Archaeological Site Definition
- Prehistoric Archaeological Research Orientation
- Prehistoric Archaeological Research Questions
- Historic Archaeological Research Orientation
- Historic Archaeological Research Questions
- Inventory and Research Methods
 - Record Search and Literature Review
 - Known Sites
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 - Methods
- Laboratory Analysis
 - Prehistoric Artifact Collection and Analysis
 - Methods
 - Chipped-stone Technological and Functional Analysis
 - Methods
 - Historic Artifact Collection and Analysis
 - Methods
- Curation
 - Methods
 - Facilities/Disposition
- References
- Appendix(s)
 - (Geomorphological Report)
 - Detailed Project Location Maps
 - and
 - Ethnographic Reports for all TCPs recommended for the NRHP (if required to justify recommendations)

Part 2

Update and revise Part 1 by chapter and section if additional information is needed.

5. Results of Investigation
(A detailed discussion of each site that will include, as a minimum, the following information)
- Site type, component, USGS 7.5 minute quadrangle, site area, topography, elevation, soil type, nearest water, survey method, site condition, site description, artifact descriptions and disposition, interpretation, and recommendation.

Legal and UTM locations will be confidential and only included in a removable appendix.

6. Research Findings (answer research questions presented in Chapter 4)

- Prehistoric Context
 - Site distribution relative to environmental variables potential for unanticipated discovery
 - Site density
 - Site function
 - Temporal and cultural affiliation
- Historic Context
 - Site distribution relative to environmental variables potential for unanticipated discovery
 - Site density
 - Site function
 - Temporal and cultural affiliation

7. Conclusions and Recommendations (appropriate text but also include tables to explain the recommendations)

- Conclusions
 - Prehistoric Sites
 - Historic Sites
- Recommendation (eligibility recommendations)
 - Prehistoric Sites
 - Site Specific/Avoidance/Mitigation/Other Historic Sites
 - Site Specific/Avoidance/Mitigation/Other

8. References

9. Appendix(s)

- (Geomorphology report)
- (Ethnographic)
- (Site forms)
- (Maps)
- (Correspondence)
- (American Indian coordination and consultation documentation and description)
- (American Indian monitor reports)
- (Other ancillary studies for example: radiocarbon, AMS, faunal analysis, phytolith analysis, pollen analysis, etc)

6. FIELDWORK – Project Requirement

6.1 Survey Methods

- Shovel Testing

Shovel testing will be required if the surface visibility is less than 50% in the opinion of the project archaeologist/principle investigator, or if the terrain warrants the shovel tests. The shovel tests will be approximately 30x30 centimeters to minimum depth of 50 centimeters or until sterile subsoil, or bedrock, or water is encountered. The shovel test will be spaced no further than 30 meters apart or closer if required by the state. Shovel tests will not be done if, in the project archaeologist's justifiable judgment (such as steep terrain or rocky or other etc.) they are unnecessary.

Regardless of surface visibility, a shovel test will be conducted and documented on each identified site or isolated find site. If a shovel test is not conducted, justification for not conducting a shovel test will be noted in field notes, site form or report. Deviation from the above policies on shovel testing must be justified.

- Collection

All subsurface artifacts will be collected and properly labeled in the field. Surface collection of sites not within the ground disturbance area is not required. All obsidian artifacts shall be collected.

- Curation

Curation of all records and other items resulting from intensive survey, NRHP evaluation and mitigation efforts shall be completed in accordance with 36 CFR Part 79, and the provisions of the Native American Graves Protection and Repatriation Act: Final Rule (43 CFR Part 10) (NAGPRA). Documentation of the curation of these materials shall be provided to the STB, SHPO/THPO, cultural resource representatives designated by the tribes, and where appropriate, other signatories of the PA within 30 days of acceptance of the Final Cultural Resources Report for the Project. Private landowners will be encouraged to curate collections from their lands in an appropriate facility. Materials from private lands to be returned to the private landowners shall be maintained in accordance with 36 CFR Part 79 until any specified analysis is complete. Documentation of the return of these materials to the private landowner shall be provided to the STB, the appropriate SHPO/THPO, cultural resources representative designated by the tribes, and where appropriate other signatories to the PA

within 30 days of acceptance of the Final Cultural Resource Reports for the project.

Materials from state lands in Wyoming, South Dakota, and Minnesota will be provided to a state-approved facility for curation. These materials shall be maintained in accordance with 36 CFR Part 79 until any specified analysis is complete. Documentation of the return of these materials to the state-approved curation facility shall be provided to the STB and the appropriate SHPO/THPO or cultural resource representatives designated by the tribes, and where appropriate other signatories to the PA within 30 days of acceptance of the Final Cultural Resource Reports for the project.

Materials from Federal lands will be maintained in accordance with 36 CFR Part 79 until specified analysis is complete. These materials will be curated in a Federally-approved curation facility or repository in their states of discovery but shall remain the property of the Federal government. Materials from Native American sites shall be curated in their approved curation facility if these exist within the state of discovery but shall, as with the state curation facility, remain the property of the Federal government. Documentation of the curation of these materials will be provided to the STB, the appropriate SHPO/THPO, or cultural resource representatives designated by the tribes, within 30 days of acceptance of the Final Cultural Resource Reports for the project.

Materials from Native American sites may be curated in an Indian-owned Federal-approved curation facility if these exist within the state of discovery, but the materials shall remain the property of the state, or if on Federal land, the property of the Federal government.

- Human Remains

General field rules if human remains or associated funerary objects or unassociated funerary objects are encountered:

1. If human remains are discovered, they shall be subjected to review under the discovery clause of the PA.
2. Immediately cease work within 300 feet of the remains.
3. DM&E will provide security for a 300-foot perimeter in all directions around the site.
 - a. The construction contractor (as per DM&E contract) will immediately notify the American Indian monitor on site, the appropriate law enforcement officer, and county coroner.
 - b. If on Federal land the first notification will be to the Federal agency followed by the American Indian monitor

on site, the appropriate law enforcement officer, and the county coroner.

4. The construction contractor will immediately notify the SHPO/State Archaeologist and STB.
5. The construction contractor and the American Indian monitor will notify NAGPRA representatives of each tribe from a list provided to the contractor and each monitor by DM&E.
6. STB shall notify the cooperating agencies, and if on Federal lands follow the provisions of 43 CFR Part 10.
7. Notification of an inadvertent discovery will be made in two ways:
 - a. By phone immediately.
 - b. By letter notification to the STB and if on Federal lands or lands under Federal permit, to the controlling agency within 24 hours.
8. Do not resume construction within the 300-foot perimeter until the SHPO and STB have authorized it in writing, and, if on Federal lands or land under Federal permit, an authorization in writing from the controlling agency.
9. If on Federal land, refer to 43 CFR Part 10 and Public Law 101-601 25 USC (NAGPRA) procedures.

The STB shall ensure that human remains encountered during the course of this undertaking shall be accorded equal treatment and respect for human dignity without reference to their ethnic origins, cultural backgrounds, or religious affiliations. All human remains shall be handled in accordance with the procedures outlined in the PA, the ID Plan, and in consultation with the Council in accordance with 36 CFR Part 800.13. All unidentified remains or burials found outside of platted, recorded or identified cemeteries and in contexts which indicate antiquity greater than 50 years shall be dealt as follows:

10. Minnesota

Minnesota Statute § 307.08, § 307.082, and Minnesota Sessions Laws 1997, Chapter 215, Sec. 42.

If such burials are not Indian or their ethnic identity cannot be ascertained, they shall be dealt with in accordance with provisions established by the state archaeologist.

If such burials are Indian, efforts shall be made by the state archaeologist, THPO/cultural resource representative designated by the tribes, and the project archaeologists to ascertain their tribal identity.

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If their probable tribal identity can be determined, such remains shall at the discretion of the state archaeologist and the THPO/cultural resource representative designated by the tribes be turned over to the Indian tribes(s) (43 CFR Part 10, Sec. 10.4 and Public Law 101-601 25 U.S.C. Sec 3 Ownership).

If tribal identity cannot be determined, the Indian remains must be dealt with in accordance with provisions established by the state archaeologist and the THPO/cultural resource representative designated by the tribes and 43 CFR Part 10, Sec. 10.4 and Public Law 101-601 25 U.S.C. Sec 3 Ownership.

No authenticated and identified Indian burial ground may be relocated unless the request to relocate is approved by the THPO/cultural resource representative designated by the tribes.

11. South Dakota

Code § 34-25-24, § 34-25-38, § 34-25-38.1, and SD 34-25-21

Shall be the same as Minnesota per agreement with the South Dakota Research Center and South Dakota SHPO.

12. Wyoming

W.S. § 6-4-501, W.S. 35-1-420

The procedures outlined in the General Field rules listed in this section shall apply. (Note: There is no Wyoming statute requiring anyone to report the discovery of a dead body to the county sheriff, county coroner, etc.)

If human remains are encountered on Federal lands, STB and the managing Federal agency shall consult with the Native American tribe or other ethnic groups related to the human remains identified to determine the treatment and disposition measures consistent with the applicable Federal laws (e.g., NAGPRA), regulations, policies.

If human remains are encountered on state lands or private lands, STB shall ensure, in consultation with the appropriate SHPO and the Native American tribe or other ethnic groups related to the human remains, that they are treated according to the applicable Federal and state laws, regulations, or policies.

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STB will ensure that unanticipated discovery of human remains, and associated or unassociated burial objects, found during implementation of the undertaking shall satisfy the requirements of the appropriate Federal and state laws, regulations, policies and Section 106 in accordance with 36 CFR Part 800.13.

- Evaluation Testing

Sufficient subsurface testing, as determined by the project archaeologist/principle investigator, SHPO, Federal agency managing the land, and the Native American monitor on those sites suspected to be NRHP eligible, will be conducted to allow the Cultural Resource Management groups to develop Treatment Plans or other alternatives to address any adverse effects.

- Minimum Field Recordation Standard

1. Prehistoric and Historic Sites

The appropriate site forms for each state will be completed while on site (if possible). A sketch map and field notes (field notes should be kept by each crew member), and photographs of the site will be required. A description of the artifacts and features observed on each site shall be included in the field notes. The site will be noted on a 7.5 minute USGS quad.

All photographs will be keyed in the corresponding roll and frame number and identified as such on a photo log. The photo log will also include the site number or temporary site number, time of day, weather conditions at the time of the photograph, what was photographed, and the direction the photographer was facing. The ASA setting and the type of film (color or B&W) shall also be noted (Once the film is developed this information will be on the individual photograph along with the state-assigned site number). Upon completion of the project and acceptance of the Final Cultural Resources Report all photographs and negatives shall be shipped to the appropriate curation facility.

2. Standing Structures (including buildings, bridges, and other structures)

The appropriate site forms for each state will be completed while on site. The field notes will include the address or location, the present condition and integrity of the property; a description of the prominent architectural/engineering features with emphasis on the primary façade; a documented or estimated date of original

construction; identification of obvious alterations/additions; and a designation of style or vernacular type, when applicable. A 3 ½-inch by 5-inch black and white photograph of each property will be taken using 35mm format. Each photograph will be keyed with the corresponding roll and frame number and identified as such on individual photographs (see photo log above). Original negatives and contact sheets will be included with the final report (Structures should be evaluated in the field by a qualified architectural historian). Upon completion of the project and acceptance of the Final Cultural Resources report all photographs and negatives shall be shipped to the appropriate curation facility.

CONFIDENTIALITY

All Signatories and Invited Signatories shall ensure that shared data, including data concerning the precise location and nature of historic properties and properties of religious and cultural significance are protected from public disclosure to the greatest extent permitted by law, including conformance to Section 304 of the NHPA, as amended and Section 9 of the ARPA and Executive Order on Sacred Sites 13007 FR 61-104 dated May 24, 1996.

**APPENDIX C
CHAPTERS 3 AND 4 FROM THE FINAL
ENVIRONMENTAL IMPACT STATEMENT FOR THE
POWDER RIVER BASIN EXPANSION PROJECT**

CHAPTER 3

RAIL LINE EXTENSION

This chapter presents SEA's additional analysis and evaluation of the portion of the proposed project which would extend the Dakota, Minnesota & Eastern Railroad Corporation's (DM&E's) existing rail system into the Powder River Basin (PRB). Other chapters of this Final EIS, as outlined in Chapter 1.0, discuss SEA's additional analysis pertaining to other components of the proposal (the Mankato connecting track and various community bypasses for example).

This chapter addresses alternatives for extending DM&E's existing system into the PRB, and discusses additional Extension Alternatives to the proposed project suggested in comments received on the Draft EIS. These alternatives include use of the Railroad Rehabilitation and Improvement Financing Program (RRIFP or Program) and an additional D Alternative.

SEA's analysis of the additional Extension Alternatives is presented on a resource-by-resource basis, and compares the potential environmental impacts of each Extension Alternative on natural and human resources. Information in the Draft EIS that remains unchanged is generally not restated, although it may be summarized, and only new impact analyses are presented here. Finally, this chapter presents SEA's recommendations for the environmentally preferred project alternatives for extending DM&E's system into the PRB.

3.1 RAIL LINE EXTENSION ALTERNATIVES IN THE DRAFT EIS

During preparation of the Draft EIS, SEA conducted an extensive review of alternatives, including consideration of Extension Alternatives:

- Proposed by DM&E in its Application to the Board (Alternative B),
- Developed by DM&E subsequent to filing its Application to avoid environmentally sensitive areas (Alternative C, Phiney Flat Segment, and WG Divide Segment), and
- Identified during the scoping process (D Alternatives).

In all, nine Extension Alternatives (not including minor variations in the Spring Creek and Hay Canyon areas) and the No-Action Alternative were evaluated in the Draft EIS for reasonableness and feasibility.

As the lead Federal agency with decision-making authority for the project, the Board selects the alternative that satisfies its legal and regulatory responsibility to consider not only environmental impacts but also economic, engineering, and other applicable factors related to the project. In this case, the purposes of the proposed project are to rehabilitate DM&E's existing rail line and provide competitive rail access to the mines in the PRB. The Board's regulatory

responsibility requires it to consider whether the project furthers rail competition, is financially viable, protects rail service to existing shippers, and meets a public need. Under the Interstate Commerce Commission Termination Act of 1995 (ICCTA), construction applications are to be approved unless they are inconsistent with the public interest (49 U.S.C. 10901(c)).¹ The Board may (1) approve a transaction as proposed; (2) approve it with conditions, including environmental conditions, to offset or reduce its potential impacts; or (3) disapprove the transaction entirely.²

On December 10, 1998, based on the record developed to that point, the Board found that DM&E's proposal satisfied the transportation aspects of 49 U.S.C. 10901, but explained that final approval awaited the completion of the environmental review process and its assessment of potential environmental effects and the costs of environmental mitigation that it might impose. The Board said it would issue a final decision on the project following completion of the EIS process, and that no new construction could begin until the final decision approving it was effective.

One of the purposes of an EIS is to develop environmental mitigation to minimize or eliminate environmental impacts discovered during the course of the environmental review. In a case in which environmental impacts are so severe that they cannot be mitigated effectively,

¹ In enacting ICCTA, Congress intended to facilitate rail line construction by changing the statutory standard for approval. Previously approval was required if the agency found that a project was consistent with public convenience and necessity; now approval is required unless the agency finds that the project is inconsistent with public convenience and necessity. The Board noted in its December 10, 1998 decision (*Dakota, Minnesota & Eastern Railroads Corporation Construction into the Powder River Basin*, STB Finance Docket No. 33407 (STB served December 10, 1998) (STB Decision), at 17) that "[u]nder the revised statute, proposed rail constructions are to be given the benefit of the doubt."

² Board-imposed conditions, including environmental mitigation, must be directly related to the transaction, reasonable, and supported by the record. The Board does not require mitigation of pre-existing environmental impacts, such as those resulting from existing railroad operations or land development.

however, the Board can still decide to approve the project under NEPA provided it has adequately considered the potential environmental impacts in an EIS.

In establishing feasible alternatives, SEA considered factors such as rail line design and engineering constraints, operation and maintenance costs, and potential environmental impacts. Both alternatives supported and those opposed by the Applicant were considered. In addition, to meet the requirements of the USFS, SEA also evaluated potential alternatives for detailed analysis that would not require new rail line construction across USFS lands. This screening resulted in retention of four primary alternatives for detailed analysis in the Draft EIS:

- Alternative A - No Action.
- Alternative B - Applicant's Proposed Alternative, DM&E's preferred alternative in its Application to the Board.
- Alternative C - Applicant's Modified Proposed Alternative, developed by rerouting portions of Alternative B to avoid environmentally sensitive areas.
- Alternative D - Existing Transportation Corridors Alternative.

SEA concluded in the Draft EIS that Alternative A (No-Action) could potentially have significant impact on safety and rail shipper service, would not satisfy the purpose and need for the project, and no mitigation measures could reduce these impacts. SEA determined that Alternative D, selected because it most efficiently used existing rail corridors and avoided construction on USFS lands even though it was longer than the other Extension Alternatives, would have more significant impacts, many of them difficult to mitigate, than Alternatives B and C, and appeared not to satisfy the project's purpose and need. Alternative C would generally have lesser, although still significant, impacts than Alternative B. Because Alternative C appeared to have the least potential environmental impact and would meet the purpose and need for the project, Alternative C was determined to be the least environmentally intrusive (See Chapter 6 of the Draft EIS for a detailed discussion).

SEA received many comments on the alternatives analyzed in the Draft EIS, and suggestions for alternatives not evaluated in detail in the Draft EIS. Among these suggestions were that the RRIFP be used, and that an additional existing rail corridor alternative, similar to Alternative D-6 from the Draft EIS, be evaluated as well. In preparing this Final EIS, SEA analyzed these alternatives in detail, and the results are discussed in the following sections.

3.1.1 RAILROAD REHABILITATION AND IMPROVEMENT FINANCING PROGRAM

The Transportation Equity Act for the 21st Century (TEA 21), Public Law No. 105-178, passed in June of 1998, amended Title V of the Railroad Revitalization and Regulatory Reform Act of 1976. Section 7203 of TEA 21 has new guidelines for the Secretary of Transportation's provision of direct loans and loan guarantees for rail-related projects to state and local governments; government-sponsored authorities and corporations; railroads; and joint ventures including at least one railroad. This revised program is referred to as the Railroad Rehabilitation and Improvement Financing Program (RRIFP or Program).

The Secretary has delegated to the Federal Railroad Administration (FRA) his authority under the Program to fund projects for:

- Acquisition, improvement or rehabilitation of intermodal or rail equipment or facilities, including tracks, components of tracks, bridges, yards, buildings and shops;
- Refinancing outstanding debt incurred for these purposes; and
- Development or establishment of new intermodal or railroad facilities.

FRA gives priority to projects that enhance public safety and the environment, promote economic development, enable U.S. companies to be more competitive internationally, are endorsed by plans prepared under 23 U.S.C. 135 by the state or states in which they are located, and preserve or enhance rail or intermodal service to small communities or rural areas.

Designed as a last resort source of credit, the RRIFP helps railroads fund otherwise unaffordable projects. It requires that a railroad submit a letter from a lender that has extended it credit within the previous five years, but refuses financing for the applicant's proposed project. FRA determines whether financial assistance is justified by present and future demand for the service the project will provide; whether the railroad's obligation can be repaid within 25 years, based on an appropriate combination of credit-risk premiums and collateral; and whether the project is consistent with the purposes of the program and will economically and efficiently utilize the funds. Because Congress has not yet appropriated funds for administration, FRA requires applicants to pay a credit-risk premium, providing FRA funding to administer the loan. FRA obtains RRIFP monies from the U.S. Department of Treasury for loans to borrowers, which, through credit-risk premiums and loan payments, repay the loan to FRA.

The RRIFP's loans outstanding may not exceed \$3.5 billion, so that new loans can only be made when unpaid principal falls below \$3.5 billion. Of this total, \$1.0 billion is reserved for

projects proposed by railroads other than Class I railroads,³ so that nearly 700 Class II and Class III railroads are eligible for these funds. The Program has no restrictions on how much a railroad may borrow, nor how often it applies.

During the Draft EIS comment period, SEA received many suggestions that the RRIFP be used to finance rehabilitation of DM&E's existing rail line. In evaluating the proposed project's eligibility for this funding, SEA notes that DM&E's identified purpose and need to rehabilitate its existing rail line seems consistent with the intent of the RRIFP. DM&E proposes rehabilitation to improve the safety of the rail line, promote economic development, and enable DM&E's existing shippers to compete more effectively in the international market place, as discussed in detail in the Draft EIS. However, it would not satisfy the other identified purpose of providing additional, competitive rail access into the PRB.

DM&E's Application to the Board states that rehabilitation of its existing rail line (about 597.8 miles across Minnesota and South Dakota) would cost approximately \$875.75 million in 1997 dollars. This includes new passing siding (\$105.55 million) and improvements to existing yard facilities (\$110.94 million) that, while boosting the efficiency of DM&E's operation, might not be necessary if not for potential increases in rail traffic associated with the proposed project. The estimate for rehabilitating DM&E's existing rail line, adjusted to 2001 dollars, ranges from \$725 to more than \$960 million, which is 72.5 to 96.0 percent of the total \$1.0 billion in funding available to non-Class I railroads through the RRIFP. SEA's informal inquiries indicate that FRA is unlikely to approve such a large loan for a single railroad when several hundred railroads could otherwise benefit from the funds available through the Program.

SEA also evaluated DM&E's potential for repaying any funds borrowed through the RRIFP. Assuming a 25-year loan term (for the lowest monthly payment), and an average

³ As noted in the Draft EIS, railroads are classified by the Board according to average annual operating revenues (AAOR). Class I railroads have AAOR of \$256.4 million or more; Class II railroads have AAOR of between \$256.4 million and \$20.5 million; and Class III railroads have AAOR of less than \$20.5 million. DM&E is a Class II railroad.

Federal interest rate of 3.5 percent, DM&E's monthly payment could be \$3.63 million (on \$725 million) to \$4.82 million (on \$960 million), or \$43.56 to \$57.8 million per year. With annual revenues of \$50 to \$60 million, DM&E could be forced to default since, even if its revenues cover loan payments, remaining revenues would not cover operation and maintenance. While after rehabilitation DM&E could cut operating and maintenance costs by deferring track maintenance to cover its loan payments, deferral would soon result in deteriorating track and, within a few years, DM&E's situation would be similar to today's. Without a dramatic increase in revenues which is not anticipated from simply rehabilitating the existing line, the benefits would be lost within a few years, probably resulting in restricted train operation (weights, speeds) and safety concerns throughout the system.

It may be argued that DM&E could target just those parts of its system in most need of rehabilitation for more manageable loan payments. However, for DM&E and its shippers to realize the benefits of rail line rehabilitation, the improvements must be system-wide for improved safety and to allow operation of 286,000 pound rail cars throughout the system. System-wide upgrade would involve several hundred miles of track and cost several hundred million dollars. To continue the current "band-aid" approach to rehabilitation could reduce loan payments, but likely would neither generate additional revenue nor produce sufficient system-wide improvements to result in long-term benefits to rail operations or shippers.

In short, although at first glance the RRIFP would seem a reasonable way for DM&E to seek funds to rehabilitate its existing line,⁴ it is unlikely that the Program could even lend funds sufficient to accomplish the system-wide improvements needed to reestablish DM&E as a safe and efficient railroad, that DM&E could repay the loan and still operate responsibly, or that a more affordable loan for less than the full need would achieve the railroad's goal. After due consideration, SEA has determined that the RRIFP is not a reasonable, practicable, or possible funding method for the rehabilitation of DM&E's existing line.

3.1.2 MODIFIED ALTERNATIVE D

During the scoping phase of this project (before the Draft EIS phase), SEA received suggestions that existing transportation corridors – existing rail lines operated by DM&E and other rail carriers and roadways – be used to achieve DM&E's transportation objectives. In addition, the USFS requested evaluation of an alternative that would use existing transportation corridors, as practicable, to minimize impact to the National Grasslands in South Dakota and Wyoming. SEA recognizes that using existing lines and transportation corridors generally is

⁴ DM&E has actually applied for funds under the RRIFP, to maintain parts of its existing rail line, and it covers projects not contemplated as part of the PRB Expansion Project.

preferable to constructing new ones, provided that it does not increase overall impacts to the environment, require questionable engineering techniques to cope with existing facilities, or require impractically indirect routes between shippers and users. In the Draft EIS, SEA developed and evaluated seven alternatives using existing transportation corridors. Of these seven, SEA determined that Alternative D-7 (Figure 3-1), could potentially efficiently utilize existing corridors and minimize impacts to the National Grasslands, and it was therefore retained for detailed evaluation as Alternative D in the Draft EIS.

Alternative D would utilize existing DM&E main line from Wall, South Dakota, westward to Rapid City. From there it would follow a DM&E secondary rail line south to Smithwick, then branch westward from the existing DM&E line, requiring new rail alignment construction. North of Edgemont, South Dakota, Alternative D would run adjacent and parallel to the existing BNSF rail line north, through Newcastle, Moorcroft, and Upton, Wyoming, continuing alongside the BNSF rail line to access the coal mines south of Gillette, Wyoming. This portion of Alternative D would require construction of new rail line on new right-of-way, generally immediately adjacent to the existing BNSF right-of-way. Although Alternative D would use existing DM&E rail line between Wall and Smithwick, the portion of the alternative between Rapid City and Smithwick would require major reconstruction to allow safe and efficient rail operations.

In the Draft EIS, SEA concluded that the existing DM&E rail line south from Rapid City to Smithwick was unsuitable for operation of unit coal trains as presently configured, and would require major construction to straighten curves and level the grade. Even with this major construction, SEA determined that it might not be possible to develop a suitable alignment for that portion of Alternative D. Since Alternative D is approximately 100 miles longer than the other alternatives, it also did not appear to SEA to meet DM&E's need to create a shorter rail route into the PRB. Moreover, SEA stated that as Alternative D relies on existing rail line corridors, deviations from these existing rights-of-way would reduce the potential benefits associated with following an existing rail corridor and would likely increase its overall impacts. SEA determined that Alternative D presented little flexibility to avoid significant environmental resources along these existing rail lines, with potentially significant environmental impacts to safety, land use, soil, paleontological resources, water resources, wetlands, air quality, noise, cultural resources, and aesthetics. SEA concluded that these impacts would be greater and affect more resources than those of Alternatives B or C. Based on the results of its analysis, SEA eliminated Alternative D as an environmentally preferable alternative in the Draft EIS.

Commenters expressed concerns that by choosing an existing corridor alternative that would greatly increase total project mileage, SEA prejudiced the likelihood that this alternative would be selected as being preferred. While these comments challenged SEA's conclusions and

its retention of only Alternative D-7 (and not the other 6 D Alternatives), they suggested no alternatives that would make a D Alternative more environmentally acceptable.

In comments on Alternative D, EPA did not dispute SEA's conclusion that the additional mileage of Alternative D significantly increased its potential impacts, particularly to wetlands and other water resources. EPA also recognized that Alternative D's increased project mileage would reduce DM&E's competitiveness and efficiency, perhaps making it more difficult to obtain coal transport contracts. EPA suggested evaluation of another D Alternative, called Modified D here, similar to Alternative D-6 in the Draft EIS. EPA's proposed alignment would use DM&E's existing rail line west from Wall, South Dakota and south from Rapid City, but would bypass Rapid City, eliminating both potential operational constraints within Rapid City and environmental impacts of realignment and increased rail operations in the City.

Specifically, Modified D would use DM&E's existing rail line south to Smithwick, then branch off to follow the alignment of Alternative C. Rather than follow the BNSF rail line at Edgemont, as Alternative D would, Modified D would continue along the alignment of Alternative C westward to access the mines. EPA reasoned that following the Alternative C alignment from Smithwick to the mines would shorten Alternative D's overall length and might avoid the environmental impacts associated with both the additional mileage and passing through several towns.

In response to comments from EPA and others, SEA began extensive discussions with EPA. These discussions focused initially on the feasibility of upgrading DM&E's existing Rapid City to Smithwick line for unit coal trains. EPA agreed with SEA's determination that the existing line would require substantial construction to be suitable for unit coal trains. EPA noted, however, that use of Alternative C would also require substantial construction effort and questioned whether work done within an existing corridor could reduce the environmental impacts of constructing Alternative C. EPA recommended that SEA evaluate the cut and fill required for each Extension Alternative before determining the feasibility of upgrading DM&E's existing line from Rapid City to Smithwick. EPA suggested that, if Modified D proved feasible, SEA should issue a Supplemental Draft EIS further comparing potential environmental impacts of Alternatives B, C, D, and Modified D.

Working cooperatively, SEA and EPA developed a procedure for appropriate analysis to determine the feasibility of a Modified D alignment. This procedure included development of an alignment and gradeline for Modified D meeting EPA's criteria, similar to DM&E's, of a one percent grade suitable for movement of unit coal trains up to 49 miles per hour, that includes a bypass of Rapid City. This analysis would provide the cut and fill requirements for Modified D, which then could be compared to those of Alternatives B and C to determine the feasibility of Modified D.

3.1.2.1 Development of Alignment for Modified D

SEA then analyzed Modified D’s engineering (cut-and-fill requirements) and environmental considerations. For a thorough analysis of the potential impacts of this alternative, SEA directed DM&E to prepare preliminary design drawings for Modified D between Wall and Smithwick, including a bypass of Rapid City. DM&E developed an alignment complying with its design criteria and EPA’s, using existing right-of-way where practical. However, straightening the line to minimize reverse curves⁵ often took the rail line outside DM&E’s existing right-of-way. DM&E’s new alignment bypassed Rapid City as outlined by EPA, while making maximum use of its existing right-of-way. When SEA decided that DM&E’s alignment appeared reasonable, DM&E completed development of the proposed Modified D.

A detailed description of each segment of the alignment of Modified D follows Table 3-1, which provides a more detailed description of Modified D (Figure 3-2). Detailed maps showing the alignment of the Modified D bypass of Rapid City and significant realignments of the existing rail line are provided in Figures 3-3 to 3-17. Other maps of Modified D are included in the Draft EIS (Volume V) as part of either Alternative C or D.

Segment	Start	End
Boxelder Creek Segment (44.9 miles)	About 0.5 mile north of Wall	Section 26, T2N, R9E, about 3.0 miles east of Box Elder
Rapid City Bypass Segment (10.2 miles)	Section 26, T2N, R9E, about 3.0 miles east of Box Elder	Center of Section 27, T1N, R8E, about 1.0 mile north of Warbonnet
Warbonnet Segment (56.5 miles)	Center of Section 27, T1N, R8E, about 1.0 mile north of Warbonnet	Section 31, T8S, R8E, just north of Smithwick
Smithwick Segment (13.1 miles)	Section 31, T8S, R8E, just north of Smithwick	Section 29, T9S, R6E, west of Dry Creek

⁵ Reverse curves occur where a curve turns in one direction and the next turns in the opposite. DM&E redesigned areas where the train would pass through two or more reverse curves at the same time, pulling the cars in several directions at the same time, which increases the possibility of train derailment.

Segment	Start	End
Tepee Creek South Segment (3.7 miles)	Section 29, T9S, R6E, west of Dry Creek	SW corner of Section 23, T9S, R6E
Heppner Segment (3.1 miles)	SW corner of Section 23, T9S, R6E	Section 29, T9S, R5E, SW of Heppner
Hat Creek North Segment (7.3 miles)	Section 29, T9S, R5E, SW of Heppner	Section 25, T9S, R3E at Plum Creek
Edgemont Segment (3.8 miles)	Section 25, T9S, R3E at Plum Creek	SW corner of Section 15, T9S, R3E
Edgemont North Segment (6.9 miles)	SW corner of Section 15, T9S, R3E	Center of Section 26, T8S, R2E, near existing BNSF rail line
BNSF Segment (8.0 miles)	Center of Section 26, T8S, R2E, near BNSF rail line	NW corner of Section 25, T7S, R1E
Burdock School Segment (6.0 miles)	NW corner of Section 25, T7S, R1E	Section 15, T40N, R60W, south of Twenty One Divide, at WY/SD border
Wyoming Segment (43.9 miles)	Section 15, T40N, R60W, south of Twenty One Divide, at WY/SD border	North-center of Section 12, T42N, R67W, at Lion Creek
450 Segment (16.0 miles)	North-center of Section 12, T42N, R67W, at Lion Creek	Southeast corner of Section 29, T43N, R69W, south of Little Thunder Creek
South Arm (22.2 miles)	SE corner of Section 29, T43N, R69W, south of Little Thunder Creek	Section 2, T40N, R71W at Antelope coal mine
North Antelope East Mine Loop Alternative (1.5 miles)	NE corner of Section 34, T41N, R70W	NE corner of Section 27, T41N, R70W, west of Porcupine Reservoir upon joining existing spur to North Antelope/Rochelle coal mine
North Antelope West Mine Loop Alternative (2.4 miles)	Center of Section 32, T41N, R70W, north of Antelope Creek.	Between Sections 33 and 34, T41N, R70W, north of Antelope Creek upon joining existing North Antelope/Rochelle mine spur.

Table 3-1 Modified Alternative D Segments		
Segment	Start	End
Black Thunder North Mine Loop Alternative (4.5 miles)	SE corner of Section 14, T43N, R70W	Section 17, T43, R70W at Black Thunder coal mine. Includes spur to serve Jacobs Ranch coal mine.
Black Thunder South Mine Loop Alternative (7.1 miles)	SE corner of Section 14, T43N, R70W	Section 14, T43N, R70W at Jacobs Ranch coal mine and second spur in Section 17, T43N, R70W at Black Thunder coal mine.
North Rochelle Mine Spur - School Creek Option (4.1 miles)	NE corner of Section 6, T42N, R69W at School Creek Road.	Section 9, T42N, R70W, at North Rochelle coal mine.
North Arm (40.6 miles)	SE corner of Section 29, T43N, R69W, south of Little Thunder Creek.	Section 25, T48N, R71W at Caballo coal mine; includes spurs serving Caballo Rojo, Coal Creek, Cordero, and Belle Ayr coal mines.

Boxelder Creek Segment

The Boxelder Creek 44.9-mile segment would begin Modified D, generally following the existing DM&E rail line from Wall, South Dakota to about 3.0 miles east of Box Elder, South Dakota. This segment would begin approximately 1.0 mile north of Wall, at the point where the existing rail line turns south and passes through town. Rather than extend westward, it would continue on the existing DM&E line south, through the town of Wall and under I-90 southwest of town, following the existing rail alignment for about 3,000 feet past I-90. At approximately the east-center of Section 1, T1S, R15E, the Boxelder Creek Segment would branch from the existing DM&E rail line, continue westward along the north side of Bull Creek, 1,000 to 2,000 feet north of the existing rail alignment. It would cross under I-90, about 4.0 miles east of the interchange of I-90 with Jensen Road. This crossing would likely require raising I-90 as part of the construction of an underpass for the rail line.

The Boxelder Creek Segment would continue northwest, approximately 1,800 feet north of I-90. It would cross Anderson Hill Road in the northwest corner of Section 7, T1N, R15E. It would curve slightly to the west, crossing Jensen Road before rejoining the existing DM&E rail line approximately 2,000 feet north of where the existing rail line crosses the Cheyenne River in Section 2, T1N, R14E.

Relocation of the rail line right-of-way along this portion of the Boxelder Creek Segment would be necessary to straighten and flatten the rail line to the grade and curve requirements for this project. The existing rail line winds along Bull Creek, creating numerous sharp curves. The Bull Creek drainage is not wide enough to allow the rail line to be optimized and still accommodate the stream channel. In order to avoid relocating numerous miles of Bull Creek or placing it in a pipe or drainage ditch, the rail alignment had to be relocated out of the drainage and along the sideslope of the creek.

The Boxelder Creek Segment would generally follow the same alignment as the existing DM&E rail line westward to near Box Elder. After crossing the Cheyenne River, this segment would pass through the town of Wasta and under I-90. It would continue south along the west side of the Cheyenne River. At Boxelder Creek, this segment would turn west away from the river and follow the Boxelder Creek drainage. It would pass through the communities of Owanka and New Underwood, crossing Boxelder Creek numerous times. The Boxelder Creek Segment would end in the center of Section 26, T2N, R9E, approximately 3.0 miles east of the town of Box Elder.

Rapid City Bypass Segment

The Rapid City Bypass Segment was developed at the suggestion of EPA, to avoid both the operational problems associated with moving trains through Rapid City on the existing rail line and the potential environmental impacts associated with increasing train operations along the existing rail line. The 10.2-mile Rapid City Bypass Segment would begin about 3.0 miles east of Box Elder, curve to the southwest from the existing DM&E rail line, cross Boxelder Creek in the center of Section 27, T2N, R9E, continuing southwest, then cross Section 33 diagonally from the northeast corner to the southwest corner. Continuing southwest, it would pass through the northwest portion of Section 5, T1N, R9E, the southeast corner of Section 6 and the northwest corner of Section 7.

The segment would cross County Road 212, the southeast portion of Section 12, T1N, R8E, and Hawthorne Ditch in the southwest corner of the section, then County Roads C232 and T210 in the northwest corner of Section 13, T1N, R8E. It would traverse Section 14, T1N, R8E diagonally from northeast to southwest, crossing Murphy Ditch in the center of the section and State Route 40 and the abandoned Chicago, Milwaukee, and St. Paul Railroad grade in the southwest portion of the section. From there it would continue southwest, crossing Rapid Creek and Warren Lamb Road in the southwest corner of Section 14, then move through the southeast tip of Section 15 into Section 22. In the northeast corner of Section 22, it would cross Southside Ditch and the previous channel of Rapid Creek, then in the center of Section 22 it would curve south, crossing Cyclone Ditch and Dry Creek. The bypass would rejoin the existing DM&E rail

line in the center of Section 27, approximately 1.0 mile north of Warbonnet, just south of the crossing of Dry Creek.

Warbonnet Segment

The 56.5-mile Warbonnet Segment would begin about 1.0 mile north of Warbonnet at the point where the Rapid City Bypass Segment would rejoin the existing DM&E rail line, and extend south, between 2 and 3 miles east of State Route 79. It would pass through the towns of Hermosa, Fairburn, Buffalo Gap, and Oral. It would cross numerous drainages – Cheyenne River, Spring Creek, Battle Creek, French Creek, Lane Johnny Creek, Beaver Creek, and Sand Creek – several of them many times, and sections would be channelized or relocated to accommodate construction of an optimized rail line.

While the Warbonnet Segment would generally use the existing DM&E line, SEA determined that some areas would require reconstruction along new alignments to achieve design specifications for the project. Most would involve slightly straightening curves in small sections so that little new right-of-way would be required. However, at the crossing of Spring Creek and at Fairburn, more significant realignment would be required. Between the north and south banks of Spring Creek, the existing DM&E rail line describes a double “S” curve. New rail line would run through the middle of the “S” like the line through a dollar sign (\$). Another “S” curve in Fairburn would be reconstructed as a single curve, requiring the line to cross French Creek about 1.5 miles southwest of Fairburn, extend northeast on the south side of the creek, and cross the creek a second time just southwest of Fairburn. After passing through Fairburn, approximately 500 feet east of its present location, it would turn north to rejoin the existing rail line about 2.5 miles north of town.

Smithwick Segment

This 13.1-mile segment of Modified D would follow the same alignment as the Smithwick Segment described in the Draft EIS for Alternative B.

Tepee Creek South Segment

This 3.7-mile segment would follow the same alignment as described in the Draft EIS for the Tepee Creek South Segment for Alternative C.

Heppner Segment

This 3.1-mile Heppner Segment of Modified D would follow the Heppner Segment described in the Draft EIS for Alternative B.

Hat Creek North Segment

This 7.3-mile segment of Modified D would follow the same alignment as described in the Draft EIS for the Hat Creek North Segment of Alternative C.

Edgemont Segment

This 3.8-mile Edgemont Segment of Modified D would follow the Edgemont Segment described in the Draft EIS for Alternative B.

Edgemont North Segment

This 6.9-mile segment of Modified D would follow the same alignment as described in the Draft EIS for the Edgemont North Segment of Alternative C.

BNSF Segment

The 8.0-mile BNSF Segment of Modified D would follow the BNSF Segment described in the Draft EIS for Alternative B.

Burdock School Segment

The 6.0-mile Burdock School Segment of Modified D would follow the same alignment as described in the Draft EIS for the Burdock School Segment of Alternative C.

Wyoming Segment

This 43.9-mile segment of Modified D would follow the Wyoming Segment described in the Draft EIS for Alternative B.

450 Segment

This 16.0-mile 450 Segment of Modified D would be the same segment as the 450 Segment described in the Draft EIS for Alternative C.

South Arm Segment

The 22.2-mile South Arm Segment of Modified D would be the same segment as the South Arm Segment described in the Draft EIS for Alternative C.

North Antelope East Mine Loop Alternative

The 1.5-mile North Antelope East Mine Loop Alternative of Modified D would be the same segment as the North Antelope East Mine Loop Alternative described in the Draft EIS for Alternative B.

North Antelope West Mine Loop Alternative

The 2.4-mile North Antelope West Mine Loop Alternative of Modified D would be the same segment as the North Antelope West Mine Loop Alternative described in the Draft EIS for Alternative B.

North Arm Segment

The 45.0-mile North Arm Segment of Modified D would be the same segment as the North Arm Segment described in the Draft EIS for Alternative C.

Black Thunder North Mine Loop Alternative

This 4.5-mile alternative Segment of Modified D would be the same segment as the Black Thunder North Mine Loop Alternative described in the Draft EIS for Alternative C.

Black Thunder South Mine Loop Alternative

The 7.1-mile Black Thunder South Mine Loop Alternative segment of Modified D would be the same segment as the Black Thunder South Mine Loop Alternative described in the Draft EIS for Alternative C.

North Rochelle Mine Spur - School Creek Option

The 4.1-mile North Rochelle Mine Spur-School Creek Option of Modified D would be the same segment as the North Rochelle Mine Spur-School Creek Option described in the Draft EIS for Alternative C.

3.1.2.2 Development of Grade Profile for Modified D

After SEA and EPA approved the alignment of Modified D, DM&E developed plan and profile drawings showing waterway crossings and the limits of cut and fill. The extent of excavation and fill areas, and amounts of material to be excavated and filled was also calculated. SEA determined that the horizontal (route) and vertical (grade) alignments appeared to meet EPA's criteria for Modified D, and that the design represented a reasonable and credible effort to develop a heavy-haul rail line using the existing rail line alignment. SEA's further analysis of the information indicated the following regarding Modified D:

- The earthwork would be very unbalanced, with extensive cuts and excavation south of Rapid City to Smithwick and mostly fill from Rapid City to Wall.
- Excavation (133 million cubic yards) for Modified D would be about four times the fill (33 million cubic yards) required for it.⁶ Because it is unlikely a local or regional need could be identified for such a large quantity of fill material and it is generally uneconomical to transport fill more than a few miles, large areas would be required along the rail alignment for the disposal (dumping) of excess fill. Because of the distance between areas of cut and fill, even with all the excess excavated material, it is still likely that borrow areas from outside the right-of-way would be required to meet the local need for fill.
- Earthwork quantities (133 million cubic yards of excavated material and 33 million cubic yards of fill) appeared reasonable, based on the gradeline required for the rail line and the topography of the area. The existing line generally has a grade of 1.5 percent, with nearly 2 percent in some locations. Given the

⁶ Since about 5 million cubic yards of material would fill the average football stadium, earthwork for this project would fill about 665 football stadiums with about 8.8 million large dump trucks of material.

topography along the existing line, significant excavation would be required to reduce the gradeline to 1 percent compensated grade.

- Earthwork quantities for Modified D were likely underestimated. They were developed using a standard rail bed cross-section, similar to those shown in Chapter 1 of the Draft EIS, using typical dimensions for a heavy-haul rail line, considering the width and height of the rail bed, subballast, ballast, rail, and drainage ditches, and assuming a standard 3:1 slope. From this standard template, the volume of cut and fill required to achieve the necessary grade was calculated. However, in many locations, cuts would be more than 100 feet deep, resulting in sideslopes of over 300 feet that would require benching (stair-stepping) the slope from the bottom to the top of the cut. Benching to stabilize sideslopes, reduce slope erosion, and allow for runoff draining into the cut likely would result in greater excavation than previously projected.
- Standard drainage ditches were used in preparing the engineering estimates, but in many cases cuts would intercept surface water, and streams would drain into the rail line cut. This would require larger ditches to accommodate the stream flow, wider at the bottom of the cut, which would increase the material excavated to establish stable sideslopes. Modifications to ditch sizes would also be needed to provide for snow removal from the rail line.
- No earthwork was calculated for reconstructing existing roadway alignments to the revised rail line grade level. If Modified D were approved and built, however, roads crossing the rail alignment might need to be raised or lowered to bring them to the same elevation as the rail line or to construct grade separations.
- Two existing Cheyenne River crossings would need to be raised over 40 feet, requiring substantial bridging and fill within the river flood plain at these locations.
- To develop a suitable alignment and grade, realignment would be necessary at Fairburn, South Dakota (Figure 3-16), moving the existing rail line several hundred feet east, through the middle of town. To achieve a suitable grade, the line would be atop 20-30 feet of fill, with a width-of-fill at the base of the rail bed of about 150 feet. A 25-foot-high wall would essentially divide Fairburn in half, and about 6.9 acres (10 percent) of town would be converted to rail line right-of-way.

- At many locations excavation for the Modified D Alternative would cut off creeks crossing the rail line so that the rail line cut would be lower than the creek bed and the creek would flow into the rail cut. In some cases, the creek would be conveyed in the cut for only a short distance before returning to the existing creek channel. But there are cases where the depth of cut would require up to several miles of creek flow confinement in the cut. In all these areas, the creeks would be de-watered, impacting wetlands and water for wildlife and livestock, and making the water unavailable for irrigation.
- In several areas, cuts of 50 feet or greater for over 4 miles would be required, essentially creating a steep-sloped canyon along the rail line. Such cuts would drain runoff into the rail cut rather than streams and creeks, altering stream hydrologies, resulting in less water in some locations for wetlands, wildlife, livestock, and irrigation. Areas below the return of streams to their channels would experience increased flows, and sediment transport and deposition. Wildlife funneled into these areas would be more easily struck by a passing train since steep slopes and the length of the cuts provide no convenient escape route.
- Modified D's estimated 133 million cubic yards of earthwork is many times more than Alternative B (11 million cubic yards) and Alternative C (17 million cubic yards) require. Differences in cut and fill, and the bridges, stream channelization, drainage structures, slope stabilization, and erosion control would likely result in significant cost differences between these alternatives as well. Alternative B is estimated to cost \$430 million and Alternative C \$685 million, but Modified D is estimated to cost \$2 billion to construct. And because of the cut-and-fill understatement and road reconstruction for Modified D, the actual cost of construction of Modified D is likely to be substantially higher than \$2 billion.
- Even using the alignment of Alternative C in Wyoming and the bypass of Rapid City, Modified D would be 85.7 and 85.9 miles longer than Alternatives B and C, respectively, offering no operational advantages over the other alternatives. Travel distance, travel time, fuel consumption and associated emissions, rail line maintenance, and wear and tear on locomotives and rail cars would all be increased. The additional length of the rail line would also likely require additional passing sidings along the entire DM&E mainline.

SEA had eliminated Alternative D-6 (basically the same as Modified D without the Rapid City bypass) from detailed consideration in the Draft EIS because it would not avoid new rail construction in the National Grasslands, offer a shorter or more competitive route into the PRB, or provide construction or operational advantages over Alternatives B and C. EPA did not

indicate that Modified D would alleviate SEA's concerns about these issues, only that it might reduce the environmental impacts of Alternative C. SEA has determined that Modified D would save approximately 75 miles over Alternative D (from Edgemont to Black Thunder Mine, 82.8 miles for Alternative C versus 158.2 miles for Alternative D). There would be no impacts to communities along the BNSF line such as Newcastle, Moorcroft, and Upton, and bypassing Rapid City would also eliminate many potential impacts to human resources from increased train operations there. However, Modified D would still be about 85.9 miles longer than Alternative C.

3.1.2.3 SEA's Conclusion on Modified D

Based on the previous considerations, SEA has determined that Modified D would have significant environmental impacts, many of them difficult or impossible to mitigate. The primary attraction of Alternative D and Modified D is using DM&E's existing line. But a thorough analysis indicates that many of the potential benefits of using the existing rail corridor would be lost, due to the extent of new construction and the new right-of-way that would be required, and the potential environmental impacts of the required construction. Modified D offers no advantages over Alternatives B or C – such as reduced distance, fewer environmental impacts, lower cost, or less complicated engineering – and the existing alignment could not reasonably be optimized for unit-coal transport. Modified D also does not avoid the Thunder Basin National Grassland in Wyoming, although the Buffalo Gap National Grassland would be avoided. Therefore, SEA has concluded that neither Alternative D, nor Modified D, is a reasonable and feasible alternative, and has consequently eliminated them from further consideration in this Final EIS.

SEA has worked closely with EPA in conducting this additional analysis, and after concluding that Modified D would result in potentially severe environmental impacts, discussed with EPA the results of its analysis. After considering SEA's results, EPA has concurred that Modified D is not a reasonable and feasible alternative for this project, (see Appendix C). EPA also agreed that, with the elimination of the Modified D Alternative, a Supplemental Draft EIS is no longer necessary.

3.2 ENVIRONMENTAL IMPACTS OF EXTENSION ALTERNATIVES

In the Draft EIS, SEA analyzed the potential environmental impacts of extending DM&E's existing rail line from Wall, South Dakota, westward to the mines in the PRB, by evaluating the impacts of Alternatives B, C, and the original D, on a variety of natural and human resources. Nothing in the comments to the Draft EIS led SEA to modify its conclusion that the

original D Alternative would not be reasonable and feasible, and, as discussed above, the Modified D Alternative also has been carefully assessed, but eliminated from further consideration.

The comments on the Draft EIS analysis of the Extension Alternatives are summarized in Appendix B. Comment responses that required no additional analysis are included at the end of each comment summary. Comments that required additional analysis or more extensive discussion are summarized and discussed in later sections of this chapter.

As explained in the following sections, SEA has analyzed, by environmental topic, the potential impacts associated with construction and operation of the two remaining Extension Alternatives, B (Figure 3-18) and C (Figure 3-19). However, it should be noted that these alternatives are not continuous from Wall to the coal mines and must be combined with alternatives for the Spring Creek and Hay Canyon areas and the options to access the Black Thunder and North Antelope coal mines in order to consider the potential impacts of a continuous route. After assessing all of these alternatives, SEA presents its recommendations for the environmentally preferable Extension Alternative (Alternative C combined with the Phiney Flat Alternative, WG Divide Alternative, Black Thunder North Mine Loop, and North Antelope East Mine Loop).

3.2.1 SAFETY

The proposed project would create new rail line crossings of roadways, most at the same level as the roadway (at-grade or grade crossings), requiring vehicles to cross the rail line, and creating the potential for accidents. In the Draft EIS, SEA determined the number of new grade crossings Alternatives B and C would create and used it as an indicator of the potential for train/vehicle accidents. As discussed in detail in the Draft EIS, Appendix H, SEA also evaluated the potential for accidents at grade crossings.

Alternative B would create 44 new grade crossings, and Alternative C would create 45 new grade crossings. Although Alternative C would have one more grade crossing than Alternative B, SEA determined that Alternative B would have a greater impact on safety due to a significant potential for accidents at four road crossings:

- Old U.S. Highway 18, Fall River County, South Dakota (100 million ton operation level),
- U.S. Highway 85, Niobrara County, Wyoming (50 and 100 million ton level),
- U.S. Highway 450, Campbell County, Wyoming (20, 50, and 100 million ton level), and
- Bishop Road, Campbell County, Wyoming (50 and 100 million ton level).

Alternative C would also have significant potential for accidents at three road crossings:

- U.S. Highway 85, Niobrara County, Wyoming (50 and 100 million ton level),
- U.S. Highway 450, Campbell County, Wyoming (100 million ton level), and
- Bishop Road, Campbell County, Wyoming (50 and 100 million ton level).

All roads significantly affected by Alternative C would also be affected by Alternative B.

During the Draft EIS comment period, DM&E submitted a grade crossing mitigation plan that described in detail grade crossing protection for which DM&E proposed to pay substantially more than normally paid by a railroad (90 percent rather than 5-10 percent) to implement. SEA determined that the aforementioned grade crossings would experience significant increases in accident frequency even with the grade crossing protection provided in this plan. As discussed in Chapter 12, SEA is recommending that the Board impose a condition on any decision approving this project requiring DM&E to comply with its grade crossing mitigation plan. Additionally, SEA has included recommended mitigation in Chapter 12 which would require DM&E to provide additional grade crossing protection at these crossings.

Several Draft EIS comments suggested a greater likelihood of a train/vehicle accident, as well as a fatal train/vehicle accident, at a rural grade crossing than at an urban grade crossing. SEA's Draft EIS analysis gave an estimate of accident frequency at public grade crossings, but did not address rural versus urban crossings or fatal versus non-fatal accidents.

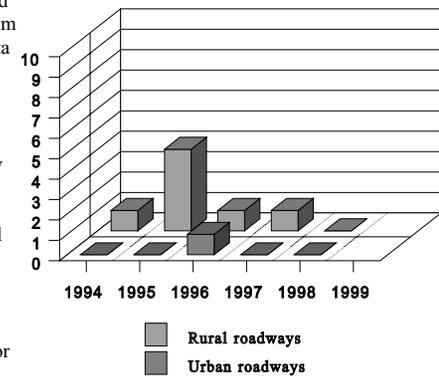
In response to the comments, SEA compiled additional information on grade crossing accidents, including the number involving a fatality, from the South Dakota and Wyoming Departments of Transportation and the National Highway Traffic Safety Administration (NHTSA)

Fatality Analysis Reporting System (FARS) database.⁷ The South Dakota DOT maintains records of accidents at grade crossings, but does not publish a report which classifies these accidents as rural or urban. A search of the FARS database reported 15 fatal grade crossing accidents in South Dakota between 1994 and 1999. Of these, 13 occurred on rural roadways, and two on an urban roadway (Figure 3-20). Based on the data for this six year period, approximately 87 percent of all fatalities from grade crossing accidents in South Dakota occurred at rural grade crossings. The South Dakota DOT data is in agreement with these numbers.

⁷ Department of Transportation, Fatality Analysis Reporting System, at <http://www-fars.nhtsa.dot.gov/>, February 28, 2001. A grade crossing accident involves a train and a driver-operated vehicle. Colliding passenger cars at a grade crossing would not qualify, nor would trains colliding with no driver-operated vehicles involved. A fatal grade-crossing accident must have resulted in loss of human life as a direct result of the crash or collision.

The Wyoming DOT provided grade crossing accident statistics from 1983 through 2000. Wyoming's data indicates a total of 105 grade crossings accidents during this time period, with 51 occurring in urban areas and 54 in rural areas. The 105 grade crossing accidents reported by Wyoming DOT for the 17-year time period between 1983 and 2000 resulted in six fatalities, four at rural grade crossings, and two at urban grade crossings. According to Wyoming DOT a location is considered urban if it is within the boundaries of an incorporated area or has a population of 5,000 or more. Based on this data, approximately 67 percent of fatal grade crossing accidents in Wyoming occur at rural grade crossings. The FARS database does not report any fatalities at Wyoming grade crossings from 1994 through 1999.

Figure 3-20 Grade crossing fatalities in South Dakota



A 1994 report on fatal crashes at grade crossings issued by the NHTSA⁸ indicates that 60 percent of all fatal rail crossing crashes in the United States occur in rural areas. The study also reports that between 1975 and 1992 over 30 percent of all fatal crashes at grade crossings occurred at crossings on roadways with a posted speed limit of 55 mph. Between 1982⁹ and 1992, over 30 percent of fatal crashes occurred at grade crossings where a crossbuck¹⁰ was posted. The 1994 report states that the majority of grade crossing accidents occurred on straight, blacktop roadways, under dry road conditions. Poor road conditions apparently are not a major factor in rail grade crossing accidents. This may be due to drivers traveling at slower speeds and paying greater attention to driving conditions under bad weather or other poor road conditions.

⁸ Terry Klein, Tina Morgan, and Adrienne Weiner, *Rail-Highway Crossing Safety Fatal Crash and Demographic Descriptors*, National Technical Information Service, 1994.

⁹ Information prior to 1982 used a different criteria for crossing protection that does not specify crossbucks as a means of crossing protection.

¹⁰ Crossbucks are black-and-white X-shaped signs that read "RAILROAD CROSSING."

The factors that most grade crossing accidents have in common are driver-related and include failure to yield, failure to obey traffic or warning signals, and failure to be attentive.

All of the proposed Extension Alternatives would create predominantly rural grade crossings. As noted in the Draft EIS, the majority of these crossings would not exceed Board thresholds for accident frequency.¹¹ However, in the unlikely event of a train/vehicle accident at one of these crossings, there would be a greater likelihood of a fatality occurring.

SEA also looked closely at the number of new grade crossings each Extension Alternative would create. As noted earlier, Alternative B would have 44 new grade crossings and Alternative C would create 45 new grade crossings. SEA looked at the number of new grade crossings as another measure of the potential for each alternative to affect vehicle safety. The fewer the grade crossings, the less opportunity for vehicles to encounter a train. Therefore, it is important to minimize the number of new grade crossings.¹²

After conducting further safety analysis, SEA has determined that, as noted in the Draft EIS, both Alternatives B and C would have potentially significant impacts to vehicle safety at grade crossings, but mitigation proposed by DM&E, and recommended in Chapter 12 of this Final EIS, would reduce these impacts to below significant levels. Alternative C would have one

¹¹ SEA's thresholds for accident frequency are one or more additional accidents every 100 years for Category A grade crossings (in South Dakota, crossings determined to have one or more accidents every 20 years; in Wyoming, crossings determined to have one or more accidents every 40 years), and one or more additional accidents every 20 years for Category B grade crossings (all other crossings), as discussed in detail in the Draft EIS, Chapter 4, Section 4.4, and Appendix H.

¹² This analysis is in keeping with the Federal Railroad Administration's (FRA) Closed Crossing Initiative, established in 1991 at the National Conference on Highway-Rail Safety. At this conference, held on July 7-10, 1991 in Philadelphia, FRA announced that it would work to achieve a 25 percent reduction in the number of rail/highway grade crossings nationwide. (73,210 crossings). As of December, 2000, FRA had achieved approximately 52 percent of its goal, having closed a total of 38,183 crossings. SEA agrees with FRA that reductions in grade crossings provide the most effective way to improve vehicle safety and supports efforts to close additional crossings.

more grade crossing than Alternative B. But, because this would be of a rural roadway with a low level of vehicle traffic, the potential safety impacts at this crossing would be minimal. Therefore, SEA determined Alternative C, with the mitigation recommended in Chapter 12, would have no significant impact on safety.

3.2.2 TRANSPORTATION

As SEA acknowledged in the Draft EIS, any of the proposed Extension Alternatives have the potential to impact transportation in the project area. For example, there would be temporary delays to motorists during construction of grade crossings, delays to motorists when trains are passing through grade crossings, and delays to emergency vehicles. However, SEA determined that due to the low population of the area and low level of vehicle traffic on the roads crossed by the Extension Alternatives (44 or 45 new grade crossings depending on the alternative for more than 250 miles of new rail line), neither of the proposed alternatives would have a significant impact on vehicle delay. SEA indicated in the Draft EIS that it is possible that an emergency vehicle could be blocked by a passing train when responding to an emergency. But because emergencies are random events, SEA saw no valid way to predict the likelihood of a passing train delaying an emergency vehicle, whether such a delay would result in increased loss of life or property, or whether any differences in the potential to delay emergency vehicles would exist between the Extension Alternatives.

Comments on the Draft EIS raised concerns that the rural nature of the project area and the limited road access to many areas would impede the movement of emergency vehicles, and that delays to emergency vehicles responding to medical emergencies and fires could result in increased loss of life and property damage. In response, SEA contacted a number of emergency service providers,¹³ including fire and rescue, ambulance, and police. All indicated that to the extent possible, they respond to emergencies along routes which would avoid potential delays, including those created by a passing train. SEA recognizes that in sparsely populated rural areas like the area around Extension Alternatives, a route which would avoid the need to cross the rail line may not be available. In such cases, emergency service providers indicated that they respond to an emergency with a primary and alternate route in case an obstruction is encountered. If available, a second response unit may be dispatched along another route or notified of the emergency so it can respond quickly should the first unit be delayed. In the rural, largely undeveloped area of the Extension Alternatives, the firebreak along the rail line, which also would serve as a rail line service road, could provide a potentially shorter route to an open

¹³ These included Kansas City, Lees Summit, and St. Peters, Missouri; Scottsbluff, Nebraska; Aberdeen, South Dakota, Baltimore, Maryland, and Durham, North Carolina.

crossing than would backtracking to reach an alternate crossing. Appropriate advance planning of alternative response routes by emergency service providers generally should allow for continued timely response to emergencies in the project area.

SEA also investigated whether South Dakota and Wyoming had regulations or guidelines governing the amount of time a train could block a road crossing. In Wyoming, the Wyoming Department of Transportation's (WYDOT) rules conform to the "General Code of Operating Rules" for rail operations. WYDOT's rules prohibit a train from blocking a public grade crossing for more than 10 minutes, except if the train is in motion, disabled, complying with a safety signal or other railroad safety regulation, stopped to avoid an accident, or no traffic is being blocked at the crossing.

In South Dakota, the state regulations prohibit a train from blocking an emergency vehicle responding to an emergency for more than 20 minutes, unless the train is disabled or cannot be moved without hitting a person or object on the rail line. Crossings, and thus vehicles, may be blocked for more than 20 minutes if an emergency vehicle is not being blocked from responding to an emergency call.

Thus, in both states, it is within the states' guidelines that, under normal operating conditions, emergency vehicles could be blocked from responding to a call for 10 minutes or more at a rail/highway grade crossing. This represents over three times the period of time required for a train operating as contemplated for this project to pass a crossing.¹⁴ Thus, while any of the proposed Extension Alternatives would potentially block movement of vehicles, including emergency vehicles, under normal and anticipated operating conditions, none of them would violate any state regulations or guidelines regarding the blocking of crossings.

Based on SEA's additional investigation of the potential impacts of the proposed project in the area of transportation, SEA has determined that its analysis presented in the Draft EIS was appropriate. SEA does not anticipate any significant impact to vehicle delay or the movement of emergency vehicles as a result of either Alternative B or Alternative C.

Several commenters, including the State of South Dakota, noted that the Wall Municipal Airport, Wall, South Dakota, recently had submitted plans to the Federal Aviation Administration (FAA) to expand the airport runway by 1,300 feet, from 3,500 feet to 4,800 feet.

¹⁴ Based on a 135-car train, approximately 7,400 feet in length traveling at 45 miles per hour requiring 3.1 minutes to clear a crossing.

The State was concerned that the proposed new rail line construction would interfere with the proposed runway expansion. In response, SEA obtained plans for the airport which showed the existing runway and proposed runway expansion in relation to the proposed rail line.

The proposed alignment for new rail line construction does not appear to present any operational concerns with existing airport operations. However, under the proposed expansion, the existing runway would extend into the right-of-way of the proposed rail line, resulting in a direct conflict between the two facilities. Presently, the proposed runway expansion calls for the existing runway to be extended to the northwest. It does not appear that adequate space is available to feasibly extend the runway to the southeast, as other airport facilities, including numerous fuel tanks, and the town of Wall are presently located in this area. While the presence of the proposed rail alignment would preclude extension of the full 1,300 feet, it may be possible to extend the runway several hundred feet without resulting in conflict with the rail line. However, this additional distance may be inadequate to provide for the safe take-off and landing of the type of aircraft intended to be served by the full extension.

SEA consulted airport personnel for more information on the status of the proposed extension. SEA learned that the proposed extension is part of its long-range plans, and while desirable, is subject to obtaining Federal funding.¹⁵ No date for construction of the extension has been established, and airport personnel indicated that the runway extension probably would not take place until after completion of the resurfacing of the existing runway, scheduled for 2003 or 2004.¹⁶

¹⁵ It is expected that the FAA would provide 90 percent of the funding, the City of Wall would provide 6 percent, and the State of South Dakota would provide 4 percent.

¹⁶ Personnel at Wall Municipal Airport expressed support for the proposed PRB Extension Project. While the new rail line construction would conflict with the proposed runway extension, they emphasized that the runway project was a proposal and may not ever be approved, funded, and constructed.

Based on the available information, SEA believes that it is currently somewhat speculative as to whether or not expansion of the runway will ever occur, and that, in any event, any expansion appears to be several years away. Thus, construction of the new rail line, if final approval is granted, could be underway or completed at such time as the airport is in a position to move forward with the runway extension project. The alignment of the new rail construction as currently planned would interfere with the full runway extension. However, the runway extension project is uncertain, and it appears, through review of aerial photography, that it may be possible for DM&E to adjust its proposed alignment slightly, without significant changes to its plans or the potential environmental impacts, to make the rail line compatible with the runway extension. To assure that the necessary consultations to accomplish this take place, SEA has recommended mitigation that would require DM&E to coordinate with the City of Wall and the State of South Dakota to evaluate ways to potentially develop the proposed rail alignment, if possible, in such a way as to enable runway expansion to remain feasible (See Chapter 12).

3.2.3 LAND USE

A variety of land uses occur within the project area of the proposed Extension Alternatives. These include ranching, farming, business and commercial, and residential uses. The following discusses SEA's additional consideration of land use issues beyond those included in Chapter 4, Section 4.4 of the Draft EIS in response to comments received on the Draft EIS.

3.2.3.1 Ranching

In the Draft EIS, SEA discussed ranching under the heading of rangeland/grazing land. Both of these are types of land use necessary for raising livestock. In the project area, cattle are the primary livestock raised. However, sheep, horses, and goats also are raised. Farms for raising livestock are commonly referred to as ranches. The activity of raising livestock and maintaining them can be generally defined as ranching.

The Draft EIS discusses in detail the potential impacts to ranching (Chapter 4, Section 4.4.6.1.1). These impacts include:

- fragmentation of grazing pastures and allotments,
- isolation of portions of pastures and allotments from necessary resources (such as water) and ranch improvements,
- disruption of ranching patterns and operations,
- blocking access to pastures and allotments and disruption of normal livestock movements,
- damage to ranch improvements, such as fences, buildings, or shelter belts,

- spread of noxious weeds,
- loss of livestock to vehicle and train accidents, and
- loss of forage due to railroad-induced fires.

These impacts differ in nature and extent for each ranch crossed by a potential alternative. Impacts to ranching depend on variables such as the size of the ranch, how and where the rail alignment would cross the ranch, and how the lands within the ranch are managed and operated. In order to compare the different alternatives, SEA determined the amount of grazing and rangeland potentially affected by each alternative. SEA used the amounts of grazing and rangeland converted to rail line right-of-way as an indicator of the potential project impacts to ranching. Thus, the more grazing and rangeland affected, the greater the potential for significant adverse impacts to ranching.

The Draft EIS indicated that Alternative B would cross approximately 231.6 miles of rangeland (ranchland), including 90.3 miles in South Dakota (4,378.2 acres) and 141.3 miles in Wyoming (6,850.9 acres). Alternative C would cross approximately 207.0 miles of ranchland, including 75.8 miles in South Dakota (3,673.2 acres) and 121.6 miles in Wyoming (5,895.7 acres).

A number of comments on the Draft EIS appeared to support and reiterate the types and range of potential impacts to ranchland and ranching operations SEA identified in the Draft EIS. Therefore, no additional analysis of these impacts was required.

SEA did receive comments expressing concern that ranching should not have been classified as an agricultural land use because it differs from farming. SEA agrees that ranching and farming are dramatically different uses of the land. SEA had grouped farming and ranching under agriculture because both ranching and farming are activities dependent upon the land and involve the production of food and feed, whether it be for human or animal consumption. While it does not effect the overall analysis of impacts, SEA has broken agricultural land use into ranching and farming for this Final EIS in response to concerns raised in comments.

Additionally, SEA received comments that ranching should have been assessed under the category of business and industrial because ranching is a business and many persons within the project area depend upon it for their livelihood. SEA recognizes that ranching is a means of making a living. In the Draft EIS, however, business and industrial land referred to areas developed as stores, factories, restaurants, service stations, and other places of commerce that serve the general public. Ranches include facilities such as barns, corrals, garages, and homes, but typically people do not do business at a ranch in the same manner as at shopping centers, malls, or industrial and business parks. Therefore, SEA appropriately treated ranching separately from business and industrial land use.

SEA recognizes that all of the potential impacts to ranching summarized above have potential economic implications. Ranches are operated to make the most efficient and productive use of the land included in the ranch and the resources the land provides. Additionally, they are operated to require the least amount of man power and labor. Disruption of ranching operations through the construction and operation of a new rail line would reduce the forage available on the ranch, potentially requiring added expenses to feed livestock. More time and labor costs to work and manage the ranch, particularly for moving livestock, would likely be required. Additionally, costs for new and additional facilities such as fences, barns, and corrals may be incurred due to others being removed or isolated during rail line construction. The potential economic impacts of rail line construction and operation across an operating ranch are discussed in greater detail in Section 3.2.4, Socioeconomics.

3.2.3.2 Farming

The Draft EIS used impacts to cropland to indicate potential land use impacts to farming. Impacts to farming as discussed in detail in the Draft EIS (Chapter 4, Section 4.4.6.1.2) would include:

- conversion of cropland to rail line right-of-way,
- division of larger fields into smaller fields,
- restrictions or problems to access fields,
- modification or elimination of irrigation structures, and
- increased use of public roads by large, slow-moving farm equipment.

Construction of a rail line across cropland would have economic impacts (See the discussion below in Section 3.2.4, Socioeconomics). The only comments SEA received regarding potential project-related impacts to farmland by the Extension Alternatives (not including the Hay Canyon alternatives which are discussed later in this chapter) indicated that, like ranching, farming is a business. SEA recognizes that farming is a business and a means for many in the project area to earn a livelihood. Because cropland involves the use of land to produce feed and forage, however, SEA decided to address it under agricultural land use. SEA's approach does not affect the overall analysis of potential project impacts on farming. As the comments received on farming were not substantive, SEA determined that no additional analysis of this topic was necessary for the Final EIS.

3.2.3.3 Residential

Numerous residences would potentially be affected by construction and operation of either Extension Alternative. Many of these residences are associated with the ranches and farms found

throughout the project area. Most residences are in low density areas and may be a mile or more from their closest neighbor. To a lesser extent, these are areas of higher density residences. SEA noted in the Draft EIS that construction and operation of a new rail line would result in a variety of impacts to residential land use, including increased noise, safety considerations, dust, traffic congestion, and potential vehicle delays, as discussed in detail in the Draft EIS, Section 4.3.6.2.

A number of commenters are concerned that residential properties would decline in value as a result of construction and operation of a new rail line, or increases in rail traffic along existing portions of DM&E's rail line. As noted in the Draft EIS, Section 4.3.6.2, SEA expects some negative impact to residential property values.

In response to the comments SEA received on this issue, SEA conducted additional research. SEA's analysis shows that residential property values are based on a variety of factors. Valuation of property is heavily influenced by subjectivity and personal preferences for living space. Also, determinants of residential real estate prices include:

- supply and demand
- economic trends
- season of the year
- location in relation to amenities
- geographic location
- social location

In general, there is a limited supply of most types of real estate, whatever its size, location, or type. The demand for a particular type of real estate is countered by its availability.¹⁷ As demand increases, so will price. As availability decreases, price will increase.

The real estate market is highly influenced by the economy. Generally, in good economic times, real estate prices will increase, reflective of increased employment, wages, and the confidence of the consumers that they will remain employed and be able to handle the debt associated with purchasing a home. Low interest rates also may increase real estate prices as more persons seek to take advantage of the lower payments and debt associated with lower rates. During slower economic conditions, consumers may be worried about assuming greater debt along with concerns about remaining employed or reduced wages. During these times, demand for real estate generally declines, potentially causing prices to fall to levels low enough to entice buyers.

¹⁷ Mattson-Teig, "Cleveland Targets New Growth Industries," *National Real Estate Investor*, Atlanta, Georgia, 15 October, 2000, pp. 38-43.

Real estate prices may also fluctuate due to the season of the year. As people tend to prefer to move in the spring or summer,¹⁸ real estate prices may see a rise at these times due to increased demand.

The statement “location, location, location” holds true in the real estate market. Access to conveniences has a major influence on residential property value. Nearby amenities such as gas stations, schools, grocery stores, and entertainment opportunities make real estate more attractive to potential buyers, thereby increasing the demand for a particular location. People generally desire to live in the company of others with similar demographics. Income, perceived wealth, ethnic background, and education are some of the attributes people may consider when looking for a home.

¹⁸ Geffner, “How to Read Housing Market Stats,” at <http://realtor.com/basics/sell/setprice/stats.asp>.

Additionally, geographic location, or physical location, may affect the value of a particular property. A favorable climate, scenery, and proximity to such things as lakes or parks often increase residential property demand. Proximity to industrial development (or as in this case a rail line) may cause the property to be viewed as undesirable and reduce the demand. However, people vary in their tastes and tolerances, including tolerance to noise.¹⁹ Thus, even proximity to a perceived nuisance such as a rail line may have little or no affect on property value if other factors increasing its potential value are present.

In the final analysis, real estate values are determined largely by the demand. If a property is in an area of high demand, be it because of the type or size of the house or location, its value will be sustained, even if some negative aspects are present. If the property is not in a demand area, its value will suffer. The personal preferences of the particular buyer are also important. One buyer may be willing to pay much more than another buyer for the same property. The value of a property is therefore highly dependent on finding the right buyer for the right property.

Consequently, while SEA acknowledges that negative impacts to property values are possible from this rail line, it is impossible to generalize about the potential impacts to residential real estate values along the proposed project. One house may experience a reduced selling price while the one next door may not. An economic slow down may cause all real estate prices in the area to decline, while a growing economy may result in price increases for properties adjacent to the rail line. Some decline in value to residential properties likely would occur during construction and initial operation of the proposed line. Real estate values may see a decline due in part to uncertainties about the project and its potential impacts. However, over time, residents often adapt to rail operations and real estate prices could stabilize or increase so that, over time, the proposed project could have relatively little impact on the price of residential real estate.

Numerous commenters expressed concern that DM&E, a private corporation, could be allowed to take land from private citizens against their will through eminent domain, a process whereby land can be acquired from private citizens for the general benefit of all citizens. SEA points out that because of DM&E’s, and for the most part all railroads’, responsibility to provide rail service to those shippers requesting it, many states have given railroads the power of eminent domain to enable them to acquire the lands they need to meet the transportation needs of the areas they serve. SEA notes that eminent domain is governed by the various states in which the involuntary land acquisition occurs (here Wyoming, South Dakota, or Minnesota). Furthermore,

¹⁹ Walters, *Noise and Prices*, 1975, pp. 41, 58.

state laws would provide for compensation to landowners. Finally, several commenters indicated that they had negotiated mutually satisfactory agreements with DM&E for the use of their land. Indeed, DM&E stated that it has agreements with the majority of land owners in this area.

3.2.3.4 Minerals and Mining

In the Draft EIS, SEA indicated that the mineral resources in western South Dakota and eastern Wyoming are among the most productive in the world. The proposed project would provide additional rail service to one of the largest supplies of coal in the United States. Additionally, sand, gravel, and rock resources are found throughout the area. These materials would likely provide material necessary during the construction of a rail line as contemplated by this project. As indicated in the Draft EIS, Alternative B would cross approximately 1.2 miles of existing mining and quarry lands. Alternative C would not cross any existing mining and quarry lands. In addition, DM&E would coordinate closely with each mine it intends to access to ensure the mine access spur would not prevent access to recoverable coal reserves.

As part of its comments on the proposed project, the Bureau of Land Management (BLM), a cooperating agency, requested that SEA provide a comparison of the impacts of the Extension Alternatives on Federal mineral rights. Federal mineral rights include lands managed by the BLM, and other Federal agencies, as well as owned by private citizens, where the Federal government owns the rights to specific or any minerals known or potentially occurring on those lands. However, just because the mineral rights of a particular parcel are owned by the Federal government does not necessarily mean any recoverable minerals occur within the parcel.

In response to BLM's request, SEA calculated the distance of land for which the Federal government retains the mineral rights. These distances were calculated using BLM Mineral Ownership maps. SEA determined that Alternative B would cross approximately 106.1 miles (approximately 5,144 acres) of Federal mineral land. This included approximately 27.7 miles in South Dakota (1,343 acres), all of which the Federal ownership is for all minerals. Federal mineral land ownership or management in South Dakota for Alternative B included approximately 2.5 miles of BLM lands, 13.8 miles of USFS lands and 11.4 miles in private ownership. In Wyoming, Alternative B would cross approximately 78.4 miles (3,801 acres) of Federal mineral land where the Federal ownership was for all minerals and approximately 7 miles of land with only Federal ownership of coal. Land ownership or management with Federal ownership of all minerals included 30.2 miles of USFS lands, 45.4 miles of private lands, and 2.8 miles of state lands. Seven miles of private lands where the Federal ownership of coal only would also be crossed.

SEA determined that Alternative C would cross approximately 104.6 miles (approximately 5,086 acres) of Federal mineral land. This included approximately 32.9 miles in

South Dakota (1,595 acres), all of which the Federal ownership is for all minerals. Federal mineral land ownership or management in South Dakota for Alternative C included approximately 2.4 miles of BLM lands, 11.0 miles of USFS lands and 19.5 miles in private ownership. In Wyoming Alternative C would cross approximately 72.0 miles (3,391 acres) of Federal mineral land where the Federal ownership was for all minerals and approximately 3.4 miles of land with only Federal ownership of coal. Land ownership or management with Federal ownership of all minerals included 1.6 miles of BLM lands, 29.6 miles of USFS lands, and 40.8 miles of private lands. Approximately 3.4 miles of private land would be crossed with Federal ownership of only coal resources.

Because Alternative B would cross more lands with Federal mineral rights, it would potentially have a greater impact on these resources. However, due to the long and generally narrow linear nature of a rail line, it is unlikely construction and operation of either Alternative B or C would preclude significant recovery of any mineral resources found along their alignments. Therefore, neither alternative is anticipated to have a significant impact on Federal mineral rights.

3.2.3.5 Other Land Use

SEA received few additional comments on the discussion of other types of land use in the Draft EIS, and no additional analysis beyond that presented in the Draft EIS is required here. SEA does note that it did receive comments regarding potential impacts to the Fall River Water Users System — a system of wells and water pipelines to provide water for domestic and livestock needs within the county. However, as this water system would be typical of other utility systems found throughout the project area, potential impacts to utilities were discussed in the Draft EIS, and SEA has included recommended mitigation for utilities, no additional discussion is required.

3.2.4 SOCIOECONOMICS

Normally, SEA does not evaluate the potential socioeconomic impacts of rail line construction proposals. Rather, SEA considers only the potential environmental impacts associated with the direct changes to the physical environment. That is, SEA would consider the impacts associated with actual conversion of land to rail line right-of-way. However, in this case, some of the cooperating agencies requested inclusion of a broader range of potential socioeconomic impacts associated with this project. Therefore, SEA included a discussion of the potential socioeconomic impacts associated with the project in this EIS. As appropriate, SEA has been assisted by the cooperating agencies in preparing its analysis.

As discussed in the Draft EIS (Chapter 4, Section 4.4.16), the proposed PRB Expansion Project would have long- and short-term impacts to the socioeconomic conditions in the project

area. Short-term impacts would occur as a result of increased construction employment and activities anticipated to occur for the two to three years of project construction. Long-term impacts related to operation of the rail line would continue for the life of the project, perhaps several decades. Generally, the socioeconomic impacts of the two Extension Alternatives would be similar.

The following provides a summary of SEA's socioeconomic analysis contained in the Draft EIS along with additional analysis conducted for this Final EIS.

3.2.4.1 Population and Demographics

During construction of the proposed rail line, local populations in the project area are expected to increase due to the influx of construction workers. As discussed in detail in the Draft EIS (Chapter 4, Section 4.4.16.1), over 900 two- to three-year construction jobs are expected that would be directly related to construction of either Extension Alternative. Many of these jobs would be filled by local workers, including local construction contractors, ranchers, and farmers seeking additional income opportunities and college and high school students on summer break. Local workers would be expected to commute some distance, potentially as much as 50 miles one way, to the job site. Use of these local individuals would have no impact on local populations.

Additional jobs would be filled by non-local individuals temporarily relocating to the area. Bridge crews would be present year-round for the two to three years of construction. Others would work primarily during the construction season, approximately April to November. As construction would occur in phases — earthwork and bridges, then rail bed and finally track — and at several locations at once, construction workers would be dispersed along the entire alignment. Only a small portion of the overall work force would be located in any single location at one time. Once a particular phase of the construction was completed, such as bridgework, those workers would relocate out of the project area to other job locations.

The influx of construction workers could result in temporary impacts on local housing and lodging availability, as well as goods and services in a number of communities throughout the project area. These communities would likely include Rapid City, Hot Springs, Edgemont, Newcastle, Douglas, Moorcroft, Wright, and Gillette. However, most workers are expected to use rental property, established trailer and RV parks, or mancamps established by DM&E. Therefore, motels, hotels, and other lodging in these communities should be only slightly affected. However, there would likely be increased demand for rental properties and spaces in trailer and RV parks.

The families of some workers, expected to be only a small percentage of the overall workforce, may relocate temporarily to the area. These workers would likely use trailer or RV

parks or rental properties within communities so that their spouses could seek employment and their children attend school. Such families would cause insignificant increases in local populations that should be easily absorbed by the affected counties, based on their small numbers and recent population changes (Draft EIS, Table 4.4-41).

DM&E has indicated that mancamps, most likely resembling RV parks, would be established throughout the project area. One to three such camps would probably be necessary for convenient travel from camp to job sites along the rail line. DM&E could not acquire land for such camps through eminent domain because they would not be part of the actual rail line right-of-way and facilities. Therefore, mancamp locations would be based on the proximity of the alignment to properties of willing landowners. Site development would include water and electrical hookups and waste and sewage disposal and treatment for 20 to 50 trailers, RVs, or campers at each camp.

Currently, it can be difficult for tourists to find lodging in this area, particularly in late summer, due to the annual motorcycle rally in Sturgis, South Dakota which draws thousands of tourists. In addition, many thousands of tourists visit the Black Hills area and Mount Rushmore each summer. Although the presence of construction workers could increase demand for lodging, this is not expected to be a significant problem if construction workers use primarily mancamps and trailer/RV parks. Moreover, unoccupied spaces in mancamps could provide opportunities for tourist RVs and campers, should more traditional areas be full. Following construction, DM&E would either restore the mancamp areas to their original condition or transfer ownership and operation to the landowners, who could continue to maintain and operate them as RV parks for travelers, tourists, and hunters.

During operation of the proposed project, permanent employment (120-350 jobs) would be added to the area, generally at the proposed new rail yards. New employees would likely relocate to communities near these rail yards, although not all new jobs would be filled by non-residents required to relocate to the area. Minor population increases in Wright, Newcastle, Edgemont, Hot Springs, Rapid City, and Wall would be likely to occur. Larger towns offering more conveniences would likely see more workers move in. Since this influx would be a small percentage of the overall population, larger communities should be able to absorb them without experiencing increased prices for housing or other goods and services. Recent population declines (Draft EIS Tables 4.1-24 and 4.2-15) within the project area have resulted in available housing and unused capacity in schools, electricity, and water treatment.

Any increase in population would help offset the steady population declines numerous areas surrounding the proposed line have experienced for many years, and is not expected to burden the communities or counties. Numerous comments on the Draft EIS suggest that the

proposed project would provide permanent jobs to the area, potentially preventing further population declines in the rural areas of the project.

3.2.4.2 Employment and Income

The proposed project would provide a wide variety of temporary jobs, as discussed in detail in the Draft EIS (Chapter 4, Section 4.4.16.2). A large number, approximately 900, construction-related jobs would be required over the two-to-three-year construction period. Additionally, about 384 indirect jobs would be created in non-construction areas, such as restaurants, bars, grocery stores, hotels, and service stations, as a result of construction workers buying goods and services, seeking entertainment, and patronizing local establishments. A substantial number of these jobs would be available to local residents and nearby Native Americans. Unemployment would be expected to decrease as a result, potentially leading to better wages and benefits throughout the area to attract qualified workers. Approximately \$125 million are expected to be paid in wages to construction workers over the three year construction period (Draft EIS, Table 4.4-42).

3.2.4.2.1 Farming

Construction and operation of a new rail line across cropland would likely increase farming costs. While not the dominant land use in this area, farming occurs primarily adjacent to the Cheyenne River. As discussed in the Draft EIS (Section 4.4.6.1.2), rail line construction and operation would convert cropland to rail line right-of-way, reducing farm revenues and incomes. Crop fields would be divided, potentially requiring additional time and labor to access fields on the opposite side of the track. Some of the smaller fields created by the rail line crossing may become unprofitable to farm, resulting in reduced expenses to farm these areas — time, fuel, seed, fertilizer — but greater losses in revenues.

Likewise, croplands along the Extension Alternatives, consisting mostly of dryland farming, or non-irrigated lands²⁰ could become uneconomical to farm or offer reduced profits if subdivided by rail line construction. Information provided by the Bureau of Reclamation indicated that revenue generated from dryland farming would be approximately \$116 per acre annually, \$66 for crops plus \$50 in livestock. SEA has calculated potential lost revenue from conversion of cropland to rail line right-of-way based on the annual estimated revenue per acre and the total acres of cropland converted to rail line right-of-way by each Extension Alternative (Table 3-2). However, revenue losses to agriculture may be somewhat greater because there is no

²⁰ Cropland along the Hay Canyon Alternatives includes mostly irrigated lands. Impacts to these lands, which occur within the Angostura Irrigation District, are discussed under the Hay Canyon Alternatives.

way to accurately predict how many acres separated from larger fields would be taken out of production. This would depend on the size of the field and whether it could be incorporated into an adjoining field, converted to other use, or sold to another landowner. Ultimately, each affected landowner would decide what land to take out of production, based on his or her specific situation and preferences.

Alternative	Cropland (acres)	Annual Revenue Loss
Alternative B	1,149.0	\$133,284
Alternative C	1,323.6	\$153,537

3.2.4.2.2 Ranching

Construction and operation of a new rail line across existing ranchland could also increase the labor required to move cattle from pasture to pasture across the rail line. Even in areas with culverts, bridges, trestles, or other structures allowing underpass of the rail line, cattle may be reluctant to pass through these confined areas, requiring more time and people to move them across or through rail line underpass structures. Ranch operations may need to be altered or land use changed to reduce costs. Smaller parcels of ranchland divided from the larger ranch property by rail line construction may become uneconomical to graze if the small size provides limited forage and herding costs are prohibitive. Smaller ranches may be forced to sell out to larger ranches if increases in operating costs are too great for smaller ranches to absorb. Suitable structures for moving cattle would minimize the impacts associated with a rail line crossing through a ranch.

Most ranches potentially crossed by Extension Alternatives are cow-calf operations which maintain a stock of breeding females to raise calves. Calves born from late winter into spring are sold as feeder cattle prior to the onset of winter. Due to climate and the type of forage on ranches throughout the project area, about 35 acres are required for forage per cow/calf pair. Summer grazing may require more land, since cattle cover greater distances to find food when the range is not exceptionally good. In winter, grazing acreage may be less since winter pastures generally offer higher quality forage, and in a smaller area ranchers can more easily monitor cattle for calving and during bad weather. Conservatively, a ranch supports one less cow for each 35 acres lost, which means one less calf each year. With a selling weight of about 600 pounds, at \$1.00/pound, the potential economic impact to a ranch would be about \$600 per 35

acres lost, or \$17 per lost acre per year, in addition to the costs of additional herding efforts. Table 3-3 provides a summary of the potential economic impacts to ranching operations for each of the Extension Alternatives, based on reduction in grazing land and the number of cattle that could no longer be supported.

Alternative	Acres of Grazing/Rangeland	Reduction in Cattle Supported	Annual Value of Cattle Lost
Alternative B	11,229.1	320	\$192,000
Alternative C	9,568.9	273	\$163,800

Many area ranches to be crossed by the Extension Alternatives obtain supplemental income through hunting-rights fees and leases. Individual hunters pay a per-day, per-season, or per-animal charge for hunting a particular ranch, which may cover camping, lodging, and meals. Other ranches may be leased exclusively by a particular person or group. Often ranchers manage portions of their property to improve wildlife habitat, making the area more attractive to game and earning them higher fees for its use. Ranchers principally charge for the hunting of deer, antelope, and pheasants, although game such as turkeys and waterfowl may also be hunted.

SEA received several comments indicating that the proposed project would reduce ranch revenues by affecting the game on ranch properties, due to loss of habitat and the noise and disturbance of passing trains that make land unattractive to both game and hunters. SEA recognizes that a component of the income for many farmers and ranchers in the project area comes from the recreational opportunities the land provides. These fees can be quite significant, ranging from a few hundred dollars for an individual to hunt to several thousand dollars to lease the rights to hunt an entire ranch. However, as discussed in the Draft EIS (Section 4.4.10.2), SEA does not believe the proposed project would have a significant impact on game populations along any of the Extension Alternatives.

Although there would be some habitat loss and wildlife mortality due to construction and operation, wildlife populations and distribution should not change significantly. Over time, wildlife are expected to acclimate to train operations and reestablish in suitable habitat. Rail right-of-way usually offers good wildlife habitat, since limited human disturbance and protection from adjacent land use (farming and ranching) allows vegetation to become well established and mature. SEA believes that if game remain, hunters will continue to return year after year. Few

would be expected to change their traditional patterns, once familiar with the land, and hunters could take advantage of train noise to cover their movements while stalking game. While trains would occasionally spook game and spoil a hunter's opportunity, this should not be the norm.

SEA also received numerous comments expressing concerns that property values of ranches crossed by the proposed rail line would be reduced. Reduction in property values, it was stated, would result from loss of usable land on the ranch and added expenses to continue ranch operations. Added expenses could include:

- Construction and maintenance of additional fencing,
- Duplication of buildings, corrals, and other facilities for the other side of the rail line,
- Installation of new water sources,
- Loss of forage, requiring purchase of hay for livestock, particularly in winter,
- More labor required to trail, herd, and move cattle across the rail line, and
- More time required to move about the ranch because of the rail line and adjacent fencing.

Higher operating costs would result in lower profit margins, reducing the value of the ranch.

SEA agrees that each of these items could reduce ranch efficiency and raise costs, but believes that the degree of impact, not just the likelihood of its occurrence, would determine how much expenses would be increased. Some factors that would determine the degree to which ranch costs would increase and contribute to reduced property values include:

- Ranch size: Smaller ranches would experience more inefficiency than larger ranches.
- Location of the rail line: A ranch divided in half would likely be more affected than one that divided off only a small portion from the rest of the ranch.
- Location of proposed line in relation to shelter, water, buildings, and other improvements.
- Impact on access to and within the ranch and to parcels divided from the larger ranch area.
- Highest and best use: If a property's "before project" highest and best use is residential lots with recreational value, but its highest and best use would be grazing land "after project," the affect on property value would probably be greater than for an equal-sized parcel that would have the same best and highest use both "before" and "after."

As part of any project land acquisition, DM&E would have to compensate landowners. Under Wyoming Statute § 1-26-702(b), which addresses partial taking of a property, a landowner is entitled to the value of property taken or the difference between the value of the entire property before the taking and its value after it, whichever is greater. Obviously, the property value will depend on the size of the ranch, its condition, and improvements, including wildlife habitat improvements to attract hunters and their use fees.

In South Dakota the value of the property after the taking includes the value of the land lost in the taking,²¹ and the owner may testify to factors affecting the value of the property, including access to it, rail line proximity to a building, potential lost revenue from reduced hunting fees, and habitat improvements. All would be considered in determining the reduction in property value following the partial taking of the entire property. For this project, DM&E would be required to compensate all owners with land directly crossed by any Extension Alternative.

While not conclusive, evidence suggests that property values of farms and ranches crossed by a new rail line would be affected for 5-10 years after the land is acquired.²² Once landowners are paid for property value impacts, and ranching and farming patterns have been restored or reestablished – new fences installed, new field configurations developed, irrigation structures modified, waterlines installed, pasture rotations reestablished – affected property values would usually return to previous levels. Thus, although DM&E would be required to compensate landowners for impacts to property values determined at the time of the land acquisition, within 10 years property values would likely return to levels comparable to those before construction and operation of the proposed rail line.

3.2.4.2.3 Other Businesses

During construction, workers would purchase necessary goods, services, and materials, so local businesses, farmers, and ranchers offering such goods, materials, and services would see increased sales. Expenditures for new goods and services in the project area should exceed \$250 million during the three-year construction period, or an average of approximately \$83.3 million per year. Therefore, with an average tax rate of 5 percent, about \$14 million in sales and use taxes would be generated by Extension Alternative construction (Table 4.4-43 of the Draft EIS).

²¹ State of South Dakota v. Henrikson, 548 N.W.2d 806 (S.D. 1996); Corson Vill. Sanitary Dist. v. Strozdas, 539 N.W.2d 876 (S.D. 1995); and Basin Elec. Power Coop. v. Poindexter, 305 N.W.2d 46 (S.D. 1995).

²² Elizabeth Hollmann, Rush Creek Resources, Hot Springs, SD, personal communication, 2000.

Following construction, there would be about 120 permanent jobs, representing millions of dollars in annual payroll, mostly associated with the two proposed new rail yards. As DM&E obtains additional coal contracts and increases rail traffic, 350 permanent jobs could be added in the area, primarily at the West Staging and Marshaling Yard. Local merchants and retailers would likely experience increases in sales, particularly when new employees first move into and establish homes in the area.

Increases in sales and taxes due to railroad construction would be somewhat offset by reduction in sales in other sectors, particularly agriculture. Loss of farm and ranch land would reduce purchases of seed, fertilizer, and fuel previously used to farm lost ground. Cattle reduction would reduce sales of supplemental feed, hay, and veterinary supplies. Reduced agricultural and livestock production would lower revenues for grain elevators and livestock dealers and shippers. Revenues of farmers, ranchers, and agribusiness dealers would decline by hundreds of thousands of dollars, and they would spend less on local goods and services. However, these losses should be significantly less than the millions of dollars of railroad salaries added to the project area.

3.2.4.3 Public Services and Fiscal Condition

SEA determined that DM&E would pay \$7.8 to \$9.4 million in property taxes per year (Draft EIS, Table 4.4-44) for 40 to 100 million tons of coal transport, in addition to those already collected by the counties, which could fund county projects and services. In most counties, taxes paid by DM&E would represent a 50 percent increase in total county taxes collected at the 40 million tons of coal level and significantly more at 100 million tons. Since these are primarily rural counties with limited development and generally agricultural land use, assessed tax values of these lands are significantly less than the assessed value would be for a modern rail line. The rail line would therefore account for a large portion of the tax base.

SEA received numerous comments that the Draft EIS's projections of taxes to be paid by DM&E in South Dakota counties were too high because of changes in South Dakota's tax assessment method for railroads during preparation of the Draft EIS. Therefore, SEA analyzed the tax code to determine whether modifications to the data presented in the Draft EIS were necessary, and the following discusses this additional investigation.

Under the former taxation scheme, railroads in South Dakota received tax credits for funds invested in system rehabilitation projects, paid county taxes based primarily on tonnage transported within the county, and paid two percent sales tax. To promote railroad use, the state provided tax credits for railroads to rehabilitate their systems for adequate service, particularly for agricultural commodities. Railroads transporting up to 5 million gross tons per year received

a 100 percent state tax credit for capital expenditures for rail line rehabilitation. Those transporting 5-10 million gross tons per year received a 50 percent state tax credit, but those transporting more than 10 million gross tons got no state tax credit. DM&E would generally get a 50 percent tax credit, transporting about 60,000 carloads per year, at 263,000 pounds each, for a total of about 7.9 million gross tons. All these tax credits have been eliminated under the new taxation system.

In assessing the portion of state-collected taxes allocated to each county, the State formerly considered the tonnage hauled by the railroad (66 percent) and the mileage of rail line within each county (33 percent). These allocations now have been reversed to place greater weight on the amount of trackage within the county (now 66 percent) and less on the tonnage transported (now 33 percent). In addition, the percentage of sales tax railroads pay on goods and services purchased within South Dakota has been doubled from two to four percent.

South Dakota's new taxation scheme took affect on July 2, 2001, and under it DM&E would apparently pay more taxes than originally estimated in the Draft EIS. By eliminating tax credits for rehabilitation projects, the State would require additional taxes from DM&E, monies which it could previously have used on improvements. This added tax burden could make it more difficult for DM&E to finance needed system-wide improvements. Under any Extension Alternative, DM&E would increase its trackage in Custer and Fall River Counties and the value of trackage in Pennington County, so that it would be assessed more taxes for its facilities in these counties, giving the counties more tax monies. Additionally, the tonnage of material hauled by DM&E would increase substantially, also increasing the amount assessed for tax purposes. However, since the Draft EIS determined that the fiscal impact of the proposed project would be significant additional tax dollars flowing to South Dakota and the counties through which the project would pass, SEA sees no reason to modify its conclusion. The project would provide significant fiscal benefits, although it now appears that the fiscal impact may be somewhat greater than projected in the Draft EIS.

3.2.4.4 Other Quality of Life Issues

SEA received a number of comments concerned with potential quality of life impacts of the proposed project. Concerns included increases in noise, local reductions in air quality, having to wait for a passing train, division of communities or separation of neighbors, reduced community safety, property values, aesthetic appeal of residential viewsheds, and potential increases in accidents.

Overall, SEA recognizes that the proposed project and any of the potential Extension Alternatives have the potential to decrease the quality of life of populations through which the rail line would pass. As explained here and in the Draft EIS, noise disturbance would increase, particularly to those individuals living within a few hundred feet of the track, potentially

interfering with residents' sleep patterns, conversations, and recreational activities. Residents in close proximity to and down-wind of the rail line may occasionally notice the smell of diesel emissions. Travelers may experience short delays and they would need to exercise care to avoid a train-related accident. The new rail line would alter the setting of several homes, making the view less aesthetically pleasing.

Construction and operation of a new rail line would require local residents to become concerned and aware of things they have not had to consider before the rail line. Initially, their quality of life may be reduced. However, over time, current residents generally would be expected to adapt to the changes resulting from the presence of the train, just as they do to construction of new roadways. Additionally, new residents that move into the area would know from the outset that they will face the impacts associated with operation of a rail line.

3.2.5 NATIVE AMERICAN TRIBE ISSUES

Issues and concerns unique to Native American Tribes that were discussed as part of the cultural resources evaluation in the Draft EIS are treated separately here. Cultural resources usually include historic sites or structures and archaeological resources, which are valued for the insight they offer on the history of an area, culture, or civilization and how it lived and worked. Issues discussed in this section relate to traditions and cultural beliefs of the Native American peoples who occupied the region, and do not involve specific sites, nor traditions or cultures no longer in existence. They pertain to concerns, beliefs, and traditions of importance to Native American Tribes, particularly members of the Lakota or Dahcotah Nation, that are still practiced and passed on by many members of the Native American Tribes with historical ties to the area.

3.2.5.1 Treaty Issues

Throughout the Euroamerican colonization of the United States, immigrants and settlers encountered Native American Tribes, creating alliances, marriages, trades, and conflicts. Conflicts often arose when Native Americans attempted to protect the land and resources upon which their lives and culture depended, and ended in treaties with the Federal government. Wars over treaty violations occurred up until the late 1800s.

Two treaties hold particular importance to the Lakota:²³ the Treaty of Fort Laramie and the Treaty with the Sioux and Arapaho.²⁴ The former, signed on September 17, 1851,

²³ General term, meaning "Friend," referring to the various Tribes of the Lakota or Dahcota Nation, more commonly known as the Sioux, the title given them by the early French explorers and trappers.

²⁴ The formal title of this treaty is "Treaty with the Sioux - Brule, Oglala, Miniconjou, Yanktonai,

established territories for several Native American Nations, including the Sioux, Gros Ventre, Mandan, Arrickara, Assinaboin, Blackfoot, Crow, Cheyenne, and Arapaho. Territories established in exchange for cessation of armed conflict with the U.S. government included all of South Dakota west of the Missouri River and extended into southwestern North Dakota, northwestern Nebraska, northeastern Colorado, eastern Wyoming, and southeastern Montana (Figure 3-21).

Although the territories were reserved for Native Americans and protected from settlement by Euroamericans, settlers continued to move into the Black Hills and plains regions, settling and farming within the territories established by the Fort Laramie Treaty, renewing conflicts between Native Americans and settlers. After the Powder River War of 1866-1867, a treaty with the Sioux and Arapaho was signed in 1868 (Treaty of 1868), establishing the Great Sioux Reservation (Figure 3-22), on which no unauthorized persons of the U.S. were ever to be allowed to pass, settle, or reside. As part of this Treaty, the Sioux relinquished rights received under the Fort Laramie Treaty, retaining only the lands specified for the Great Sioux Nation and the rights to hunt buffalo north of North Platte, Nebraska and along the Republican River²⁵ in Nebraska and Kansas.

When gold was discovered in 1874 in the Black Hills, reserved for the Sioux, settlers and prospectors flocked there. While the U.S. government first tried to prevent entry in accord with the Treaty of 1868, they eventually withdrew the troops. The government attempted to purchase the Black Hills from the Sioux, but negotiations were unsuccessful and hostilities resumed.

Congress passed the Act of February 28, 1877, which abrogated the Treaty of 1868 and realigned the boundaries of the Great Sioux Reservation by adding territory to the north while removing the Black Hills from the Reservation. Developed by a presidential committee, this Act (Mannypenny Agreement) was enacted with the signatures of less than the three-fourths of adult Sioux males required by the Treaty of 1868. In 1889, Congress split the Great Sioux Reservation into the six smaller reservations of today, opening up the area between the White and Cheyenne rivers to settlement.

Treaties, Acts, or Agreements after the Treaty of 1868 did not comply with the approval conditions of the Treaty of 1868, and the Treaty of 1868 was never legally abrogated, so the Sioux Nation has argued that the United States illegally acquired the Black Hills. After nearly a century, the Court of Claims in 1974 ruled that the Act of 1877 constituted a taking of land by Congress under its power of eminent domain (Sioux Nation v. United States, 33 Ind. Cl.

Hunkpapa, Blackfeet, Cuthead, Two Kettle, Sans Arcs, and Santee - and Arapaho.”

²⁵ The Republican River was described in the Treaty as the Republican Fork of the Smoky Hill River.

Comm'n 151 (1974)), and that the Sioux Nation was entitled to fair compensation. A subsequent court proceeding ruled that the Sioux Nation was due \$17.1 million, fair value for the land taken in 1877, plus 5 percent interest, from 1877. In a decision rendered on June 30, 1980, the United States Supreme Court upheld the Court of Claims ruling, and reaffirmed that compensation due the Sioux Nation must be paid, but to date the Sioux have accepted no money. Treaty Chiefs and Treaty Council members within the Sioux Nation prefer return of the land itself, and the issue still remains unresolved.

Many commenters indicated that the proposed project would violate the Treaty of 1868. The proposed new construction would cross extensive areas within the boundaries of the Great Sioux Reservation established by this Treaty and reserved for the Sioux against encroachment by non-Natives. While the ruling of the Court of Claims, upheld by the Supreme Court, holds that the lands were taken under Congress' right of eminent domain, the Sioux Nation believes that the because the Treaty of 1868 was never legally abrogated, they retain control of the lands within the Great Sioux Reservation. In effect, the Sioux Nation's position is that all occupation of those lands within the Reservation, including ranches, towns, farms, roads, rail lines, and other facilities developed after 1868, are illegal and should be removed, and the land returned to the Sioux. Additionally, the Sioux Nation believes that for the PRB Expansion Project to cross this area, the Sioux Nation must grant its permission and be compensated for the lands involved.

SEA recognizes the complexities of the treaty issues involved in this case, but it is beyond the jurisdiction of SEA or the Board to resolve issues involving whether there was a taking, how a treaty should be interpreted, or to take action in this case which would contradict or question the courts' decisions on eminent domain and compensation due the Sioux Nation. Additionally, it is beyond the jurisdiction of SEA or the Board under ICCTA to require DM&E to provide compensation for land.

3.2.5.2 Traditional Cultural Properties

During the middle to late-1800s, the various Tribes of the Lakota or Sioux Nation were one of many groups of Native Americans that occupied the plains regions of North and South Dakota, Nebraska, Kansas, and eastern Colorado and Montana. However, prior to this time, the area had a several-thousand-year history of habitation by numerous Native American Tribes, some of whom lived year-round in the plains, and others who traveled there during various times of the year to hunt buffalo. Additionally, the Black Hills of South Dakota hold particular spiritual importance to many Native American Tribes since they are considered by many the birthplace of many Native American peoples (like the Garden of Eden of Judeo-Christian background). Many individuals and Tribes traveled to the Black Hills on pilgrimages or for other spiritual purposes.

Over thousands of years of habitation, the Native Americans living and hunting throughout the plains developed traditional use areas. As primarily nomadic hunters and gatherers, they moved from place to place. They learned which areas provided shelter from winter storms or the heat of summer, dependable supplies of water during drought conditions, appropriate stone, wood, and other materials for making tools and lodges, and where the buffalo and other game were likely to be found during the year. These areas were used year after year for generations, although a particular area might be used for only a few days or months at a time.

Traditional use areas developed as part of Native American spiritual life, for sacred or religious reasons. While Native American Tribes did not erect permanent structures for worship, individuals or groups might have used the same hilltop or outcropping for purification, prayer, vision quests, or other religious purposes. Locations were often chosen because of the view or solitude they provided, enabling meaningful meditation or prayer, and used for generations. Traditional camping and hunting grounds also became important components of the religious and spiritual lives of Native Americans. Often these areas provided plants or other materials, such as fossils, considered to have important spiritual powers or significance. Medicinal plants may also have been found in these areas.

Many Native American Tribes buried their dead within or near a traditional campsite so that surviving family members could be near the deceased while the campsite was used. Often cemeteries were established near camp areas, not unlike Euroamerican cemeteries, chosen for proximity to the living and natural beauty. They would commonly be on a hilltop offering wide, scenic view, and articles left there with the dead were and still are considered sacred. Because of their long occupation of the plains and important events in their history and religion linked to the area, the plains and Black Hills hold great and ancient significance for the plains Tribes.

Many of these traditional use areas would likely be classified as Traditional Cultural Properties (TCPs), discussed in detail in the Draft EIS. These generally include areas eligible for inclusion in the National Register of Historic Places (NRHP) because of their association with cultural practices or beliefs of a living community that are rooted in its history and are important in maintaining its continuing cultural identity (National Register Bulletin 38). It is expected that TCPs occur throughout the project area and many would be affected by any Extension Alternative selected. However, since these sites are significant to the Native Americans and subject to looting and vandalism, their identities and locations are often closely guarded by the Tribes. Although no TCPs have been identified within the project area, several archaeological sites identified along the Extension Alternatives could be classified as TCPs.

TCPs anticipated to occur along the Extension Alternatives include camp and burial sites, plant collection areas, and sacred and worship sites, which would be affected if new rights-of-way require removal of artifacts to prevent their destruction, new rights-of-way permanently

alter the physical characteristics of the site, or the character of the site is altered by proximity of a new line. A rail line crossing a TCP would encounter physical evidence or remains (artifacts) left by the historic users of the site. Evidence (tepee rings, fire hearths, sweat lodges) and artifacts (projectile points, pottery, tools) would need to be documented and excavated to obtain information of scientific or historic value and to prevent destruction of the resources. Graves containing human remains and funerary objects encountered would be identified, documented, exhumed, and re-interred at another location, perhaps not nearby or chosen by the descendants of the deceased.

Selection of sacred, worship, and cemetery sites may be influenced by characteristics of quiet, solitude, natural beauty, or a feeling of being close to the heavens. Construction of a rail line across or in proximity to these areas could alter these characteristics and cuts and fills would alter the natural landscape. While at some sites noise and disruptions may not significantly alter the purpose or use of the site, others may no longer be desirable for their former purposes.

It is expected that numerous TCP sites occur along all of the Extension Alternatives, but it is difficult to determine which Extension Alternative would have a greater impact on them. As new construction, Alternatives B and C would have potentially significant impacts, particularly being located along the Cheyenne River, between the Black Hills and the plains. It is expected that there are numerous TCPs within the Cheyenne River valley, along the streams that feed it, and along the hills and ridges overlooking the river. Because both Alternatives B and C utilize the Cheyenne River corridor, both are expected to have significant impacts on many of the same TCPs. If a greater number are located within the Cheyenne River valley, Alternative B would likely have a greater impact on these resources. If a greater number are located along the hills and ridges overlooking the Cheyenne River, Alternative C would likely have a greater impact.

3.2.6 CULTURAL RESOURCES

Impacts to cultural resources would occur if important archaeological or historic sites or structures which could substantially add to scientific understanding of human occupation of the project area are damaged or destroyed during project construction, as discussed in the Draft EIS (Chapter 4, Section 4.4.15). The project area has a rich and long history of human occupation, as discussed in the Draft EIS and further in Section 3.2.5 of this Final EIS. Known sites of archaeological and historical significance occur throughout the area. SEA identified 298 sites within 1.0 mile of Alternative B, 70 in South Dakota, and 228 in Wyoming.²⁶ Six sites in South Dakota are eligible for the NRHP and 51 sites in Wyoming are eligible or on the NRHP.

²⁶ In order to compare the potential impacts of the Extension Alternative to cultural resources, SEA

SEA identified 408 cultural resources sites within 1.0 mile of Alternative C. Of these, 96 sites were in South Dakota and 312 were in Wyoming. One site in South Dakota and 49 sites in Wyoming are eligible or potentially eligible for the NRHP. SEA determined that because of the likelihood that construction of the proposed project would encounter significant cultural resources, the project would have significant impacts to these resources.

The comments SEA received on its cultural resources analysis in the Draft EIS generally pertained to two areas. First, the comments supported SEA's conclusion that significant cultural resources occur throughout the project area and they would likely be significantly impacted by the project. Second, many commenters questioned how SEA could analyze the potential project impacts to cultural resources when all of the alternatives had not been surveyed to determine the cultural resources occurring within and along each of the rights-of-way. These comments referred to the cultural resources survey conducted along portions of Alternative C. In response to these comments pertaining to the on-the-ground survey for cultural resources, SEA provides the following discussion.

NEPA requires Federal agencies to take a "hard look" at the potential impacts of a proposed project. However, it also specifies that the EIS process should rely on available information or information that is not burdensome or cost prohibitive to obtain. As such, it is the general practice, when discussing potential impacts to cultural resources, to rely on information recorded for previously identified cultural resource sites. This case is no different. It is not feasible or reasonable, from a cost or time perspective, due to the length of the proposed project, including over 500 miles of alternatives for new rail line construction to extend DM&E's existing system into the PRB, to conduct a detailed cultural resource survey for the EIS process. Therefore, SEA relied on available information for its analysis in the Draft EIS. Even with this information, as noted previously, SEA determined the proposed project would have significant impacts on cultural resources.

Although a cultural resource survey was not necessary for the EIS process, such a survey is required for compliance with Section 106 of the National Historic Preservation Act. The Section 106 process requires the identification and mitigation of cultural resources determined

conducted a review of the cultural resources sites known and recorded by the South Dakota State Historic Preservation Office (SHPO), South Dakota Archaeological Research Center, and the Wyoming SHPO.

eligible for the NRHP that would be affected by a proposed project. Completion of this process requires extensive on-the-ground surveys, testing of sites identified, and, if significant sites are identified, appropriate mitigation. Additionally, completion of the Section 106 process is generally required prior to initiation of construction as part of Federal approval or permits.

DM&E recognized the potential time required to conduct cultural resources surveys and any subsequent mitigation. Therefore, it decided to proceed with on-the-ground surveys prior to any project approval in order to reduce delays to commencing construction should the Board and the cooperating agencies decide to approve the project. Because DM&E had no expertise in cultural resources, and because SEA was working with the cooperating agencies and consulting with the Wyoming and South Dakota SHPOs, Advisory Council on Historic Preservation, and the Tribes, it requested that SEA, through the use of its third-party contractor, conduct the necessary surveys to ensure the surveys complied with the requirements of the various agencies and the Programmatic Agreement under development for the project. SEA therefore directed its third-party contractor to conduct a survey of the route DM&E desired to be surveyed. DM&E requested the alignment of Alternative C be surveyed, even though it was not its preferred alternative and no decision on the project had been issued. DM&E assumed the risk that, should the project ultimately be approved, Alternative C would be the route approved. It understood that no decision on the project had been made and that if the project was denied, the work would be for nothing. Moreover, should Alternative C not be approved, DM&E would be required to complete survey work for the alternative approved.

Under the direction of SEA, the third-party contractor conducted an intensive survey of Alternative C in South Dakota. However, because land access was through landowner permission only, the entire alignment of Alternative C could not be surveyed. Time, cost, and weather constraints prevented completing the survey in Wyoming.

A total of 111.5 miles of Alternative C in South Dakota were surveyed. The survey identified 238 sites within the proposed rail line right-of-way, including 57 sites considered eligible for the NRHP — an average of slightly over 2 sites per mile, with just under one significant site every two miles. Sites identified included cairns (stone piles possibly covering a grave), stone circles, areas of scattered artifacts, campsites, one town site, farmsteads, roads/trails, dumps, one irrigation canal, and one dam.

Although the entire alignment in South Dakota has not been surveyed and surveys in Wyoming have not been completed, SEA has estimated the potential impacts of Alternative C on cultural resources by using data obtained from the surveys completed. Based on a project length of approximately 263 miles of new rail construction, Alternative C could be expected to have about 526 cultural resource sites within the proposed right-of-way, of which approximately 132

would be eligible for the NRHP and require mitigation. This represents a significant impact to cultural resources.

Although no surveys of Alternative B have been conducted, the density of known sites and comparable location of Alternative B indicate that Alternative B would have similar impacts to cultural resources. Alternative B is slightly longer than Alternative C (265.8 miles versus 263.8 miles), so it is likely to have slightly more cultural resources within the right-of-way. No significant difference between the impacts of Alternatives B and C to cultural resources would be expected, although either alternative would have significant overall impacts, as SEA indicated in the Draft EIS.

3.2.7 WATER RESOURCES

The proposed project would affect a variety of water resources, including surface waters (streams, rivers, lakes, ponds), groundwater, and wetlands. The following sections summarize the impacts to each of these resources as presented in the Draft EIS, the comments received concerning these resources, and the results of additional analysis SEA conducted to address these comments.

3.2.7.1 Surface Water

SEA discussed in the Draft EIS the potential impacts to surface waters, including increased sedimentation, disturbance to stream corridors, stream channel modifications, and loss or degradation of riparian areas. SEA measured the degree of impact from each alternative by determining the number of river and stream crossings for each Extension Alternative. SEA also received comments during scoping that the Cheyenne River was a sensitive and important resource in the project area. Therefore, SEA determined the length of each alternative that would be within 500 feet of the Cheyenne River or its tributaries as a measure of the potential for construction to affect the Cheyenne River.

In the Draft EIS, SEA indicated that Alternative B would cross 20 perennial streams, 14 in South Dakota (including three crossings of the Cheyenne River) and six in Wyoming. Alternative B would also cross 623 intermittent streams, 208 in South Dakota and 415 in Wyoming. Approximately 21.9 miles of Alternative B would be within 500 feet of the Cheyenne River or its tributaries.

Additionally, SEA indicated that Alternative C would cross 14 perennial streams, 10 in South Dakota (including 3 crossings of the Cheyenne River) and four in Wyoming. Alternative C would also cross 520 intermittent streams, 230 in South Dakota and 290 in Wyoming.

Approximately 20.9 miles of Alternative C would be within 500 feet of the Cheyenne River or its tributaries.

As with nearly all the resources SEA analyzed in the Draft EIS, SEA received comments expressing concern that the proposed project would have significant impacts on surface waters. Of particular concern were impacts to the Cheyenne River. Commenters noted that SEA indicated that Alternative C would have less impact to the Cheyenne River than Alternative B. However, Alternative B would be within 500 feet of the Cheyenne River for only approximately 1.0 mile more than Alternative C. Commenters suggested that this minimal difference did not justify SEA's conclusion that Alternative B would have a greater impact to the Cheyenne River and the subsequent selection of Alternative C as the least impacting alternative to the Cheyenne River.

In response to these comments, SEA reevaluated the potential impacts of the Extension Alternatives to the Cheyenne River. As noted in the Draft EIS, Alternative C was developed partly in response to concerns about the potential impacts of the project to the Cheyenne River and the riparian areas adjacent to the river. SEA agreed that based on the numbers presented in the Draft EIS, there appears to be little difference in the alternatives' potential to impact the Cheyenne River. SEA, however, questioned this because in looking at the location of the alignments, Alternative C appeared further from the Cheyenne River for much more of its distance than Alternative B.

In reviewing the information presented in the Draft EIS, SEA noted that some commenters had misunderstood the mileage figures contained in the Draft EIS. These mileage figures did not only include the portion of each alternative within 500 feet of the Cheyenne River, as interpreted by the commenters, but also included the length of the alternative within 500 feet of any perennial tributary to the Cheyenne River, such as Battle Creek or Sand Creek. SEA acknowledges that this data was confusing.

SEA now clarifies that Alternative B would cross the Cheyenne River twice, both of which would be new crossings. One crossing would be south of Wasta, South Dakota and another at Edgemont, South Dakota. Alternative B would be within 500 feet of the Cheyenne River for 9.11 miles. Along this length, Alternative B would have eight points where the topography adjacent to the river would likely require that the alignment be constructed on a steep sideslope immediately adjacent to the river. These locations, referred to as pinch-points, would likely require extensive stream bank stabilization, channel modifications, and, potentially, placement of fill in the river itself, resulting in some relocation of the stream channel.

Alternative C, after further analysis, would also cross the Cheyenne River twice. Alternative C would be within 500 feet of the Cheyenne River for 4.98 miles. No pinch-points appear to occur along Alternative C.

SEA's additional analysis confirms that Alternative B would have greater potential impacts on the Cheyenne River than Alternative C. Alternative B would be within 500 feet of the Cheyenne River for 4.13 miles more than Alternative C. This additional mileage in proximity to the river would result in greater loss of riparian habitat and increased potential for adverse effects from erosion and sedimentation from Alternative B. Direct impacts on the river would be likely at some, if not all, the pinch points along Alternative B. Because Alternative C appears to have no pinch points, no such impacts would occur from Alternative C. Therefore, because Alternative C would avoid more of the actual Cheyenne River valley, minimizing impacts on the river and important riparian areas adjacent to the river, SEA believes that Alternative C would have less impact than Alternative B on the Cheyenne River. In addition, it appears that with proper mitigation to control erosion and acceptable mitigation for loss of riparian habitat, the impacts of Alternative C, while substantial, may be reduced to levels below significant. Such a reduction would likely not be possible with Alternative B because of the amount of riparian habitat affected and the direct impact on the river from the pinch-points in the alignment.

SEA also received comments indicating that the project could potentially impact surface waters identified, under the Clean Water Act, Section 303(d), for development of Total Maximum Daily Load (TMDL) levels, also known as impaired waters. A TMDL is the amount of a pollutant that can be introduced into a water body without endangering the water quality necessary for its beneficial use. SEA had not previously identified these waters in the Draft EIS, or assessed the project alternatives' potential impacts on them. In response to these comments, SEA has included a discussion of the potential impacts on impaired waters below.

States classify the surface waters within the state according to the beneficial use of the particular water body. Beneficial uses are generally the best and highest level the water source should be capable of supporting, based on the quality of the water. Beneficial use classifications, from lowest water quality use to best water quality use include industrial, agriculture, wildlife and livestock, non-contact recreation, contact recreation, warm water fishery, cold water fishery, and domestic water supply.

Section 303(d) of the Clean Water Act requires a state to:

- (60) identify waters of the state which are impaired, that is they contain pollutants at sufficient levels to adversely affect their designated beneficial use,

- (61) prioritize impaired waters for development of TMDL for those pollutants determined to be the cause of reduced water quality, and
- (62) establish and adopt TMDLs for all identified impaired water bodies.

States must develop and update their lists of impaired waters every two years.

Both South Dakota and Wyoming have developed lists of impaired waters under Section 303(d). After reviewing the state lists, SEA identified two impaired water bodies in South Dakota that would be crossed by the Extension Alternatives. No impaired waters in Wyoming would be crossed. Those impaired waters potentially affected by the Extension Alternatives are listed in Table 3-4. Also included are the pollutants which are the reason for impairment and SEA's determination as to whether construction and operation of an Extension Alternative would have an adverse effect on the "impaired" classification.

Water Body	State	Location	Priority	Pollutant(s)	Extension Alternative	Adversely Impacted by Proposed Project
Cheyenne River	SD	Edgemont	2 (Medium)	TSS, TDS, fecal coliform, conductivity	B and C	Potential Temporary
Cheyenne River	SD	Wasta	2 (Medium)	TSS, fecal coliform	B and C	Potential Temporary

As shown in Table 3-4, the Cheyenne River crossings at Wasta and Edgemont by either of the Extension Alternatives would cross portions of the Cheyenne River classified as impaired. Both of these would be new crossings of the Cheyenne River for both alternatives. During construction of these crossings, disturbance to the river bank and in-stream work have the potential to increase total suspended solids (TSS) and total dissolved solids (TDS) in the river, as discussed in detail in the Draft EIS (Chapter 4, Section 4.4.7). These increases in TSS could further exacerbate existing problems with TSS identified in the Cheyenne River at these locations, resulting in greater levels of impairment.

However, appropriate erosion and sedimentation control measures, as recommended in Chapter 12 of this Final EIS, would minimize the additional sediment, and subsequent TSS levels entering the river. Additionally, river crossing construction would be temporary, lasting only for the period of time required to construct the crossing, anticipated to be one to two years in total. Following completion of crossing construction and restoration of the river bank and rail line right-of-way as recommended in Chapter 12, any additional TSS levels from construction

should be eliminated, resulting in no further effects on the impaired status of the Cheyenne River. Thus, no significant impacts on impaired waters are anticipated as a result of this project.

3.2.7.2 Groundwater

As part of the proposed project, DM&E would require water for dust control, rail bed construction, and to meet the domestic needs of construction workers in mancamps. As discussed in the Draft EIS, DM&E has indicated it would likely obtain some of its water needs from local wells, subject to agreements with landowners. Increased demand from these wells could result in temporary declines in well yield as groundwater surrounding the well is depleted. Yields, however, would be expected to return to normal once pumping demands returned to previous levels, as discussed in the Draft EIS (Chapter 4, Section 4.4.7.3).

Several commenters questioned SEA's conclusions about project impacts to groundwater. Commenters were concerned that the increased use of water for the proposed project could permanently deplete local aquifers, leading to lower well yields insufficient to supply local needs.

SEA conducted further investigation into this issue. As discussed in Draft EIS, Section 4.1.5.4, groundwater is abundant in the project area. Numerous aquifers at various depths are available to supply the livestock and domestic needs for water in the area. Currently, these aquifers are subject to limited withdrawal, and are primarily tapped for domestic use by the few rural residences in the area.

During project construction, DM&E would likely utilize several sources of water, including different wells in different aquifers along the alignment. The amount of water needed, while greater in the short term, is not expected to be significantly greater than the annual use by rural residents. Larger withdrawals may be required during the period of construction; however, this would only be for six to eight months out of the year. Additionally, water use from any one well would be limited to the period of time that construction would occur in proximity to the well. Any declines in well yield would generally result from water being pumped out faster than it can flow in from the surrounding aquifer. However, due to the yields of water provided by these aquifers, any decline would be temporary, likely lasting for only a few hours. Additionally, water withdrawals would be periodic, not continuous. Thus, groundwater from adjacent areas of the aquifer would have time to flow into areas that may be depleted by pumping. Demand for groundwater would also be reduced by the use of surface water DM&E would obtain, subject to landowner agreement and local water rights, from local ponds and waterways. As noted in the Draft EIS, no long-term or significant short-term impacts to groundwater supply are anticipated.

3.2.7.3 Wetlands

In its evaluation of the potential wetland impacts of the Extension Alternatives, SEA used National Wetland Inventory (NWI) maps to estimate the amount of wetlands converted to rail line right-of-way for each alternative. SEA recognizes that NWI maps may not indicate all wetlands present, may indicate wetlands where they do not actually exist, and are not based on the criteria of the Army Corps of Engineers (COE) for classification of an area as a wetland under COE jurisdiction. However, NWI maps provide a useful means of comparing the potential impacts of alternatives. As discussed previously under Cultural Resources, to undertake a full wetlands delineation of all the project alternatives in this case would be prohibitively expensive and unnecessary because NWI maps permit an adequate comparison of each alternative's impact to wetlands. SEA determined that Alternative B would convert 62.1 acres of wetlands to rail line right-of-way, 38.8 acres in South Dakota and 23.3 acres in Wyoming. Alternative C would convert 62.2 acres to rail line right-of-way, including 48.5 acres in South Dakota and 13.7 acres in Wyoming.

As part of the Clean Water Act, Section 404 permit process, the COE requires a detailed delineation of all the potential wetlands affected by a project. Because this project would require such a permit from the COE, DM&E is required to submit an application for a Section 404 permit to the COE, along with a delineation of wetlands potentially affected by the project. The COE generally only requires a delineation of the alternative the Applicant intends to construct, not all the alternatives evaluated. In order to facilitate a timely decision on the Section 404 permit, DM&E proceeded with the necessary delineation of wetlands along Alternative C. As discussed previously under Cultural Resources, DM&E conducted this delineation knowing that no decision had been made on the project and its work could be for nothing should the project be denied or another route approved. DM&E completed the delineation of Alternative C and submitted it, along with its application to the COE for a Section 404 permit, concurrent with the issuance of the Draft EIS. As required by COE regulations, the delineation and Section 404 application submitted by DM&E were made available for agency and public review and comment.

SEA received many comments regarding inconsistencies between the area of wetlands listed as potentially impacted in the Draft EIS and the Section 404 permit. EPA noted in its comments that the area of wetlands identified as potentially impacted by the Extension Alternatives, in particular Alternative C, was much less than that actually delineated within the proposed rail line right-of-way. EPA expressed concern with the validity of using NWI maps to determine and compare potential wetland impacts. In particular, EPA was concerned that the inaccuracy of NWI maps may be such that it would be difficult to determine which Extension Alternative would have the least impact on wetlands, as required as part of the Clean Water Act, Section 404 permitting process. If NWI maps were so unreliable, EPA reasoned, they may not be valid for determining and comparing the potential impacts of the Extension Alternatives.

Thus, some other method for estimating the wetlands potentially impacted by the alternatives may need to be explored.

In response to EPA's and others comments regarding the inconsistencies between the Draft EIS and the Section 404 permit, SEA conducted additional investigation into the discrepancy. Neither SEA nor the COE had participated in the wetland delineation. While the COE had provided guidance on the methodology to be used, the delineation was the responsibility of DM&E. Therefore, SEA contacted DM&E to obtain detailed information on how it had delineated wetlands along Alternative C.

Based on the information provided by DM&E, SEA determined several reasons for differences between the Draft EIS and Section 404 permit delineation. First, the wetland delineation for South Dakota was organized geographically, with wetland impacts reported for eastern South Dakota (the area from Pierre east) and western South Dakota (the area from Pierre west, including both existing rail line and Alternative C). This organization of the delineation apparently led to confusion as commenters interpreted western South Dakota to include only Alternative C. About 183 acres of wetlands were potentially impacted for western South Dakota, of which only approximately 79.95 acres were along Alternative C.

Additionally, SEA determined that the wetland delineations had identified a narrow band of wetlands, approximately 10-20 feet wide, along many of the intermittent streams in South Dakota. Intermittent streams are designated as a dashed line on NWI maps, and they generally do not have wetlands occurring adjacent to them outlined due to their small size. Therefore, while SEA counted the number of intermittent streams crossed by the Extension Alternatives, it did not assign any wetland quantity to them. Thus, the delineations included wetlands associated with intermittent streams, but the Draft EIS did not include them.

When considering wetlands associated with intermittent streams in South Dakota, SEA used an average width of 15 feet. Considering an average rail line right-of-way width of 400 feet, SEA calculated the additional wetlands that would potentially be impacted by the Extension Alternatives. SEA determined that Alternative B would impact 38.8 acres of wetlands in South Dakota, plus an additional 28.7 acres associated with the 208 intermittent stream crossings, for a total of 67.5 acres. Alternative C would impact 48.5 acres of wetlands in South Dakota, plus an additional 31.7 acres associated with the 230 intermittent stream crossings, for a total of 80.2 acres. The acreage of wetlands for Alternative C in South Dakota (80.2 acres) under this analysis is now comparable to the acreage presented in the delineation (79.95 acres). Additionally, the acres of wetlands in Wyoming in the Draft EIS for Alternative C (13.7 acres) is comparable to the acres included in the delineation (17.0 acres).

SEA presented its additional investigation and these results to EPA and the COE. Both agencies agreed that inclusion of wetlands associated with intermittent streams allowed for a more complete evaluation of the potential wetlands impacts of the alternatives (See Letter to EPA in Appendix C).

After conducting additional analysis, SEA has determined, as it did in the Draft EIS, that Alternative B would have less impact on wetlands than Alternative C. Under the COE permitting process, the COE must permit the alternative that has the least impact on wetlands. However, Section 404 (b)(1) provides the COE some flexibility to select an alternative other than the one having the least wetlands impact. Specifically, Section 404 (b)(1) states:

Except as provided under § 404 (b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.²⁷

Based on this guidance, and considering that the COE is a cooperating agency for this EIS, SEA considered which Extension Alternative would be preferable based on potential impact on aquatic and other environmental resources. SEA discusses the impacts of the Extension Alternatives in other sections of this chapter. However, in this section on water resources SEA has determined that Alternative B would have potentially significant impact on the Cheyenne River due to this alternative's proximity to the river and the numerous pinch-points along the alignment. SEA also determined that Alternative C, with appropriate mitigation, would likely not have significant impacts on the Cheyenne River or the riparian resources adjacent to the river. Although Alternative C would impact approximately 12.7 more acres of wetlands than Alternative B, SEA considers Alternative C to be the preferred alternative for the overall protection of aquatic resources, should the proposed project be approved.

3.2.8 RECREATION

Each of the proposed project alternatives has the potential to impact recreation in the project area. As discussed in the Draft EIS, conversion of recreational lands, particularly public lands, would eliminate use of these lands for recreation. The visual contrast and noise created by the project could detract from the recreational experience, particularly of those seeking quiet and

²⁷ 40 CFR 230.10(a)

solitude. Additionally, the presence of an operating rail line could eliminate an area's eligibility for designation as a wilderness area or as a wild and scenic river.

Alternative B would cross 67.7 miles of public land, cross two RARE II areas, one Inventoried Roadless area, be within 200 feet of another Inventoried Roadless area, across the Cheyenne River from another Rare II area, be within 3,700 feet of Badlands National Park, and be located along a portion of the Cheyenne River considered eligible for designation as Wild and Scenic. Alternative C would cross 55.5 miles of public land and be within 500 feet of two RARE II areas and a Roadless area.

SEA also acknowledged that recreation occurs throughout the project area on private land. This recreation is primarily hunting, but also includes camping, hiking, horseback riding, and other outdoor activities. Recreation on private land is limited to the landowners and their guests. Because of the sparse population of the area and the numerous large ranches and farms, recreationists in the area are widely dispersed.

SEA concluded in the Draft EIS that any of the proposed alternatives would have adverse impacts upon recreation. This would largely be due to the noise created by passing trains detracting from the quiet of the area. SEA determined that Alternative B would have a greater impact on recreation as it would cross more public lands, directly affect RARE II areas, affect the eligibility of the Cheyenne River for designation as Wild and Scenic, and be closer to Badlands National Park. SEA acknowledged recreation on private land would also be affected. However, because of limited use and abundant opportunities, these impacts would not be significant.

Overall, the comments on the Draft EIS supported SEA's conclusion that recreation would be affected by the proposed project. Generally, no alternative was noted as having a greater impact than another. Most commenters expressed the concern that SEA should consider impacts to recreation as having greater significance than expressed in the Draft. However, as SEA explained in the Draft EIS, recreational opportunities are abundant throughout the project area, including thousands of acres of public lands. While localized impacts to favored spots may occur, other areas are available, both for private and public use. SEA determined no additional analysis of project-related impacts to recreation was warranted in this Final EIS.

SEA also received comments from Tribes concerning the proposed Crazy Horse Scenic Byway. SEA had not previously been provided any information on this proposal. Therefore, SEA conducted additional investigation as to the status of the proposal.

The Oglala Sioux Tribe has submitted an application to the State of South Dakota for the designation of a route through portions of the Pine Ridge Reservation as a Scenic Byway, to be

named for the Sioux Chief, Crazy Horse. The byway would begin at Exit 131 on Interstate 90. It would follow State Highway 240 south to Interior, South Dakota, then to Scenic, South Dakota along State Highway 44. At Scenic, the byway would turn south on BIA Route 27 and onto the Pine Ridge Reservation. The byway would turn west on BIA Route 2 at the Badlands National Park, White River Visitors Center. It would follow BIA Route 2 west to BIA Route 41, turning north along the western boundary of Badlands National Park. At Red Shirt, South Dakota, the byway would continue across the Cheyenne River on State Highway 40, continuing westward through Hermosa, South Dakota to eventually connect with the Norbeck Scenic Byway in the Black Hills.

Currently, the application for the Crazy Horse Scenic Byway is still pending and no scenic byway has been designated. The State has indicated the proposal meets the criteria for a scenic byway with two exceptions, an open landfill south of Red Shirt and BIA Route 41 being unpaved. SEA's contacts with personnel at Badlands National Park indicated that the landfill has likely been recently closed. Additionally, the State has some of the necessary funds for paving BIA Route 41 but is seeking the additional funds for 2002. Paving of BIA Route 41 could commence in 2003.

Scenic byways in South Dakota are determined through review by a Scenic Byway Review Committee. This committee considers the byway application based on the safety of the motoring public and the unique and unusual scenic, cultural, geologic, wildlife and habitat, and aesthetic features of the route. The review committee makes a recommendation to the State Transportation Commission who then makes the final decision on the designation of the route.

SEA's preliminary contacts with the State of South Dakota indicate that construction of a new rail line could affect the eligibility of a route for designation as a scenic byway. However, it would be up to the discretion of the review committee.

Alternative B

The alignment of Alternative B would cross the portion of the Crazy Horse Scenic Byway that includes State Highway 40. Alternative B would cross Highway 40 just west of the Cheyenne River. This portion of the Cheyenne River is considered eligible as a wild and scenic river. It is likely construction of a rail line at this location would adversely affect the eligibility of this portion of the Cheyenne River for future designation as a wild and scenic river. Additionally, the alteration to the landscape caused by construction of the rail line along the Cheyenne River could also result in this stretch of roadway being considered ineligible as a scenic byway.

Alternative C

The alignment of Alternative C would also cross the portion of the Crazy Horse Scenic Byway that includes State Highway 40. Alternative C would cross Highway 40 approximately 12 miles southeast of Hermosa, South Dakota. This crossing would be within approximately 0.5 mile of where a high voltage transmission line on steel lattice towers currently crosses the highway. The rail line crossing is proposed by DM&E to be a grade separation due to the topography of the site. While the rail line crossing would pose no safety hazard to motorists, it is unclear whether the construction of the rail line would impact the eligibility of the route for designation as a scenic byway, particularly since other portions of the route follow and cross abandoned rail bed and the proposed route is crossed by the existing DM&E rail line in Hermosa.

3.2.9 BIOLOGICAL RESOURCES

SEA evaluated potential Extension Alternative impacts to a variety of biological resources, including vegetation, wildlife, and threatened and endangered species. SEA received a number of comments regarding impacts to biological resources. For the most part, commenters concurred with SEA's conclusions in the Draft EIS regarding the project's potential impacts. Many of the commenters requested mitigation measures to protect these resources. SEA reviewed these suggestions and has included mitigation recommendations, as appropriate, in Chapter 12. A few specific commenters raised issues that resulted in SEA conducting additional analysis. These issues included big game migration and inclusion of prairie dogs, which some noted may be added as a candidate for listing as a threatened or endangered species. SEA's additional investigation concerning these issues is discussed below.

3.2.9.1 Wildlife

SEA determined that any of the proposed Extension Alternatives would have similar types of impacts to big game, including mortality, loss of habitat, disturbance, and impedance of migration movements. SEA determined the types and amounts of big game ranges that would be converted to rail line right-of-way. As presented in the Draft EIS, Table 4.4-39, SEA determined that impacts to big game would differ between the Extension Alternatives. Alternative B would generally affect more elk habitat in Wyoming, although Alternative C would affect more crucial winter range. Alternative B would also affect more deer habitat than Alternative C in both South Dakota and Wyoming. Alternative C would affect more pronghorn habitat in South Dakota, but

Alternative B would affect more in Wyoming. The Draft EIS concluded that no significant impacts to big game would occur as a result of construction and operation of any of the proposed Extension Alternatives due to the abundant big game habitat throughout the area, the ability of these species to adapt and acclimate, their mobility allowing them to seek out areas away from the rail line if desired, and the limited mortality expected from train/wildlife collisions.

Commenters on the Draft EIS, including the Wyoming Game and Fish Department, South Dakota Department of Game, Fish and Parks, and Native American Tribes, indicated concern SEA had not adequately considered the impact of the potential rail line as a barrier to big game migration. Commenters expressed concern that a rail line in eastern Wyoming oriented east-west would cross migration corridors for pronghorn. During migration periods, large numbers of pronghorn could accumulate along the rail line and be hit by a passing train. Wyoming Game and Fish Department acknowledged that it had little data on pronghorn migration in this area of Wyoming but indicated large numbers of pronghorn were known to winter in areas south of the alignments for the Extension Alternatives. Thus, with funding provided by DM&E, Wyoming Game and Fish Department conducted surveys along the proposed Extension Alternatives in Wyoming to obtain data on potential big game migration routes.

SEA was unaware of these studies and was not provided copies of the results prior to issuance of the Draft EIS. In response to comments that big game surveys had been conducted, SEA obtained and reviewed the reports prepared as part of these surveys. Wyoming Game and Fish Department conducted flights between February and May, 1999, and between January and March, 2000. The results of these flights indicated large numbers of antelope dispersed throughout the proposed rail alignment area. It appears likely that an east-west rail line across eastern Wyoming would be crossed by large numbers of antelope moving north-south between summer and winter areas.

Additionally, commenters noted that the Cheyenne River provided important habitat for big game, and that constructing a rail line along the river would provide an obstacle to big game moving to and from the river valley, increasing their susceptibility to being hit by a train. While no big game migration corridors are mapped in southwestern South Dakota, Native American Tribal traditions discuss movement of big game from the Black Hills into the foothills and plains and from the plains to the foothills in winter. These patterns would require large numbers of big game to cross a rail line located along the Cheyenne River because it would lie between the plains and the foothills.

Wyoming Game and Fish Department has expressed particular concern for the project-related impacts to pronghorn. This is largely due to the characteristics of pronghorn which make them more susceptible to being struck by a passing train. Pronghorn are not anticipated to use

culvert-type underpasses due to the relatively closed nature of these structures. Thus, they would cross over the rail line. Unlike deer which generally have no problem jumping over a fence, pronghorn are not prone to jump, preferring to crawl under a fence. Additionally, pronghorn are built for speed and when threatened, will run from the threat. While it may be a simple task to jump over or crawl under a fence along the rail line, pronghorn, attempting to run from the train would actually be confined by the fence, increasing the likelihood they would run in front of the train and be struck.

SEA has reviewed the comments concerning big game migration routes received on the Draft EIS and the additional information prepared by Wyoming Game and Fish Department. Based on its additional analysis, SEA reaffirms its position in the Draft EIS that the proposed Extension Alternatives would lead to big game mortality as a result of individuals within the right-of-way being struck by a passing train. SEA has included recommended mitigation measures, including fencing design, intended to facilitate movement of pronghorn across the rail line. Also, SEA recognizes that, in comparing the Extension Alternatives, Alternative B would likely have a greater potential impact on big game because Alternative B accesses the mines by branching from the main line, resulting in several rail lines running east-west. This configuration would create several rail lines for pronghorn to cross when moving north-south as opposed to Alternative C which would enter the PRB, then split north-south with only short spurs being necessary to access the individual mines. As a result, SEA believes Alternative B would have greater impact on big game than Alternative C, although mitigation could prevent these impacts from being significant.

3.2.9.2 Threatened and Endangered Species

For preparation of the Draft EIS, SEA contacted the U.S. Fish and Wildlife Service (USFWS) for information on the Federally threatened or endangered species potentially affected by the proposed project. The USFWS provided a list of species potentially affected by the Extension Alternatives, including the black-footed ferret, piping plover, interior least tern, mountain plover, swift fox, bald eagle, pallid sturgeon, Ute Ladies'-tresses orchid, American burying beetle, and the sturgeon chub. During preparation of the Draft EIS, SEA and the cooperating agencies learned that the black-tailed prairie dog had been submitted for protection under the Endangered Species Act and that the USFWS was considering the information submitted. However, it did not appear that any decision on the listing would occur before release of the Draft EIS. SEA decided to include the black-tailed prairie dog in the Draft EIS analysis.

SEA determined that each of the Extension Alternatives has the potential to adversely affect Federally threatened and endangered species, including the black-tailed prairie dog, which has not yet been formally listed, and the swift fox, which has recently been removed from Federal listing. SEA determined that only Alternative B would have significant impact on

threatened and endangered species as it would cross a black-footed ferret reintroduction area, thus likely making the site unsuitable for ferret reintroduction and jeopardizing reestablishment of the species.

SEA received comments regarding Federally threatened and endangered species, with most of the emphasis on the black-tailed prairie dog. Commenters indicated that SEA should consider project impacts to this species. SEA notes that the Draft EIS (Chapter 4, Sections 4.1.8.4 and 4.4.10.4.10) discusses the potential impacts of the Extension Alternatives to black-tailed prairie dogs. Although not yet listed, and likely not to be listed in the foreseeable future, this species is included in the analysis at the same level as other Federally listed species. SEA determined the potential impact to prairie dogs by determining the amount of habitat each of the Extension Alternatives would convert to rail line right-of-way, approximately 552.7 acres for Alternative B and 819.4 acres for Alternative C. As discussed in the Biological Assessment prepared for the project, contained in the Draft EIS (Appendix K) and the Final EIS (Appendix H), SEA anticipates some mortality to prairie dogs during construction of the rail line. However, the high reproductive rate of prairie dogs is expected to easily replace any losses. Additionally, SEA observed numerous prairie dog towns along other existing rail lines in the project area, suggesting this species is capable of adapting to rail lines and utilizing the habitat they provide. Therefore, SEA continues to conclude that the proposed project would have no significant impacts on black-tailed prairie dog populations.

3.2.10 NOISE AND VIBRATION

SEA conducted extensive analysis of the potential project-related impacts to noise sensitive and vibration receptors, as presented in the Draft EIS (Chapter 4, Section 4.4.9). SEA determined that several noise sensitive receptors along both Extension Alternatives would be adversely affected by project-related increases in train noise. For both Extension Alternatives, most of the noise sensitive receptors affected would be located in Fall River County, South Dakota. Due to its proximity to the community of Edgemont, South Dakota, Alternative B would adversely affect a greater number of noise sensitive receptors than Alternative C.

SEA received comments on the Draft EIS indicating that the rail line would result in increased noise and adverse impacts along the proposed Extension Alternatives. These comments support SEA's analysis in the Draft EIS. No commenters raised issues requiring additional analysis of project-related impacts to noise sensitive receptors. SEA has concluded the analysis contained in the Draft EIS is appropriate.

SEA also conducted extensive analysis of the potential impacts to structures from project-related increases in vibration. In the Draft EIS, SEA indicated that structures within 100

feet of a new rail line of the type contemplated as part of this project could experience some damage by project-related vibration. SEA determined that operation of Alternative C could result in damage to two structures. No structures would be potentially damaged by Alternative B.

Based on SEA's further review, SEA has determined that structures would likely need to be within 50 feet of the rail line to potentially be damaged by rail vibration. Because DM&E's proposed right-of-way would include approximately 100 feet on either side of the rail line, no structures would be located near enough to be damaged by project-related vibration. Although structures in proximity to the Extension Alternatives, including the two structures within 100 feet of Alternative C, could still experience rail-induced vibration, it would not likely be sufficient to cause structural damage. Therefore, SEA has determined that neither of the Extension Alternatives would cause significant vibration problems.

3.2.11 AIR QUALITY

SEA received numerous comments from agencies and the public during scoping concerning potential environmental impacts of coal dust blowing from rail cars (fugitive coal dust) and the potential impacts of the project to air quality at Class I airsheds. These concerns included impacts to human health, wildlife, vegetation and crops along the rail line, visibility, and quality of life factors such as the need to keep windows closed, inability to hang laundry outside, and the need to wash coal dust from vehicles and homes. The following summarizes SEA's analysis of fugitive coal dust as presented in the Draft EIS (Sections 3.2.8, 4.3.8, and 4.4.8), and the results of SEA's additional analysis of this issue for this Final EIS.

SEA concluded in the Draft EIS that fugitive coal dust would not present a significant environmental concern, based on the high moisture content of PRB coal, which produces less dust than other types, and a high clay content, so that a crust tends to form over exposed coal. Both of these characteristics of PRB coal reduce the potential for a significant fugitive dust problem. SEA provided anecdotal evidence to support this conclusion, including its observations of loaded rail cars leaving the PRB with no signs of fugitive dust, lack of coal dust accumulating on or along the existing rail lines,²⁸ and lack of public complaints concerning coal dust, even in states through which large amounts of PRB coal are transported.²⁹

²⁸ SEA received comments identifying specific locations of large amounts of coal along the existing rail lines serving the PRB. Based on the description of these locations and its own investigation, the coal present was likely the result of a rail car spill or derailment, since it was present in large amounts and in localized areas.

²⁹ States contacted included Minnesota, South Dakota, North Dakota, Nebraska, Wyoming, Colorado, and Missouri.

In preparing the Final EIS, SEA conducted further investigation into whether characteristics of PRB coal influence its potential for producing fugitive dust capable of causing an environmental impact. In the Draft EIS, SEA found no detailed studies on the amount of coal dust lost from rail transportation, nor did subsequent investigation identify detailed studies on fugitive coal dust from transport of PRB coal. However, SEA did find a general analysis of the fugitive coal dust issue and analysis of fugitive dust generated by a specific type of eastern coal. These studies are summarized below.

In 1996, Simpson Weather Associates of Charlottesville, Virginia, in cooperation with and with funding from Norfolk Southern Corporation, conducted an evaluation of fugitive coal dust losses along a rail corridor in Virginia with heavy coal traffic.³⁰ This study was conducted along an approximately 500-mile rail corridor with known fugitive coal dust complaints, and evaluated the loss of metallurgical coal³¹ under a variety of meteorological and physical conditions. It concluded that while fugitive coal dust emissions did not appear to violate ambient air quality standards and that no remedial action was necessary, up to 0.6 tons (1,200 pounds) of coal could be lost per rail car over the 500-mile trip. Typical losses were reported to be 0.2 to 0.4 tons per rail car (400 to 800 pounds).

In an additional study, Simpson Weather Associates discussed concerns about fugitive coal dust from the time the coal is mined until it is shipped abroad.³² This study expanded on the initial one, indicating that the transported coal traveled on trains reaching a speed of 50 miles per hour, and that the metallurgical coal was crushed and dried prior to transport. It also indicated that fugitive coal dust is related to the size of the coal transported, its clay and moisture content, and seasonal considerations. Moisture content is most significant, since low moisture content resulted in dust problems during the coal's entire transportation route.

SEA also identified an additional study prepared by the Pennsylvania State University (Penn State) Department of Energy, Environmental, and Mineral Economics,³³ that discussed

³⁰ Edward M. Calvin, G.D. Emmitt, and Jerome E. Williams. 1996. "A Rail Emission Study: Fugitive Coal Dust Assessment and Mitigation," *Environment Virginia*, 1996.

³¹ Coal used in metal production, forging, or smelting industries is generally of high heat value per ton and thus capable of generating the high and sustained temperatures needed for the metal industries.

³² George D. Emmitt. 1999. "Fugitive Coal Dust: An Old Problem Demanding New Solutions," *Port Technology International*, No. 9, pp. 125-128.

³³ Jeffrey K. Lazo and Katherine T. McCain. 1996. "Community Perceptions, Environmental Impacts, and Energy Policy - Rail Shipment of Coal," *Energy Policy*, Vol. 24 (6), pp. 531-540.

public perceptions of the fugitive coal dust issue in light of the scientific evidence. It noted that changes in coal use to supply domestic energy needs has increased interest in fugitive coal dust related to potential economic losses as well as psychological impacts on residences and businesses resulting from fugitive dust. Since coal users are attempting to reduce ash and sulphur to comply with the Clean Air Act Amendments of 1990, coal is crushed into smaller pieces to separate more non-combustible ash and slag-forming components from the coal. Additionally, recent use of longwall mining, a process of grinding or pulverizing the coal in a seam to extract it, has resulted in larger amounts of coal of smaller particle size being shipped.

According to the Penn State study, fugitive coal dust is classified as a nuisance pollutant, but there is no evidence that it presents any danger to the environment or human health. Coal dust larger than 10 µm has not been linked to either human health, environmental, or agricultural problems. Respirable coal dust in the range of 7-10 µm has been linked to an emphysemic condition, black lung. However, this condition is generally confined to individuals working in underground mining conditions. The amount of respirable coal dust, even with repeated exposure to high dusting events, is too small to pose any threat to the health of individuals living along the rail line.³⁴ Additional studies by both Environment Canada and EPA showed no effect on biological systems. EPA determined that coal dust had no effect on agricultural production or soils, and that concentrations of heavy metals were generally higher in soils than in the coal dust. In addition, EPA found no evidence of coal dust accumulating in adjacent soils nor of negative effects to ecosystems from coal dust.³⁵

³⁴ R. Hogg, Department of Mineral Engineering, Pennsylvania State University, Personal Interview - 18 July, 1994. Cited in Jeffrey K. Lazo, and Katherine T. McCain, "Community Perceptions, Environmental Impacts, and Energy Policy - Rail Shipment of Coal," *Energy Policy*, Vol. 24 (6), pp. 531-540.

³⁵ D. Emmit, Simpson Weather Associates, Inc. Personal communication - 27 October, 1994. Cited in

In evaluating the results of the Simpson Weather Associates studies, SEA found several significant differences between the eastern coal evaluated there and PRB coal. The studies evaluated coal transport along a rail corridor known to experience fugitive coal dust complaints. SEA contacted Minnesota, North and South Dakota, Nebraska, Wyoming, Colorado, and Missouri and found no records of complaints related to fugitive coal dust. Following release of the Draft EIS, SEA made additional contacts with communities along rail lines transporting a high volume of PRB and eastern coals (Table 3-5). None along the PRB coal rail lines were aware of any complaints of fugitive coal dust (some were unaware that coal was transported through the community at all), while the eastern communities had heard of the problem. While anecdotal, this evidence is consistent with SEA's conclusion in the Draft EIS that fugitive coal dust is not a problem with PRB coal.

Community	Agency	Railroad
Gillette, WY	Office of Environmental Services	BNSF
Aberdeen, SD	City Health Department	BNSF
Jamestown, ND	Health Department	BNSF
St. Cloud, MN	Department of Environmental Health	BNSF
Osceola, IA	Clark County Office of Environment	BNSF
Ames, IA	Office of Public Relations	UP
Scottsbluff, NB	Health Department	BNSF and UP

Jeffrey K. Lazo and Katherine T. McCain, "Community Perceptions, Environmental Impacts, and Energy Policy - Rail Shipment of Coal," *Energy Policy*, Vol. 24 (6), pp. 531-540.

**Table 3-5
Communities Contacted Regarding Fugitive Coal Dust**

Community	Agency	Railroad
Richmond, VA	Virginia Mines, Minerals, and Energy Department	NS ³⁶ and CSXT ³⁷
Harrisburg, PA	Air Quality Control Bureau	CR*
Charleston, WV	West Virginia Bureau of Air Quality	CSXT and CR*
* Formerly Consolidated Railway Corporation (Conrail) assets acquired by NS and CSXT, Finance Docket No. 33388.		

Many eastern coals are used as metallurgical coal, which is generally dustier than steam coal, but PRB coal is not. Railroads throughout the eastern United States periodically, if not regularly, transport metallurgical coal, likely giving rise to incidents of fugitive coal dusting and complaints from local citizens. As a steam coal, however, PRB coal is less dusty and less likely to contribute fugitive dust from passing rail cars. Moreover, moisture content of the studies' metallurgical coal ranged from 2.8 percent to 11.4 percent. In contrast, PRB coal averages 30 percent moisture, resulting in smaller particles of coal sticking together, which reduces fugitive dust.

The studies indicate that the greatest losses occurred in the summer months, under hot, dry conditions and at the highest average wind and train speeds. But during much of the year the temperatures in the PRB and along DM&E's existing rail line are moderate to below freezing. Only during a few months each year could high temperatures and winds form fugitive dust. During site visits, SEA has observed UP and BNSF trains operating in the PRB at speeds greater than the 45 miles per hour contemplated for loaded coal trains for this project during hot, dry summer conditions and noticed no fugitive dust from the rail cars.

³⁶ Norfolk Southern Corporation

³⁷ CSX Transportation Corporation

According to the studies, fugitive dust was increased by tunnels, trestles, trains passing in the opposite direction, and close hills or cuts through hills for the rail line. As a general rule, DM&E's existing rail line across South Dakota and Minnesota traverses open, flat terrain. Although no tunnels, large trestles, or significant hill-cuts occur along the existing line, several hill-cuts would likely be created by the proposed project. However, these would occur primarily in sparsely populated areas where fugitive dust would have little, if any, impact on local residents and would be similar to dust created by wind erosion and vehicles on local gravel roads. Because coal dust is relatively inert and not a hazard to human health or biological resources, any fugitive dust in these areas would have no significant impact on the environment. Fugitive dust could be generated when a loaded train passes another train at one of the many passing sidings necessary for project operation. However, none of these sidings would be in towns or communities, only in rural areas with scattered residents, where fugitive dust created would likely be similar to that created through agricultural operations, wind erosion, and vehicles on gravel roads.

The available studies emphasize that smaller sizes of coal, such as those produced by underground and longwall mining techniques, result in fugitive dust. In contrast, PRB coal is mined in open pits using explosives, large mechanical shovels, bulldozers, and trucks. This process results in coal particles much larger than in other mining techniques. Although PRB coal is processed to a more uniform size for transport, particle size is generally one to two inches. Final crushing of PRB coal for use by the utility is generally done at the generating station immediately prior to introduction of the coal into the boiler combustion chamber. This delayed crushing is done both to accommodate the specific particle size requirements for the individual combustion chambers and to make the coal easier to handle and reduce dust generated from coal-handling at the generating station. The larger particle size of PRB coal makes it unlikely to produce significant amounts of fugitive dust.

Some comments on the Draft EIS questioned why fugitive coal dust was not considered as a potential source of visibility impairment, particularly at Class I airsheds such as Badlands National Park, contributing to regional haze. Others indicated that fugitive coal dust emissions should have been quantified and included in the air modeling study conducted for the project alternatives, just as were locomotive emissions, including the associated particulate emissions. SEA does not believe it would be appropriate to include fugitive coal dust emissions as part of the air quality visibility analysis. Previous air quality studies in the region have considered locomotive emissions, as did SEA in this case. PRB coal data indicate that it is a highly unlikely source for fugitive coal dust, and studies on eastern coal with very different characteristics from PRB coal are not valid surrogates for potential PRB coal-dust emissions.

It has also been determined that most fugitive coal dust is larger than 10 µm. Dust particles of this size would be expected to fall out of the air in a relatively short distance and not be carried high into the atmosphere or for long distances as would be necessary to contribute to regional haze concerns. Additionally, particulate emissions from locomotives, while being smaller in size (less than 10 µm), are also carried aloft in a plume of hot air. This hot air rises into the atmosphere where wind and other atmospheric conditions have greater influence on smaller particles, keeping them aloft for extended periods of time and transporting them great distances. Fugitive coal dust would not be acted on by such forces. Any fugitive dust would be expected to settle out of the air without contributing to local or regional visibility concerns.

Therefore, based on its additional analysis and the studies discussed above, SEA concludes that fugitive coal dust would not result from the transport of PRB coal along the DM&E rail line, except on an infrequent and very localized basis. As discussed in the Draft EIS, fugitive coal dust could require periodic washing of adjacent residences, businesses, or vehicles if normal rainfall is insufficient. But, since fugitive coal dust should be an infrequent event and any dust produced would not pose a threat to human health or the environment, SEA has determined that fugitive coal dust is not a significant concern for this project.

In the Draft EIS, SEA recommended a condition (Condition 67) requiring DM&E to comply with the final recommendations of the Air Quality Working Group, which was established for this project and consists of agencies, including the National Park Service, with appropriate technical expertise. SEA understands that DM&E and the Working Group have been meeting periodically over the last several months, and that various versions of a draft Memorandum of Agreement have been circulated. The negotiations reached an impasse, however, when the parties could not reach agreement on one issue: train caps or emission caps.

Specifically, the Working Group wanted DM&E to limit the number of trains or the amount of emissions generated once train traffic or emissions approached levels that would be high enough to affect Class I airsheds, such as the Badlands National Park in South Dakota.³⁸ DM&E responded that it could not agree to train or emission caps because to do so would violate its so-called "common carrier obligation" to provide service upon reasonable request to the shippers to which it holds out service (See 49 U.S.C. 11101(a)).

DM&E's assertions are correct. As the Board has frequently stated, railroads must have the flexibility to adjust the level of train traffic over particular line segments in response to

³⁸ See Chapter 4 of the Draft EIS for a discussion of the regional haze issue and SEA's conclusions about the tonnage levels at which visual impairment to Class I airsheds would occur.

changes in shipper demands and other market conditions.³⁹ Any caps — whether to trains or emission levels — would be inappropriate, in violation of the railroad's common carrier obligation, and beyond the Board's jurisdiction to impose.⁴⁰

³⁹ See Major Rail Consolidation Procedures, STB Ex Parte No. 582 (Sub-No. 1) (STB served June 11, 2001), slip op. at 39-40.

⁴⁰ In one railroad merger, the Board imposed a temporary traffic cap in one community (Reno, Nevada) to permit completion of an ongoing environmental mitigation study. No permanent traffic cap has ever been imposed by the Board.

Notwithstanding the impasse, SEA believes that the Working Group has been productive, and is hopeful that a mutually satisfactory agreement may be reached following issuance of this Final EIS clarifying the limits of the Board's jurisdiction.⁴¹ Therefore, SEA is retaining its Working Group condition but modifying it to require mediation (half of which would be funded by DM&E) if the Working Group and DM&E cannot agree on terms within one year of the date of a Board decision giving final approval to the project.⁴² (See SEA's recommended mitigation in Chapter 12).

SEA recognizes, however, that there are technological and other limitations to the mitigation options available to the Working Group to minimize project-related impacts of regional haze. For example, it does not appear feasible to require DM&E to accelerate compliance with EPA's locomotive emissions standards, as the technology needed to retrofit locomotives is not currently available. Moreover, DM&E is exploring the possibility of using a special type of fuel to reduce emissions, but is concerned that it could be placed at a competitive disadvantage if other railroads operating in the PRB did not have to operate under the same conditions.

It may be that no good options prove to be available to address the impacts of regional haze in Class I airsheds that would result from the locomotive emissions of DM&E coal trains. In the event that the Working Group cannot agree on reasonable measures to assure that project-related impacts would be effectively mitigated, regional haze could constitute an unavoidable adverse impact to Class I airsheds.

3.2.12 HAZARDOUS MATERIALS

⁴¹ Adverse impacts to Class I airsheds are not anticipated until DM&E were to transport 40 million tons of coal annually. Accordingly, there would be time for the parties to seek to resolve the impasse, assuming that the Board gives final approval to the PRB Expansion Project.

⁴² Under SEA's recommended condition, the parties jointly could ask for more time to continue their negotiations without a mediator if they believe that would be more productive. The parties also could mutually decide to disband the Working Group if it becomes clear that further meetings would not be fruitful.

In the Draft EIS (Chapter 4, Section 4.4.13), SEA explained that the purpose of the proposed new rail line construction is to transport coal and that no shippers or receivers of hazardous materials are located along the proposed alignments of any of the Extension Alternatives. Therefore, SEA indicated that no hazardous material are anticipated to be transported over the new rail line as a result of this project.⁴³

Specifically, SEA stated that the proposed PRB Expansion Project is intended to facilitate the transport of coal between coal mines in the PRB and coal-burning electrical generating facilities east of the PRB. The coal cars of other railroads currently serving the mines are transported empty to the coal mines and loaded with coal. The loaded cars then are transported to the specific utility plant, unloaded, and shipped empty back to the mines for reloading. The pricing structure for transport of coal accounts for the cars to return empty to the mine. Therefore, railroads can afford to operate in this manner by charging more for coal transport.

SEA received comments concerning hazardous materials. These comments primarily expressed concerns that DM&E would use empty coal cars to haul waste material, including trash and hazardous wastes, from the east to disposal facilities in the west if this project is approved and implemented. Commenters urged that DM&E be prohibited from hauling hazardous materials or waste over the new rail line (or additional hazardous materials over the portion of its existing system connecting to the proposed new rail line).

However, a variety of practical reasons exist which make it unlikely that DM&E would haul trash or hazardous materials in empty coal cars. First, rail cars are designed to perform specific functions and transport specific types of commodities. Coal cars are no exception. They are designed to transport coal. While they potentially could be used to transport other bulk commodities (such as rock or gravel), they would be inappropriate for the transport of trash and any type of hazardous material or waste. Transport of material other than coal in these cars

⁴³ DM&E currently transports small amounts of a variety of hazardous materials, including liquefied petroleum gas (LPG), anhydrous ammonia, phosphoric acid, ferric chloride, fuel oil, and ethylene acetyl (a flammable gas used in welding, among other things).

would require that they be thoroughly cleaned prior to being loaded with coal to prevent contamination of the coal, which would affect its combustion properties and the operation of the generating station. Such requirements would be uneconomical and impractical for a unit train in excess of 100 cars.

Coal cars also come in two types, bottom (or hopper) bumpers and rotary dumpers. Bottom dumpers have hoppers which open on the bottom of the car to allow the coal to fall out the bottom of the car, generally into a conveyor system which receives the coal below the rail line (below ground level). The rail car is pulled over an open chute, the hoppers opened and the coal dropped into the chute. The second type of coal car is a rotary dumper. These cars are unloaded by the car being secured to the track and the track rotated, containing one or two rail cars at a time. The cars are rotated to the upside down position, dumping the coal into a receiving chute. When empty, the track is rotated back to the upright position and new cars pulled on to the rotary section of the track. Thus, individual generating stations are designed to handle one or both types of coal cars. In order to use coal cars to transport other commodities, the receiving locations would have to be able to accommodate the type of car delivering the material.

Furthermore, for railroads serving the PRB, many of the coal cars they move are owned by the individual utilities, not by the railroads. These cars are either leased back to the railroad under agreement that they be used to provide coal to the utility's facilities or the railroad simply provides the locomotive power to transport the cars from the generating facility to the mine and back. The railroad is not able to use the cars for other means. Coal cars are therefore typically not available for the railroad to take from the mine to another location to, for example, pick up a load of trash, deliver the trash to another location, and then return to the mine. Any attempt to do something like this would likely result in delays to the train returning to the mine, being loaded, and coal delivered to the generating station, as the utility only has enough cars to meet its needs based on a certain to-mine-and-back turn around time. Such operations would not be permitted by the utility. Use of utility coal cars for other purposes also would increase the wear and tear on the cars and result in increased maintenance costs.

Last, while various commenters noted that there have been attempts to open facilities in western South Dakota and eastern Wyoming for receipt of trash and hazardous materials, SEA is not aware of any current plans to open or operate any such facilities along the existing DM&E rail line or any of the proposed Extension Alternatives. No such facilities currently exist along the existing DM&E rail line. Thus, there is no destination for any trash or hazardous materials. Should DM&E be requested to transport such materials, it would have to interchange them with another rail carrier for delivery to a disposal facility, reducing any economic advantage that would be gained by back-hauling such goods.

It is possible that DM&E could transport trash or other hazardous materials over the Extension Alternatives using rail cars appropriate for such goods. DM&E, as a common carrier, is legally bound to provide rail service to anyone, for the transport of anything, including hazardous materials, upon request to do so.⁴⁴ The Board cannot preclude a common carrier from hauling or not hauling particular commodities, but any transport of hazardous materials would have to be in strict compliance with U.S. Department of Transportation regulations. Moreover, SEA is unaware of any facilities along the Extension Alternatives that would require transport of hazardous materials. Thus, SEA does not anticipate that DM&E would be asked to operate trains transporting trash or hazardous materials over the proposed Extension Alternatives for the foreseeable future. Therefore, SEA does not anticipate any impacts from the transport of hazardous materials.

3.2.13 GEOLOGY AND SOILS

SEA conducted an extensive analysis of the geology and soils along the Extension Alternatives in the Draft EIS (Chapter 4, Section 4.4.5). SEA determined that the geology of the project area consisted of extensive areas of Pierre shale and Fort Union formations, which are

⁴⁴ See 49 U.S.C. 11101(a) ("A rail carrier providing transportation or service subject to the jurisdiction of the Board under this part shall provide the transportation or service on reasonable request"); see also Ethan Allen v. Maine Cent. R.R. Co., 431 F. Supp. 740 (D. Vt. 1977) (stating that common carriers have a duty to provide adequate transportation to shippers if the shippers' requests are reasonable (citing Pennsylvania R.R. v. Sonman Shaft Coal Co., 242 U.S. 120 (1916); Chicago, R.I. & P. Ry. v. Hardwick Farmers Elevator Company, 226 U.S. 426 (1913); Johnson v. Chicago, M., St.P & P. R.R., 400 F.2d 968 (9th Cir. 1968)), Overbrook Farmers Union Coop. Ass'n, 5 I.C.C. 2d 316 (1989) (railroad violated duties under 49 U.S.C. 11101(a) by failing to provide service to shippers after flood damage prompted railroad to impose an embargo on the line).

susceptible to landslides and slumping. Because of the long stretches of these formations that would be crossed by the Extension Alternatives, approximately 150.6 miles by Alternative B and 135.0 miles by Alternative C, SEA concluded in the Draft EIS that there was the potential for significant impacts from crossing these formations. However, SEA stated that engineering and design solutions are available to address concerns regarding areas susceptible to slumping and landslides.

Commenters expressed concern that SEA had understated the potential problems associated with construction and operation of a new rail line across Pierre shale formations. Commenters suggested that rail line construction across these formations would be difficult, if not impossible, and that even if the proposed rail line could be constructed, the susceptibility of the formations to shrinking, swelling, and slumping (landslides) would pose an ongoing threat to rail bed stability and the safety of rail operations.

SEA had relied in the Draft EIS on the fact that, in order to construct a safe and reliable project, it would be necessary for DM&E to both identify potential geologic hazards prior to construction and implement measures during construction to address any problem areas identified. In order to respond to the issues raised by commenters, SEA conducted additional investigation into the characteristics of the Pierre shale formation and ways, if any, to avoid problems with crossing it. A detailed discussion of Pierre shale is included in Appendix M and summarized below.

SEA's analysis indicates that Pierre shale's susceptibility to landslides and slumping, and the difficulty it poses for construction are due to high shrink/swell potential and moderate to high content of clay in the formation. Shrink/swell potential refers to the tendency of the soil or rock layers to expand and contract. The Pierre shale formation has a high shrink/swell potential because it contains layers of bentonite and other expandable materials. Much like a sponge, when water comes in contact with these materials, they absorb the water and expand or swell, causing the ground to rise, or heave, as can occur when water in soil freezes and the expansion of the ice causes the soil to expand (frost heave). Absorption of water can cause the formation to expand to many times its dehydrated size. As water drains from the formation, it shrinks as the layers of expandable material dry out and become compressed. Generally, such formations will achieve a relatively stable condition in a particular area. However, during periods of drought, excessive shrinking can occur. Additionally, periods of high precipitation can result in excessive swelling. However, over time, even minor shrinking and swelling can cause fracturing of material, resulting in slope instability, potentially leading to slumps or landslides.

In addition to a high shrink/swell potential, the Pierre shale formation has a moderate to high clay content. Clay material, when exposed to moisture, can act as a lubricant, causing the

layers of rock to slide on each other. Under such conditions, rock material on slopes can lose its stability and slide along lower layers of rock, resulting in slope instability and landslides.

For issues of shrink/swell potential and clay content, moisture is the primary concern. A constant and minimal moisture level needs to be maintained to minimize the potential for rock and soil materials to shrink or swell. Moisture needs to be kept away from high clay content areas to prevent sliding of the rock layers within which they occur. Accordingly, in areas where there are Pierre shale formations, it is more critical that there be good drainage along the rail alignment.

After examining the issue in more detail and identifying the underlying causes of the potential problems associated with crossing the Pierre shale, SEA continues to believe that DM&E should be able, through the extensive geotechnical investigation of the alignment which would be required prior to final design and construction, to identify those areas of Pierre shale along the Extension Alternatives which would potentially pose a problem for rail line construction and operation. Once these areas are identified, measures (over-excavation of material beneath the rail bed, flattening of sideslopes to reduce their steepness,⁴⁵ larger drainage ditches adjacent to the railbed, and other techniques to remove the expandable material from the rail bed and or keep the water off of it) could be utilized to maintain the stability of the rail bed. It is not unusual for construction projects to proceed in terrain with a variety of geologic challenges. Indeed, existing rail lines and roadways occur throughout the project area, many of them built across Pierre shale. Accordingly, SEA is confident that construction of a safe rail line is feasible in this area, provided appropriate engineering and design measures are implemented. SEA has recommended appropriate geology mitigation in Chapter 12.

In assessing the potential project-related impacts to soils in the Draft EIS, SEA determined the length of each Extension Alternative that would cross soils with a high erosion hazard, approximately 221.3 miles for Alternative B and 208.2 miles for Alternative C. The proposed rail line would cross soils with high erosion hazards including soils that raised concerns due to water, wind, or steepness. As particular soils may have more than one of these hazards, SEA noted that the totals presented in the Draft EIS likely overestimated the total amount of these soils. However, SEA presented these totals as a way to compare the sensitivity of the soils crossed by each Extension Alternative to erosion.

⁴⁵ Flatter sideslopes require more horizontal area per vertical rise of slope. Therefore, SEA considered the need for extra excavation to stabilize sideslopes in the Draft EIS, using an average right-of-way width of 400 feet rather than the minimum 200 feet required to account for extra right-of-way requirements to establish stable sideslopes and rail bed.

Because several commenters complained about the manner in which SEA totaled the amount of erodible soils in the Draft EIS, SEA refined its approach and has included the miles of soils for each alternative with specific erosion hazards, as presented in Appendix L of the Draft EIS. Alternative B would cross approximately 112.0 miles of soil with a high water erosion hazard, 19.2 miles of soil with a high wind erosion hazard, and 103.8 miles of soil with a high erosion hazard due to steep slopes. Alternative C would cross approximately 95.4 miles of soil with a high water erosion hazard, 19.2 miles of soil with a high wind erosion hazard, and 91.1 miles of soil with a high erosion hazard due to steep slopes. As both Extension Alternatives would affect similar amounts of erodible soils, albeit Alternative C would affect less, and both would result in significant soil disturbance during construction, SEA reaffirms its conclusion in the Draft EIS that Alternatives B and C both would have significant impacts on soils. However, with appropriate mitigation, as outlined in Chapter 12, SEA believes these impacts can be minimized.

3.2.14 ENVIRONMENTAL JUSTICE

SEA's Original Analysis. SEA conducted an extensive analysis to determine the potential for disproportionate adverse impacts on minority or low-income communities, collectively referred to as environmental justice communities, as discussed in detail in Appendix D of the Draft EIS. SEA used data from the U.S. Bureau of Census for the census block group (the smallest geographic unit for which both race and income information is managed) to determine if environmental justice communities potentially were located along the Extension Alternatives. SEA's criteria for classification of a census block group as having environmental justice status were the same as it had used in the prior cases:

- at least one-half of the census block group is of minority status
- at least one-half of the census block group is of low-income status
- the percentage of minority status for the census block group is at least 10 percentage points higher than for the entire county in which the census block group is located
- the percentage of low-income status for the census block group is at least 10 percentage points higher than for the entire county in which the census block group is located.

Applying these criteria, SEA determined that three environmental justice communities would be crossed by the two remaining Extension Alternatives.⁴⁶ One environmental justice community was identified in each of the counties of Custer, South Dakota, and Weston and

⁴⁶ SEA identified a total of 14 environmental justice census block groups in the Draft EIS; however, 10 of these in Pennington County, South Dakota would be crossed by only Alternative D, which has been determined infeasible and dropped from evaluation in this Final EIS.

Niobrara, Wyoming. One additional environmental justice community in Shannon County would not be crossed by the proposed Extension Alternatives, although it could be indirectly affected. SEA determined that none of these communities would be disproportionately impacted by construction and operation of either Alternative B or C.

The Commenters' Concerns. SEA received comments from EPA and others involving the methodology SEA had employed in its environmental justice analysis in the Draft EIS. Additionally, commenters questioned why SEA used 1990 census data instead of more recent 2000 census data, and contended that ranchers and farmers should be considered low-income populations. Some commenters indicated that various communities along the rail line, including Rochester, had more recent census data for the particular communities.

Early in the preparation of the Draft EIS, SEA consulted with EPA concerning the methodology SEA intended to use to identify potential environmental justice communities. In this case, two EPA administrative regions are involved, Region 5 for Minnesota and Region 8 for South Dakota and Wyoming. SEA determined that each region uses different criteria for classification of a community as low-income. Region 8 considers individuals at or below the national poverty level as low-income. Region 5 uses 1.5 times the poverty level as the determinant for low-income status because individuals can be above the poverty level but still be struggling financially. SEA requested guidance from EPA on a uniform standard to be used for this project. However, EPA provided no indication of what criteria SEA should use. Therefore, because SEA has used the poverty level standard in the past and because Region 8, which covers the majority of the project area, also uses the poverty level, SEA decided to use the poverty level as the indicator of low-income status in the Draft EIS.

In its comments on the Draft EIS, EPA acknowledged the different criteria applied by Region 5 and Region 8 to identify environmental justice communities. EPA also concurred that one approach should be used to identify low-income populations. But because Region 5's criteria would be more inclusive and thus provide a more conservative analysis, EPA recommended that SEA consider income levels at and below 1.5 times the poverty level as low-income in this case. SEA has conducted additional analysis, as discussed later in this section, using Region 5's low-income criteria for this Final EIS.

Additionally, EPA recommended in its comments that SEA use state percentages for minority and low-income populations rather than the county percentages. EPA indicated that because counties are much smaller areas they may present a relatively homogeneous population, which may not be characteristic of the state as a whole. Additionally, EPA recommended that SEA compare the census block group percentages for minority and low-income populations to 1.5 times the state percentages for these groups. Classification of a census block group as either minority or low-income would be based on the census block group's percentages for these areas

being equal to or greater than 1.5 times the applicable state percentage. SEA has conducted additional environmental justice analysis based on EPA's recommendations, as discussed in detail in Appendix N. The results of SEA's analysis pertaining to the Extension Alternatives are discussed later in this section.

In response to comments questioning SEA's use of 1990 census data, SEA notes that it released the Draft EIS in September, 2000, at which time the 2000 census was still in-progress. During printing and distribution of the Draft EIS, the Bureau of Census began to make available preliminary results from the 2000 census. However, these data were generally at the state or county level. SEA's environmental justice analysis requires data at the census block group level, the smallest geographic unit for which both race and income data is obtained. SEA has consulted with the Bureau of Census to determine when census block group data for the 2000 census would be available, and learned that this level of census data would not be available until the summer of 2002 or later.

SEA recognizes that some counties and cities have developed their own estimates or projections of census-type data. However, in order for SEA to conduct a valid environmental justice analysis, the methodology used to develop data for all the affected census block groups, counties, and states must be consistent. Moreover, all data must be for the same sample period. It would not be appropriate for SEA to compare census data estimated or projected for the year 1999 with similar type data projected for the year 1995. The only consistent data set available for the project area in this case is the 1990 census. While SEA recognizes that this data may be somewhat dated, it does provide a useful means of comparison between project alternatives. Therefore, SEA has conducted its additional environmental justice analysis using 1990 census data.

SEA does not believe it would have been appropriate to identify low-income populations by occupation (i.e., ranchers and farmers). Some ranchers and farmers prosper even in difficult economic times for agriculture. Thus, identifying low-income populations by annual income level, as recommended by EPA, is preferable.

SEA's Additional Analysis For This Final EIS. SEA first sought to obtain census data to determine the percentage of persons considered to be low-income (income at or below 1.5 times the national poverty level) for South Dakota, Wyoming, and each census block group crossed by the Extension Alternatives. SEA learned that, in contrast to the number of individuals within each census block considered to be living in poverty, insufficient income data was available to determine the number of individuals living at or below the low-income level. This was due to data on income not being available on an individual basis at the census block group level. However, income data at the census block group level were available at the household level. SEA consulted with EPA and determined that, given the lack of better data, it was appropriate to

determine potential low-income census block groups based on the percentage of households at or below the low-income level. Therefore, SEA calculated the percentage of households for each state and census block group that would be considered low-income.

After calculating the percentage of households considered low-income for each census block group and the states, SEA multiplied the state percentage by 1.5 to obtain the percentage level above which EPA recommended that census block groups have environmental justice status. South Dakota was found to have a low-income household percentage of 38.4; Wyoming's was 36.0 percent. Increasing these percentages by 50 percent resulted in percentages of 57.6 and 54.0, respectively. Therefore, a census block group in Wyoming would need to have a percentage of low-income households of 54 percent or greater to be considered environmental justice under EPA's recommendation. Similarly, a census block group in South Dakota would need to have a percentage of low-income households of 57.6 percent or greater to be considered environmental justice under EPA's recommendation. Because these criteria percentages are greater than 50 percent (the criteria SEA applied in the Draft EIS), despite EPA's recommendation, SEA remained consistent with the 50 percent or more criteria applied in the Draft EIS. Moreover, SEA's approach is more conservative for South Dakota and Wyoming than EPA's recommendation. Based on this analysis, SEA determined four census block groups would meet the criteria for classification as environmental justice. These census blocks, one each found in Fall River and Custer counties, South Dakota and Converse and Weston counties, Wyoming, would be crossed by either of the remaining Extension Alternatives.

SEA next calculated the minority population percentage for each state, multiplied by 1.5, and compared it to the minority percentage for each census block group (calculated for the Draft EIS). Based on this comparison, SEA determined that no census block groups meet the criteria for environmental justice classification due to minority populations.

Following identification of the potential environmental justice communities, SEA conducted additional analysis to determine if these census block groups would be disproportionately affected by the proposed project. This analysis was done according to the methodology discussed in the Draft EIS, Appendix D. Based on this analysis, SEA determined that none of the environmental justice communities crossed by the Extension Alternatives would be disproportionately affected by the proposed project.

While SEA determined that no disproportionate impacts would occur to census block groups identified as environmental justice, SEA concluded that disproportionate impacts could occur to Native American populations, particularly the various Sioux Tribes in South Dakota. In conducting additional analysis on the potential impacts of the proposed project, SEA determined that significant impacts would occur to cultural resources and Traditional Cultural Properties. These impacts would occur mainly to archaeological resources associated with Native American

Tribes. Therefore, significant impact to these sites, which are an important cultural and spiritual part of Native American tradition, would result in a significant impact to Native Americans, a minority population.

Throughout the EIS process, SEA has recognized the potential significance of archaeological resources to Native American Tribes. SEA has initiated consultation with over 30 Native American Tribes, and, with the cooperating agencies, has worked with representatives of the Tribes to develop a Programmatic Agreement (PA) and Identification Plan (ID Plan) to address archaeological resources and provide for participation of the Tribes throughout the process of identifying and, if necessary, mitigating, potential impacts to cultural resources.

Additionally, at the suggestion of the Tribes, SEA and the cooperating agencies have worked with the Tribal representatives to develop a Memorandum of Agreement (MOA) intended to ensure that all the issues of importance to the Tribes are addressed. The MOA provides for continual participation by the Tribes in the EIS process, and affords them the opportunity to work with DM&E during project construction and operation to further address Tribal issues and concerns.

In light of the potentially significant impacts to important Tribal resources, SEA has included recommended mitigation conditions requiring compliance with the MOA and PA and that no specific environmental justice mitigation is required due to these measures providing the interested Tribes continued involvement and input as to the potential impacts and mitigation associated with cultural resources and traditional cultural properties.

3.3 SEA'S FINAL RECOMMENDATIONS

In developing its final recommendations, SEA has taken into consideration the entire range of impacts associated with the Extension Alternatives and the No-Action Alternative. This has presented a complex and complicated task due to the expansive nature of the project, including two states with differing physical characteristics (such as types of wildlife, vegetation, land use, among others), and the variety of resources potentially significantly impacted.

SEA received hundreds of comments on the potential environmental impacts and SEA's conclusions presented in the Draft EIS. Generally, these comments apply to a particular part of the project, for instance the portion in Wyoming or South Dakota. Additionally, many comments, particularly those from state and local agencies, targeted specific resources for which these agencies have management or regulatory responsibility. Ultimately, however, it is SEA's

responsibility to evaluate, review, and consider **all** of the impacts to **all** the resources along **all** of the alternatives and develop a **single** recommended alternative.

In this case, each Extension Alternative would have impacts on the environment. Additionally, no one alternative would have the least impact on all the resources evaluated. Also, impacts within a resource category may differ for each alternative. For example, one alternative may have greater impacts on big game but lesser impacts on sage grouse leks, both impacts to wildlife and both important considerations. Such a situation requires SEA to weigh the degree of the environmental impact of each Alternative, viewed as a whole, and the extent to which the impacts are capable of being effectively mitigated.

After careful and thorough consideration of all the available information on alternatives, SEA has developed recommendations for the proposed project. These recommendations address each of the components associated with extending DM&E's existing rail line into the PRB, including:

- overall rail line extension - Alternatives B or C versus the no-action alternative (Alternative A)⁴⁷
- alternative route variations for the Spring Creek area - Spring Creek and Phiney Flat Segments
- alternative route variations for the Hay Canyon area - Oral, Hay Canyon, and WG Divide Segments
- mine loop route variations - North Antelope (East and West Loops) and Black Thunder (North and South Loops)

SEA's specific recommendations and its rationale are presented in the following sections.

3.3.1 THE ALTERNATIVES CONSIDERED

In the Draft EIS, SEA conducted extensive analysis of the reasonable and feasible alternatives for extending DM&E's existing rail system into the PRB. These alternatives included the No-Action alternative (Alternative A), DM&E's proposed action alternative (Alternative B), and the modified proposed action alternative (Alternative C) — designed to avoid some of the potential environmental impacts of Alternative B. SEA concluded in the Draft EIS, that although Alternative A would not result in many of the potential impacts of the action

⁴⁷ SEA also analyzed an existing transportation corridor alternative (Alternative D) in the Draft EIS. However, as discussed above, Alternative D (and a Modified D Alternative) have since been determined unreasonable and have been eliminated from further consideration.

alternatives, it nevertheless would have the potential to result in significant impacts to safety and rail service. Additionally, Alternative A would not meet the stated purpose and need for the project, to allow DM&E to generate the necessary revenues to rehabilitate its existing rail line and provide a third competitive and efficient rail carrier access to the PRB. SEA reaffirms here its conclusions in the Draft EIS regarding Alternative A. Therefore, the remaining issue for SEA regarding the proposed new rail line is which action alternative, Alternative B or C, would be environmentally preferable, should the Board decide to approve the project.

SEA determined in the Draft EIS that both Alternatives B and C would have potentially significant environmental consequences to land use, geologic hazards, soils, paleontological resources, water resources, wetlands, air quality, vegetation, cultural resources, and aesthetics. Additionally, SEA determined that Alternative B could have significant impacts to threatened and endangered species. SEA also determined that, if the mitigation recommended in the Draft EIS were imposed and implemented, some of these impacts could be reduced, potentially below levels of significance, but that certain potentially significant adverse environmental impacts, particularly to land use, aesthetics, and cultural resources, would likely still result. Therefore, based on the information available when the Draft EIS was issued, SEA indicated that while it did not believe that either alternative could be viewed as environmentally preferable, Alternative C appeared to be the least environmentally intrusive Extension Alternative.

As noted above, SEA has conducted extensive additional analysis in a variety of resource areas in preparing this Final EIS. The following compares the Extension Alternatives based on each of the resources considered to potentially be significantly impacted by the proposed project, considering the information contained in the Draft EIS, additional analysis in the Final EIS, and SEA's final recommended mitigation.

3.3.1.1 Safety

Both Extension Alternatives would potentially result in significant impacts on safety, although the impacts of Alternative B would be slightly greater. However, DM&E has submitted a far-reaching grade crossing protection plan for Alternative C and SEA is recommending that the Board require DM&E to comply with it as part of any project approval. If SEA's recommended condition is imposed and implemented, the potential safety impacts of Alternative C would be effectively mitigated. DM&E has not submitted such a plan for Alternative B, but the same crossing protection plan submitted for Alternative C could generally be implemented for Alternative B, if the Board approved that Alternative. Therefore, with mitigation, SEA has determined neither Alternative B or C would have a significant impact on safety.

3.3.1.2 Geology

Potentially significant impacts regarding geology would result from the proposed new line because each of the Extension Alternatives would cross extensive areas of Pierre shale which could be unstable, resulting in landslides or slumping. Landslides or slumping would cause long-term maintenance problems and could jeopardize safe operation of the rail line. However, as noted above and in the Draft EIS, appropriate design and engineering measures exist to allow DM&E to identify the potential problem areas, address them, and reduce the likelihood of future problems. Alternative B, because of the numerous pinch-points along the Cheyenne River, would likely require more extensive measures to ensure stability and safety of the rail bed along that alignment. These additional measures would likely result in greater impacts to the Cheyenne River and soils on adjacent areas due to the increased earthwork required to construct a suitable rail bed at these locations.

3.3.1.3 Soils

Overall, the potential impacts from both Extension Alternatives would be similar and potentially significant. However, mitigation measures recommended in Chapter 12 of the Final EIS would serve to reduce soil losses and disturbance during construction. Both alternatives cross similar amounts of erodible soils, the impacts of which could also be addressed through implementation of SEA's recommended mitigation. In short, impacts to soils, while potentially significant, would be similar between the two alternatives and could likely be mitigated to levels below significance.

3.3.1.4 Paleontological Resources

Both Extension Alternatives have the potential to have significant impacts on paleontological resources. Alternative C could potentially have a greater impact because it would affect slightly more areas with a Probable Fossil Yield Classification (PFYC) of 5, the level with the highest potential for these resources. However, while fossils occur in particular rock strata, they are not evenly distributed, but occur somewhat randomly. Therefore, it is possible that few, if any, fossil resources would be encountered in a high-probability area and for significant fossil resources to be encountered in a low-probability area. SEA is recommending mitigation to minimize the likelihood of potentially significant impacts.

3.3.1.5 Land Use

Both Extension Alternatives would have potentially significant impacts on agricultural lands, particularly rangeland and USFS lands. DM&E has developed a Land Use Mitigation Policy and Plan, and SEA has recommended that compliance with it be imposed as a condition of any project approval. Based on the plan and applicable laws that provide for landowner compensation, discussed previously in this Chapter, SEA believes that many of the impacts on landowners can be minimized.

Additionally, the USFS has prepared a mitigation plan (included as Attachment B to Chapter 12) designed to mitigate the impacts of Alternative C, the USFS identified preferred alternative, should the Board ultimately approve the project. Implementation of the USFS mitigation plan would serve to minimize the impacts of Alternative C to Federal lands. No such plan has been developed for Alternative B, and SEA believes it would be more difficult to mitigate the land use impacts of Alternative B. Alternative B would affect approximately 13.0 more miles of USFS land, including several RARE II and Roadless areas which are sensitive to encroachments such as a rail line. Additionally, it would be difficult to mitigate the potential impacts of a new rail line along the portion of the Cheyenne River the USFS considers eligible as a Wild and Scenic river.

3.3.1.6 Water Resources

Both Alternatives B and C would have potentially significant impacts to water resources, particularly the Cheyenne River. Alternative B would have substantially greater impacts to water resources due to crossing 20 perennial streams and 623 intermittent streams, compared to 14 perennial and 520 intermittent streams for Alternative C. Both Alternatives cross the Cheyenne River twice at locations where the river is listed as impaired. However, Alternative B would be within 500 feet of the Cheyenne River for 9.11 miles and contain several pinch-points which could result in significant impacts to the river. Alternative C, in contrast, would be within 500 feet of the Cheyenne River for only 4.98 miles and would have no pinch-points. Additionally, the impacts of Alternative C could be more effectively mitigated due to the absence of pinch-points. SEA therefore concludes that Alternative C would have the fewest effects on water resources and that the potential impacts could likely be reduced to insignificant levels with SEA's recommended mitigation.

3.3.1.7 Wetlands

Alternative B would impact approximately 90.8 acres of wetlands and Alternative C would impact approximately 93.9 acres of wetlands. Each Extension Alternative would have potentially significant impacts on wetlands. However, as part of the COE Section 404 permit process, DM&E would be required to develop mitigation for potential wetland impacts, and SEA

is recommending that the Board impose a condition requiring that DM&E obtain and comply with its 404 permit, thereby minimizing or eliminating any potential loss of wetlands.

3.3.1.8 Air Quality

Neither of the Extension Alternatives would have an adverse impact on air quality, based on National Ambient Air Quality Standards and the Prevention of Significant Deterioration emissions increments for Class II airsheds, due to locomotive emissions of criteria pollutants. As such, the project would have no effect on the air attainment status of the project area.

SEA also evaluated the potential impacts of the Extension Alternatives upon visibility at Class I airsheds, including Badlands National Park. Both Alternatives B and C would have similar impacts to visibility, particularly at operation levels at and above 50 million tons of annual coal transport.

As part of this project, SEA has developed an air quality working group to study the impacts of the proposed project at Badlands National Park and other Class I airsheds and develop mitigation measures to minimize impacts to these visual resources. SEA has recommended, as part of any mitigation imposed by the Board should the project be approved, that DM&E comply with the recommendations of this working group. Additionally, SEA has included other recommended mitigation measures intended to minimize impacts to Class I airsheds.

3.3.1.9 Vegetation

Construction of either Alternative B or C would require that a substantial amount of vegetation be cleared, much of which would be converted to rail line right-of-way. Because revegetation measures could be implemented to reestablish vegetative cover, the potential effect of loss of vegetation could be mitigated. Therefore, this project likely would not result in significant adverse impacts for common vegetative communities found throughout the area, including grassland, coniferous forest, and sagebrush shrublands.

However, deciduous woodland and riparian vegetation are uncommon in the project area and provide valuable habitat for eagles and other raptors, wild turkey, deer, and elk. Based on comments from the USFWS and South Dakota Department of Game, Fish and Parks, it appears that loss of deciduous woodlands, particularly riparian woodlands, may be difficult to mitigate successfully. Both Extension Alternatives would convert deciduous woodlands to rail line right-of-way, approximately 24.2 acres for Alternative B and 33.9 acres for Alternative C. Although Alternative B would affect less overall deciduous habitat, it would affect more riparian areas because it is closer to the Cheyenne River for over 9 miles, compared to less than 5 for

Alternative C. Therefore, it appears that Alternative B would have a somewhat greater impact on sensitive riparian vegetation than Alternative C.

SEA understands that the COE, USFWS, and South Dakota Department of Game, Fish and Parks are working toward development of a mitigation plan, as part of the COE permitting process, to minimize impacts to riparian habitats. SEA believes it is likely that significant adverse impacts to vegetation will be minimized as part of this process. Additionally, SEA has developed additional recommended mitigation measures to minimize impacts on vegetation resources.

3.3.1.10 Cultural Resources and Traditional Cultural Properties

Construction of either Extension Alternative is likely to result in significant adverse impacts on cultural resources and Traditional Cultural Properties. It is likely that significant archaeological sites will be discovered within the rail line alignment. In some cases, it may be possible to re-align the rail line, but in other cases this will not be possible, and the site will require excavation. Other cultural resources sites will likely be inadvertently discovered during construction and some cultural material destroyed. Construction and operation of a rail line would conflict with the historic setting of many traditional cultural properties and would adversely affect their character.

Although procedures for identification, mitigation, and protection of cultural resources have been developed through coordination among SEA, interested Tribes, cooperating agencies, the Advisory Council on Historic Preservation, State Historic Preservation Offices, and DM&E, and incorporated into the Memorandum of Agreement, Programmatic Agreement, and Identification Plan developed for the project, adverse, and likely significant, impacts are expected to occur to cultural resources and Traditional Cultural Properties. Impacts to archaeological resources could be partially mitigated through excavation. However, excavation is considered an adverse impact under the National Historic Preservation Act and by the Tribes. Adverse impacts to Traditional Cultural Properties would be difficult to mitigate due to their being affected by noise and changes in the viewshed. Overall, SEA expects significant adverse impacts to these resources, regardless of which Extension Alternative may be selected.

3.3.1.11 Aesthetics

Both Alternative B and C would create a visual intrusion into the landscape. Train construction and operation would affect the current scenic character of the project area as well as the remoteness and feeling of vastness this undeveloped area currently provides. These impacts would be difficult to mitigate.

Because of the similarities in the route alignments for Alternative B and C, the impacts of the two alternatives on aesthetics would be generally the same. However, Alternative B would have greater impacts, as it involves new construction in more areas along the Cheyenne River considered eligible for classification as Wild and Scenic (and consequently potentially greater impacts on the eligibility of the Crazy Horse Scenic Byway), cross more National Grasslands with a visual quality objective (VQO) of partial retention (7.5 miles verses 5.1 miles for Alternative C), and runs along the scenic Cheyenne River valley for a greater distance than Alternative C (9.11 miles verses 4.98 miles).

3.3.1.12 Threatened and Endangered Species

Because of the similarity of the location and habitat types crossed by the two alternative alignments, potential impacts to threatened and endangered species would generally be similar for Alternatives B and C. However, Alternative B would have potentially adverse impacts on the black-footed ferret by crossing a prairie dog-habitat area identified for reintroduction of this species into the wild. By contrast, Alternative C would avoid this area and likely have little, if any, impact on black-footed ferrets.

3.3.1.13 Summary

After considering all the available information, SEA has determined that Alternatives B and C would have basically the same impacts to safety, soils, paleontological resources, land use, wetlands, air quality, and cultural resources. Appropriate mitigation would reduce the significant impacts on safety, soils, land use, and wetlands to levels below significance. Even with SEA's recommended mitigation, however, significant impacts to cultural resources and Traditional Cultural Properties are likely. There also could be significant effects on paleontological resources and air quality (visibility at Class I airsheds) if the new line is constructed.

For the remaining resources potentially significantly impacted, including geology, water resources, vegetation, aesthetics, and threatened and endangered species, SEA has found differences in potential impacts, assuming that SEA's recommended mitigation is implemented. In each of these areas, Alternative C — which was developed to avoid a number of environmentally sensitive areas — would have less potentially significant effects than Alternative B. Alternative C would avoid steep slopes and pinch-points along the Cheyenne River, which could require extra earthwork to stabilize, placement of fill in the Cheyenne River, and relocation of the river channel. Additionally, Alternative C would be out of the Cheyenne River valley to a greater extent than Alternative B, which generally follows the river for the majority of its length, and would be within 500 feet of the river for over four miles less than Alternative B. By avoiding the Cheyenne River, impacts to the waters of the river and the

riparian vegetation and habitat along the river would be reduced. Alternative C also would avoid potentially problematic geologic areas, and retain the eligibility of the Cheyenne River for Wild and Scenic classification. Finally, Alternative C would avoid the large prairie dog complex under consideration for reintroduction of black-footed ferrets.

In contrast, the No-Action Alternative (Alternative A) would prevent impacts to a variety of resources. However, the No-Action Alternative would result in potentially significant impacts of its own, and would not meet the purpose and need for the project.

In these circumstances, SEA concludes that either of the Extension Alternatives would have significant environmental impacts. However, significant impacts from the construction and operation of the alternatives would generally either be similar between Alternatives B and C or be less for Alternative C. As a result, if the Board decides to give final approval to the PRB Extension Project, Alternative C would be the environmentally preferred Alternative. This conclusion is consistent with the USFS position that if the project is approved, Alternative C represents the USFS preferred alternative.⁴⁸

3.3.2 ALTERNATIVE ROUTE VARIATIONS

Several alternative route variations for portions of Alternatives B and C have been developed and analyzed as part of this EIS process to respond to engineering and environmental issues. These short variations are located in the Spring Creek and Hay Canyon areas and to access the Black Thunder and North Antelope coal mines. SEA's final conclusions on these variations are discussed below.

3.3.2.1 Spring Creek and Phiney Flat Alternative Route Variations in South Dakota

In the Draft EIS, SEA concluded that the Spring Creek Segment (Figure 3-23) would have significant impacts to water resources, wetlands, and vegetation and that the Phiney Flat Alternative (Figure 3-23) would largely avoid these impacts. SEA stated that the Phiney Flat Alternative would potentially have substantially greater impacts to paleontological resources, based on its alignment through formations known to have a higher potential for containing significant fossil resources. The Spring Creek Segment would also have some potentially

⁴⁸ USFS explained in a letter dated February 14, 2000, if the Board determines new rail line is in the national interest, then USFS would consider Alternative C as the preferred alternative, with some modifications. Otherwise, USFS would prefer Alternative A, No-Action.

significant impacts to paleontological resources. As the Phiney Flat Alternative appeared to create fewer impacts which would be more capable of being mitigated than the Spring Creek Alternative, SEA preliminarily determined that the Phiney Flat Alternative would be environmentally preferable to the Spring Creek Segment. Commenters, particularly the State of South Dakota, generally supported SEA's determination.

SEA also received comments from the Native American Tribes expressing concern for archaeological resources in the Spring Creek and Phiney Flat areas. In the Draft EIS, SEA determined that both the Spring Creek and Phiney Flat alignments had a high potential for encountering archaeological resources. Neither of these alignments was surveyed for cultural resources, as discussed previously in Section 3.2.6. However, based on the results of the areas that were surveyed, it appears that Spring Creek has a greater potential to contain not only more sites, but more significant sites as well. This is primarily due to the Spring Creek Segment's location within and along the Spring Creek drainage. In contrast, the Phiney Flat Segment is mainly located outside of any significant drainages and therefore would be less likely to contain cultural resources sites. Additionally, the Phiney Flat area is relatively open and flat, providing potential opportunities to shift the alignment slightly to avoid a significant cultural site if one were to be identified within the proposed right-of-way.

For all of these reasons, SEA believes the Phiney Flat Alternative would be the environmentally preferred construction alternative for the Spring Creek area.

3.3.2.2 Hay Canyon Segment, Oral Segment, and WG Divide Alternative Route Variations in South Dakota

In the Draft EIS, SEA identified and evaluated three alternative alignment variations for the Hay Canyon area (Figure 3-24). Originally, the Oral Segment, which generally ran along the Cheyenne River and utilized a portion of DM&E's existing rail line between Oral and Smithwick, South Dakota, had been included as part of Alternative B. The Hay Canyon Segment, which generally extended along Hay Canyon, was developed as part of Alternative C as part of an overall attempt to move the proposed rail line away from the Cheyenne River. It was then determined that both would have potentially significant impacts on wetlands and riparian habitats which could be difficult to mitigate effectively. Therefore, a third variation, the WG Divide Alternative, was developed to provide an alignment for evaluation that would minimize impacts to these riparian and wetland areas. However, the WG Divide Alternative would impact private lands within the Angostura Irrigation District and associated facilities administered by the Bureau of Reclamation (Reclamation). Reclamation expressed concerns to SEA that railroad construction and operation under the WG Divide Alternative could have significant impacts to land use, irrigation facilities, and economics within the Angostura Irrigation District. In these circumstances, SEA requested additional comment from agencies

and the public to assist in identifying an environmentally preferable extension alternative. SEA indicated that if an environmentally preferable extension alternative could be selected, it would be identified in the Final EIS.

Several agencies submitted comments on the Hay Canyon area route variations. The USFWS indicated, as it had previously, that it preferred the WG Divide Alternative due to avoiding sensitive wetlands and riparian areas along the Cheyenne River and Hay Canyon. The State of South Dakota expressed similar views. Reclamation requested additional analysis of the potential economic impacts associated with construction of new rail facilities across irrigated lands and noted that if the project is approved and the repayment contract and facilities at Angostura are affected, appropriate mitigation would be necessary. SEA also received comments regarding the project's potential impact to waters classified as impaired under the Clean Water Act, Section 303(d).

Based on these comments, SEA conducted additional analysis of the Hay Canyon area alternatives. Additionally, SEA used the results of cultural resource surveys to evaluate the three route variations for their potential to encounter cultural resources.

In the Draft EIS, SEA determined that the Oral Segment would affect 4.5 miles (218.2 acres) of cropland, including 1.5 miles (72.7 acres) of irrigated land, and 13.9 miles (673.9 acres) of rangeland. The Hay Canyon Segment would cross 1.8 miles of cropland (87.3 acres), all of which is likely irrigated, and 14.6 miles (707.9 acres) of rangeland. WG Divide Alternative would cross approximately 6.3 miles (305.5 acres) of cropland, including 5.8 miles (281.2 acres) of irrigated land, and 9.0 miles (436.4 acres) of rangeland.

Subsequent to issuance of the Draft EIS, Reclamation conducted additional review of potential land impacted by the proposed routing variations. Reclamation determined that the WG Divide Alternative could impact up to 437 acres of lands associated with the Angostura Project and Irrigation District. Therefore, SEA has revised its acreage impacts in this Final EIS to be 437 acres of irrigated lands for the WG Divide Alternative.

In preparing this Final EIS, SEA consulted with Reclamation to determine the potential economic losses that would be associated with conversion of agricultural lands to rail line right-of-way. SEA determined that rangeland provides \$17 of annual income per acre and that dryland farmland provides \$116 per acre. SEA also determined, in consultation with Reclamation, that irrigated lands would generate approximately \$227 per acre in crop revenue and an additional \$150 in livestock revenue, totaling \$372 per acre of annual revenue. Based on these annual revenues, SEA has calculated the potential lost annual revenue for each Hay Canyon alternative. These economic impacts are presented in Table 3-6.

Alternative	Acres Dry-land Crops	Annual Revenue Lost	Acres of Irrigated Land	Annual Revenue Lost	Acres of Rangeland	Annual Revenue Lost	Total Annual Revenue Lost
Oral Segment	145.5	\$16,878	72.7	\$27,044	673.9	\$11,456	\$55,378
Hay Canyon	0	0	87.3	\$32,476	707.9	\$12,034	\$44,510
WG Divide	0	0	437.0	\$162,564	436.4	\$7,419	\$169,983

Based on SEA's further analysis, it appears the WG Divide Alternative would have the greatest economic impact to annual farm revenues, approximately \$169,983. While these revenue losses may be significant to individual farmers, overall, they are insignificant compared to the millions of dollars in construction earnings, sales and use taxes, and employment income expected to be generated by this project in Fall River and Custer Counties. Additionally, farmers and ranchers would be compensated for the lost value of their properties, which can be expected to include consideration of revenue losses due to land converted to rail line right-of-way.

However, the loss of irrigated lands and associated revenues associated with the WG Divide could impact the ability of the Angostura Irrigation District and its members to fund the \$200,000 annual District budget, as well as payments of approximately \$26,000 to Reclamation for water service and the annual project construction repayment. Additionally, removal of lands from irrigation could result in remaining water users paying a higher price for water in order to generate sufficient funds for the District to cover its costs and fund payments to Reclamation.

In its comments on the Draft EIS, Reclamation expressed concern for these issues and indicated that approval of the WG Divide Alternative would require implementation of appropriate mitigation to protect Angostura facilities and maintain the economic and financial viability of the District. SEA is aware that Reclamation and DM&E have developed a Memorandum of Agreement (MOA) which would become effective as part of any permit by Reclamation for a routing alternative, particularly WG Divide, that would cross Reclamation and Irrigation District lands (See Appendix E). This MOA is designed to ensure that Reclamation's concerns are appropriately addressed, and SEA is recommending that the Board impose a condition requiring DM&E to comply with the MOA, if the WG Divide Alternative is approved and constructed.

As part of its additional analysis, SEA also determined that areas of the Cheyenne River are listed as impaired by the State of South Dakota, under the Clean Water Act, Section 303(d). All of the Hay Canyon Alternatives would cross the Cheyenne River. However, none of them would cross near any location where the river is currently considered to be impaired.

SEA received comments from Native American Tribes expressing concern for cultural resources potentially found along the Hay Canyon Alternatives. None of the Hay Canyon Alternatives has been surveyed for cultural resources. Based on the results of the cultural resource surveys that have been conducted in South Dakota, SEA reviewed the alignments of the Hay Canyon Alternatives to determine their potential to contain cultural resources sites. SEA determined that the Oral Segment has the greatest potential to contain many and potentially significant cultural sites, followed by the Hay Canyon Segment. This is largely due to these two alignments generally being located along an historic water source. The WG Divide Alternative, while having some potential to contain cultural sites, is the least likely to be impacted. The WG Divide Alternative does not follow any particular drainage. As much of the area along the alignment is cropland, any cultural sites found in these areas would likely have been disturbed or destroyed through normal agricultural practices.

In order to identify an environmentally preferred routing alternative, SEA has looked again at the potential impacts of the three alternatives, and the degree to which these impacts could be reduced by mitigation efforts. SEA focused on water resources, riparian areas, wetlands, socioeconomics, and cultural resources in reaching its conclusion.

SEA has determined that, of the three alternatives, the Oral Segment and Hay Canyon Segments would have potentially significant impacts to water resources (including the Cheyenne River and Hay Canyon stream), riparian areas, wetlands, and cultural resources. Moreover, these significant impacts would be difficult to mitigate.

In contrast, the WG Divide Alternative would have substantially less impact to water resources, riparian areas, wetlands, and cultural resources, but would result in thousands of dollars in agricultural revenue losses each year. These losses, while potentially significant to individual farmers and ranchers, would be much less than taxes and salaries paid by DM&E as part of construction and operation of the proposed project. Additionally, the costs to mitigate the wetlands impacts of the Oral and Hay Canyon Segments could be several hundred thousand dollars more than for the WG Divide Alternative, and the riparian impacts could not be effectively mitigated. Finally, Reclamation and DM&E have developed an MOA that would be implemented as part of any permit issued by Reclamation for impacts to irrigation facilities and irrigated lands.

Because it now appears that significant impacts to irrigated lands associated with the WG Alternative can be effectively mitigated, SEA has determined that the WG Divide Alternative is the environmentally preferred route variation.

3.3.2.3 Black Thunder Mine Loop Alternative Route Variations in Wyoming

SEA indicated in the Draft EIS that two alternatives were evaluated for accessing the Black Thunder coal mine, Black Thunder North Mine Loop and Black Thunder South Mine Loop (Figure 3-25). SEA noted that the Black Thunder South Mine Loop would have greater impacts to safety, geological hazards, soils, paleontological resources, land use, Federal lands, surface waters, wetlands, vegetation, wildlife (except to raptors), transportation, cultural resources, and aesthetics. The Black Thunder North Mine Loop would have greater, albeit minimal, impacts to Federal grazing pastures, state lands, and raptor nests. Based on its detailed evaluation in the Draft EIS, SEA concluded that the Black Thunder North Mine Loop was the environmentally preferred route variation.

SEA received no comments on its analysis or conclusions concerning the Black Thunder Mine Loop alternatives. Therefore, SEA reaffirms its conclusion in the Draft EIS that the Black Thunder North Mine Loop is the environmentally preferred route variation.

3.3.2.4 North Antelope Mine Loop Alternative Route Variations in Wyoming

SEA evaluated two route variations in the Draft EIS to access the North Antelope coal mine, the North Antelope East Mine Loop and North Antelope West Mine Loop (Figure 3-26). SEA concluded that neither of these alternatives would have significant environmental impacts. Impacts from both alternatives would be minimal or could be effectively mitigated to minimal levels. SEA determined that the West Mine Loop would have greater impacts to safety, geological hazards, soils, paleontological resources, land use, surface waters, wildlife, threatened and endangered species habitat, and transportation. The East Mine Loop would have greater impacts on soils with an erosion hazard, number of Federal grazing pastures crossed, and wetlands. Because the East Mine Loop would have fewer impacts on a greater number of resources, all of which would be minimal, SEA identified the North Antelope East Mine Loop as the environmentally preferred route variation.

SEA received no comments on its analysis or conclusions and reaffirms here that the North Antelope East Mine Loop is the environmentally preferred route variation.

CHAPTER 4
EXISTING RAIL LINE, RAIL YARDS, AND SIDINGS

This chapter discusses SEA's additional analysis in response to comments on the Draft EIS's evaluation of the potential impacts of rehabilitating DM&E's existing rail line (Section 4.1), construction of rail yards (Section 4.2), and construction of new sidings (Section 4.3).

In its Application to the Board, DM&E identified two primary purposes for its proposed PRB Expansion Project. According to DM&E, the first purpose would be "to create a third major rail carrier with independent access to the 11 PRB coal mines" that would offer "competitive advantages and operational efficiencies not available on any railroad presently serving the PRB and providing new, more-efficient, lower-cost routings for many PRB coal movements to Midwestern utilities." DM&E's second purpose for the proposed project, as articulated in its Application, is "to transform DM&E's existing operations so that it can offer existing and prospective shippers of non-coal commodities vastly improved service, new marketing opportunities, and more efficient and safer operations." To accomplish these purposes, DM&E proposed the construction of new rail facilities including new rail line track, sidings, and rail yards, as well as rehabilitation of its existing rail line across South Dakota and Minnesota (Figure 4-1). SEA's evaluation of the proposed new rail line extension track and alternatives is discussed in Chapter 3.

SEA received a broad range of comments regarding the potential environmental impacts of the rehabilitation of DM&E's existing rail line and the construction and operation of project-related rail yards. These comments ranged from those requiring simple clarification of SEA's statements in the Draft EIS to comments requesting that SEA conduct additional analysis for the Final EIS. In the following sections of this chapter, SEA provides additional analysis and more extensive discussion on comments that required it. This chapter also presents SEA's recommendations for a preferred alternative for each project component, if the Board ultimately decides to approve the project. Appendix B includes SEA's summaries and responses to all of the substantive comments on the Draft EIS.

4.1 EXISTING RAIL LINE

Chapter 1 of the Draft EIS contained a detailed discussion of the condition of DM&E's existing rail line, including speed and weight restrictions and DM&E's safety record. To provide a more efficient route for coal transport and a more efficient and safe transportation system for its existing shippers (as stated by DM&E in its project purpose and need noted previously), DM&E stated that it must rehabilitate its existing rail line across South Dakota and Minnesota, approximately 600 miles of rail line. DM&E indicated that such system-wide improvements would only be possible with revenue generated through the extension of its existing rail line to connect with coal mines in the PRB.

As discussed in the Draft EIS, the Board has the authority to license new rail lines accessing new markets (49 U.S.C. 10901). Railroads are not required to seek or receive the Board's authority to rehabilitate or improve their existing systems.¹ When DM&E submitted its Application to the Board in February of 1998, it sought the Board's approval to construct and operate a new rail line extending from its existing rail line near Wall, South Dakota into the PRB. DM&E's Application did not seek the Board's approval of DM&E's plans to rehabilitate its existing rail line in South Dakota and Minnesota because railroads can repair, replace, or rehabilitate their existing rail lines without seeking Board authority.

In addition to its Application pending before the Board, however, DM&E is seeking other permits and approvals from the Federal cooperating agencies. One of these agencies, the U.S. Army Corps of Engineers (COE), will consider an Application from DM&E to dredge and fill waters of the United States and adjacent wetlands as part of the reconstruction of existing rail infrastructure. Therefore, the COE requested that SEA include an analysis of the potential environmental impacts of activities associated with DM&E's upgrading or rehabilitating its existing system so that the COE will have the information it needs for its permitting decisions. Normally, the Board would not examine these impacts. However, to prepare a document that satisfies the regulatory requirements of all the cooperating agencies, including the COE, this EIS has assessed the potential environmental impacts of the rail line rehabilitation.

In assessing the reconstruction of DM&E's existing system in the Draft EIS, SEA considered both Action and No-Action Alternatives. The No-Action Alternative would result from the Board's denial of DM&E's Application to construct and operate a new rail line extension into the PRB to transport coal. Under this alternative, DM&E could rehabilitate and reconstruct its existing rail line, but no new construction outside the existing rail right-of-way would be approved. DM&E has stated that it is unlikely that it could undertake the overall rehabilitation of its existing rail line without the expansion into the PRB. Moreover, as noted in the Draft EIS and in the Board's decision issued December 10, 1998, the service DM&E currently offers to its shippers would probably continue to deteriorate, or even cease if it does not rebuild its existing rail line. Therefore, SEA preliminarily determined that rather than simply maintaining the status quo, the No-Action Alternative could result in potentially significant

¹ The Board does consider the environmental impacts of increased operations over an existing line if the increase would not occur but for a project that requires Board approval.

impacts to some environmental resources, such as safety and socioeconomics. Furthermore, under the No-Action Alternative, the Board would be unable to impose any mitigation to minimize these impacts.

The Action Alternative for rehabilitation of the existing rail line that SEA considered in the Draft EIS would result from the Board's grant of final authority to construct and operate a new rail line extension into the PRB. This alternative would involve the total reconstruction and rehabilitation of DM&E's existing rail line across southern Minnesota and central South Dakota to transport unit coal trains. Despite the fact that Board approval is not required for rehabilitation, DM&E states that the Board's decision on DM&E's proposed expansion will effectively control whether the existing system will be rehabilitated.

SEA determined in the Draft EIS that rehabilitation of the existing rail line and operation of up to 34 unit coal trains per day could have significant impacts on wetlands, noise sensitive and vibration sensitive receptors, water and cultural resources, safety (increasing highway/rail grade crossing accidents but also improving rail safety for hazardous materials transport), and transportation (causing emergency-vehicle delays, but improving rail operations). However, unlike the No-Action Alternative, if the Board approves the Action Alternative, it may impose mitigation to minimize potential impacts. SEA also determined that the Action Alternative would have significant positive economic impacts from increased employment and railroad-paid taxes.

As presented in Chapter 6 of the Draft EIS, SEA determined that the No-Action Alternative would not allow DM&E to satisfy any of its identified purposes and needs for this project. Under the No-Action Alternative, DM&E would not construct new rail line into the PRB, providing additional competition for transport of the region's coal. Moreover, since DM&E has stated that it requires revenues from a new line into the PRB to make it financially viable, DM&E would not likely rehabilitate its existing system for improved and continued rail service to existing shippers if the proposed expansion is denied. In contrast, an upgraded, rehabilitated rail line could result in substantial safety benefits to DM&E's existing rail operations and could, in turn, enhance safety in the communities and surrounding rural areas in which DM&E operates.

An increase in rail operations — specifically, to a maximum of 34 unit coal trains — could counter some of the substantial safety improvements that might result from a totally upgraded DM&E rail line through Minnesota and eastern South Dakota. But because some potential safety impacts could be mitigated, SEA indicated in the Draft EIS that, based on information present at issuance of the Draft EIS and the Board's ability to impose appropriate mitigation, the Action Alternative — expansion and rehabilitation of the existing rail line — is environmentally preferred.

SEA received numerous comments on potential impacts of reconstructing and operating up to 34 unit coal trains along the existing rail line, predominantly addressing the existing rail line for which communities proposed bypasses (Pierre and Brookings, South Dakota; and Rochester, Minnesota) or DM&E proposed connecting track (Mankato, Minnesota). SEA reviewed and responded to these comments in this Final EIS at Appendix B and, for those requiring additional analysis, in Chapters 5 through 9. However, some comments, particularly those submitted by EPA and state agencies in South Dakota and Minnesota, were applicable to the entire rail line, not just portions of the existing rail line in or near Pierre, Brookings, Rochester, and Mankato. Those comments involved these topics:

- Grade-crossing safety
- Evaluation of state-listed threatened and endangered species
- Impacts on impaired surface waters under the Clean Water Act - Section 303(d)
- Potential increases in rail traffic due to proposed recreational excursion trains
- Structural damage due to project-related increases in ground vibration and
- Methodology for identifying potential environmental justice communities

The following sections discuss SEA's additional analysis to address these comments.

4.1.1 SEA's RECOMMENDATION

SEA conducted an extensive analysis of the potential environmental impacts associated with rehabilitation of the existing DM&E rail line in the Draft EIS. In preparing this Final EIS, SEA reviewed the comments on its analysis in the Draft EIS and conducted additional analysis as appropriate. As a result, SEA has determined that the conclusions presented in the Draft EIS concerning rehabilitation of the existing rail line are still valid. SEA found that potential environmental impacts presented in the Draft EIS could be mitigated, or in the case of structural damage from increased vibration, were overstated in the Draft EIS. Therefore, because rehabilitation of the existing rail line would produce substantial safety improvements to rail operations and public safety at highway/rail grade crossings and since other impacts, including noise, could be reduced through mitigation, SEA prefers the Action Alternative, if the Board approves the proposed project. Chapter 12 presents SEA's recommended mitigation to address potential environmental impacts of the rail line rehabilitation.

4.1.2 SAFETY

SEA conducted an extensive evaluation of all public grade crossings along the existing DM&E rail line from Winona, Minnesota to Wall, South Dakota for the Draft EIS. This analysis determined the potential increase in accident frequency at each grade crossing, as discussed in

detail in Appendix H of the Draft EIS. SEA's analysis considered the existing crossing warning devices, proposed locations of new rail sidings, existing and project-related train speeds, and average number of vehicles per day (average daily traffic or ADT) using each crossing.

SEA categorized public grade crossings according to their existing accident frequencies. In South Dakota, grade crossings with a frequency of one or more accidents every 20 years were considered high frequency, or Category A crossings. In Minnesota, existing crossings were considered high frequency or Category A crossings if there was one or more accidents every eight years. Such frequencies would put a crossing on each state's list of the 50 highest accident frequencies for grade crossings. All other crossings were considered low frequency or Category B crossings. SEA determined that for Category A crossings, a predicted increase of one accident every 100 years would be significant. For Category B crossings, one additional accident every 20 years would be significant.

SEA indicated in Chapter 4 of the Draft EIS that increased levels of train traffic would result in significant increases in accident frequency at numerous grade crossings. In South Dakota, SEA's Draft EIS analysis identified significant impacts at eight grade crossings under the 20 million-annual-ton (MNT) level of operations, 7 additional grade crossings under the 50 MNT level, and 11 additional grade crossings under the 100 MNT level. In Minnesota, SEA determined (as discussed in Chapter 3 of the Draft EIS) that significant increases in accident frequency would occur at 3 grade crossings under the 20 MNT level of operations, 2 additional grade crossings under the 50 MNT level, and 10 additional grade crossings under the 100 MNT level.

After SEA issued the Draft EIS, DM&E submitted a voluntary grade crossing mitigation plan (Appendix D in this Final EIS) to address potential safety issues along the existing rail line. This proposed mitigation plan covers DM&E's entire rail line from Wall, South Dakota to Goodview, Minnesota. SEA determined that DM&E's plan would substantially improve the existing grade crossing devices along the existing line, including crossings determined to experience significant increases in accident frequency as a result of the increased rail traffic associated with the PRB Expansion Project. Table 4-1 offers an overview of the warning-device upgrades proposed as part of DM&E's proposed grade-crossing mitigation plan.



Proposed Device Upgrade		Level of Operation		
		20 MNT	50 MNT	100 MNT
From	To			
No Crossing Protection	Crossbucks	2	0	0
Crossbucks	Crossbucks with Stop Signs	0	0	0
Crossbucks	Flashing Red Lights	9	5	8
Crossbucks	Flashing Red Lights and Gates	0	0	0
Crossbucks with Stop Signs	Flashing Red Lights	1	3	9
Crossbucks with Stop Signs	Flashing Red Lights and Gates	0	0	0
Flashing Red Lights	Flashing Red Lights and Gates	4	5	8
Total Upgrades		16	13	25

Generally, the plan includes the safety improvements identified in Table 4-1 using FRA's "PCAPS" method.² The proposed plan would also minimize potential increases in accident frequency that could result from increased rail traffic. Therefore, SEA has included in Chapter 12 a recommendation that DM&E's grade crossing mitigation plan be imposed as part of any project approval that would include rehabilitation of the existing DM&E rail line.

4.1.3 WILDLIFE

² Federal Railroad Administration, Personal Computer Accident Prediction System.

SEA obtained from the U.S. Fish and Wildlife Service (USFWS) information on the Federally-listed species that could be affected by the proposed project, including:

- Peregrine falcon (Minnesota)
- Topeka shiner (Minnesota and South Dakota)
- Minnesota dwarf trout lily (Minnesota)
- Higgin's eye pearly mussel (Minnesota)
- Winged maple leaf mussel (Minnesota)
- Karner blue butterfly (Minnesota)
- Prairie bush-clover (Minnesota)
- Leedy's roseroot (Minnesota)
- Western prairie fringed orchid (Minnesota)
- Bald eagle (Minnesota and South Dakota)
- Black-footed ferret (South Dakota)
- Piping plover (South Dakota)
- Whooping crane (South Dakota)
- Interior least tern (South Dakota)
- American burying beetle (South Dakota)
- Ute ladies' tresses orchid (South Dakota)
- Swift Fox (South Dakota)
- Sturgeon chub (South Dakota)
- Black-tailed prairie dog (South Dakota)

SEA prepared a Biological Assessment outlining the potential project effects to each of these species (See Appendix K of the Draft EIS and Appendix H of the Final EIS), and submitted it to the USFWS for review. USFWS reviewed the Biological Assessment and has prepared a Biological Opinion (Appendix H), which presents the USFWS position on the Biological Assessment and the potential impacts of the proposed project on Federally-listed threatened and endangered species. The Biological Opinion also provides mitigation measures to prevent or minimize the impacts of the proposed project to Federally-listed threatened and endangered species.

In addition to the above Federally-listed threatened, endangered or candidate species, SEA also identified a number of state-listed species in the Draft EIS. However, unless these species were also Federally-listed, they were not individually evaluated in the Draft EIS and are not required to be considered in the Biological Assessment prepared for the USFWS.

SEA received comments from the USFWS and various state agencies, including the Minnesota Department of Natural Resources (DNR), regarding the evaluation of threatened and endangered species in the Draft EIS. While the USFWS did not concur with SEA's conclusion

that the proposed project would not adversely affect Federally-listed threatened and endangered species, it noted that project impacts could be minimized through appropriate mitigation. The USFWS also indicated that the Topeka shiner would be the only species potentially affected by the proposed rail line reconstruction, but SEA concluded that these effects would not be significant. In Chapter 12, SEA has included recommendations that DM&E be required to comply with mitigation methods included in the Biological Assessment and USFWS's Biological Opinion.

The Minnesota DNR and others questioned SEA's wildlife analysis in the Draft EIS. Comments were generally related to inadequate descriptions of migratory bird species found in the project area and inadequate descriptions of impacts on Minnesota State-listed species. Concerning migratory bird species, the Draft EIS discussed potential impacts on a variety of bird species, including waterfowl, shorebirds, songbirds, raptors, and mourning dove (considered an upland bird), all of which are migratory species. Therefore, SEA believes it has adequately evaluated the potential impacts on migratory birds in this EIS.

SEA also received comments noting that while state-listed threatened and endangered species were identified in the Draft EIS, the potential impacts of the proposed project to each species were not discussed in detail. NEPA requires Federal agencies to comply with Federal laws and statutes in their environmental reviews. There is no such requirement for state laws. Accordingly, SEA's analysis focused on the Federal Endangered Species Act of 1972, as amended, which provides protection to species Federally-listed as endangered (defined as in danger of becoming extinct throughout all or a significant portion of the species range) or Federally-threatened (defined as in danger of becoming endangered throughout all or a significant portion of the species range).

Often, a species may be uncommon in one state but common in another due to different habitat or climate. Recognizing that even uncommon species comprise an important part of a state's wildlife resources and natural history, many states have developed programs to identify and protect uncommon species within the state. Generally, any Federally-listed species would also be state-listed. However, in most cases, state-listed species do not meet the definition of Federally endangered or threatened, and are not protected under the Endangered Species Act.

Because state-listed species are not covered by the Federal statute, SEA is not required to specifically consider them as part of this EIS. The proposed rail line reconstruction project would have impacts to state-listed species similar to those described for other wildlife.

4.1.4 IMPAIRED WATERS

Comments also indicated that the project could potentially affect surface waters, identified for development of Total Maximum Daily Load (TMDL) levels, also known as

impaired waters under the Clean Water Act, Section 303(d). TMDL is the amount of a pollutant that can be introduced into a water body and still have the body meet water quality levels for its beneficial use. SEA did not previously identify the impaired waters in the Draft EIS, and therefore discusses the potential impacts to impaired waters below.

As discussed in detail in Chapter 3, states classify their surface waters according to the beneficial use of each particular water body. Beneficial use classifications, from lowest water-quality use to best water-quality use include industrial, agricultural, wildlife and livestock, non-contact and contact recreation, warm water and cold water fishery, and domestic water supply.

Section 303(d) of the Clean Water Act requires states to:

- (25) Identify waters of the state which are impaired, that is contain levels of pollutants at sufficient levels to adversely affect their designated beneficial use.
- (26) Prioritize impaired waters for development of TMDL for those pollutants determined to be the cause of reduced water quality.
- (27) Establish and adopt TMDLs for all identified impaired water bodies.

States must develop and update their lists of impaired waters every two years. The overall intent of Section 303(d) is to require states to identify and establish limits for pollutants affecting their waters, and work to restore polluted waters so that they are suitable for their beneficial uses.

Both South Dakota and Minnesota have developed lists of impaired waters under Section 303(d). After reviewing them, SEA identified several impaired water bodies in South Dakota and Minnesota crossed by the existing rail line and potentially affected by its reconstruction (see Table 4-2). Also included in this table are pollutants responsible for the impairment and SEA's determination of whether reconstruction and operation of the existing rail line would exacerbate the conditions affecting the classification as impaired.

Water Body	State	Portion Impaired	Times Crossed	Pollutant(s) or Impairment	Adversely Affected by Proposed Project
Cottonwood River	MN	JD 30 - Minnesota River	2	Fecal Coliform	No
Garvin Brook	MN	All	11	Fecal Coliform, turbidity	Potential Temporary (for turbidity)
South Fork, Whitewater River	MN	All	10	Fecal Coliform	No
Bad River	SD	All	16	Accumulated sediment	Potential Temporary
Lake Sharpe	SD	Hughes County	1	Accumulated sediment	Potential Temporary
Lake Preston	SD	Kingsbury County	1	TSI*	Potential Temporary
Bad River	SD	Midland	2	Ammonia	No
Bad River	SD	Philip	0	Ammonia	No

Water Body	State	Portion Impaired	Times Crossed	Pollutant(s) or Impairment	Adversely Affected by Proposed Project
Cottonwood River	MN	JD 30 - Minnesota River	2	Fecal Coliform	No
Garvin Brook	MN	All	11	Fecal Coliform, turbidity	Potential Temporary (for turbidity)
South Fork, Whitewater River	MN	All	10	Fecal Coliform	No
Bad River	SD	All	16	Accumulated sediment	Potential Temporary
Lake Sharpe	SD	Hughes County	1	Accumulated sediment	Potential Temporary
Lake Preston	SD	Kingsbury County	1	TSI*	Potential Temporary
Bad River	SD	Midland	2	Ammonia	No
Bad River	SD	Philip	0	Ammonia	No

* TSI is the Trophic State Index, used by South Dakota, which combines measurements of turbidity and concentrations of chlorophyll-*a* and total phosphorus as indicators of the eutrophic level of a water body.

As shown in Table 4-2, all the impaired water bodies crossed by the existing rail line in Minnesota are impaired by fecal coliform contamination from introduction of either human or animal fecal waste into a body of water. This can result from surface water runoff from a feedlot, dairy, or pasture, or from improperly functioning septic or sewer systems. Reconstruction and operation of the existing rail line would not affect the presence of fecal material along these waterways. Therefore, reconstruction of the proposed project would have no effect on the fecal coliform status of these water bodies.

Four of the water bodies crossed – Garvin Brook, Bad River, Lake Sharpe, and Lake Preston – are impaired by sediment in the waterway (dissolved or suspended sediment in the water, which results in turbidity). As discussed in the Draft EIS, reconstruction of bridges and culverts and earth-disturbing activities adjacent to waterways could result in increases in sedimentation and total suspended solids (TSS). Reconstruction activities could exacerbate existing problems with TSS and contribute to the impairment of these streams. However, implementation of appropriate erosion and sedimentation control measures such as those listed in Chapter 12, would minimize the additional sediment entering these waterways and limit impacts to the construction period. At completion of crossing construction and restoration of the river bank and right-of-way, as recommended in Chapter 12, there should be no more additions to TSS levels, and no further contribution to the impaired status of these water bodies. With implementation of appropriate erosion and sedimentation control practices, no long-term contribution to the impairment of these water bodies would be expected. Thus, no significant impacts on impaired waters are anticipated as a result of this project.

The two remaining impaired water bodies include parts of the Bad River near Midland and Philip that are impaired by ammonia concentrations. Waterway ammonia contamination can result from feedlot or dairy runoff, improperly functioning septic or sewer systems, or agricultural runoff containing high levels of nitrogenous fertilizer. As with fecal coliform, reconstruction of the existing rail line would have no effect on these activities. Therefore, rail line reconstruction would not contribute to impairment of these parts of the Bad River.

4.1.5 RECREATION

As SEA indicated in the Draft EIS, DM&E has stated that it intends to develop passenger excursion train service for tourism and recreational opportunities along the rail line. Excursions could include dinner trips, wildlife viewing, and transportation to and from the Black Hills region. DM&E indicated that no regular service suitable for commuters would be provided. Some commenters were concerned that the rail-traffic level SEA used in the Draft EIS to evaluate potential project impacts (8, 21, and 34 unit coal trains per day, plus 3 freight trains) would actually be greater due to the excursion trains. Commenters believed that the increased rail traffic would produce more noise, vibration, vehicle delay, air emissions, and accidents.

In its Application, DM&E indicated that it would consult local tourism and travel organizations to determine the demand for excursion train service, and therefore, it could not project the exact number of trains involved. DM&E did, however, roughly estimate about two trains per week, one westbound on Friday and one eastbound on Monday, although additional excursion trains might be added for special occasions. It is also likely that such service would be seasonal and would involve only portions of the rail line, rather than travel from end to end of the rail line. Because the excursion train service is likely to be minimal, and definite plans for

this service have not been developed, the potential environmental impacts from such service do not meet the “reasonably foreseeable” standard for NEPA analysis. Consequently, SEA has not included it in its EIS analysis.

4.1.6 VIBRATION

Several factors determine the amount of ground vibration caused by a passing train, including the speed, weight, and length of the train, the condition of the rail line, and the specific type of soil surrounding the rail bed. As discussed in the Draft EIS and elsewhere in this Final EIS, structures along the existing DM&E rail line would experience varying degrees of vibration and different levels of impact. The magnitude of ground vibration would not be increased by the potentially increased number of trains. However, it could be increased due to heavier, faster, and longer trains.

For the Draft EIS, SEA determined that ground vibration could be sufficient to cause structural damage to structures within 100 feet of the rail line. Additionally, structures between 101 and 200 feet could experience vibration levels sufficient to raise concerns for structural damage. SEA determined that structures between 201 and 400 feet would not be damaged by ground vibration but could experience disturbance and inconvenience (such as rattling windows). Tables 3.2-21 and 4.3-20 in the Draft EIS list the number of structures within these distances that would be potentially affected by project-related increases in vibration. SEA also indicated that project-related vibration could affect vibration-sensitive equipment such as MRIs, electron microscopes, and analytical balances. However, no such equipment was identified along the existing rail line except as discussed in Chapter 9 – Rochester, Minnesota.

Because a number of comments expressed concern about vibration damage to homes, SEA conducted field investigations in a residential area of Rochester, Minnesota, to determine the potential for project-related vibration to damage homes along the rail line (Appendix M). Peak acceleration and peak velocities measured at 50 feet from the track were within 0.01 g and 0.01 in/second. The results of these tests indicate that structures as close as 50 feet from the track would not be damaged by ground vibration from trains. Because DM&E’s right-of-way is a minimum of 100 feet (50 feet on either side of the rail line centerline) except in small, scattered locations, SEA has not identified any structures within 50 feet of the existing rail line.

SEA also determined that while increased train weight and speed could increase vibration levels, installation of continuously welded rail, as proposed by DM&E, would likely reduce much of this increase, resulting in only a small increase, if any, in vibration. The modeling conducted as part of these studies indicates that vibration levels due to the proposed project are not expected to increase sufficiently, following rehabilitation and operation of the existing rail

line, to damage residential structures. SEA has received no evidence that structures along the existing rail line have experienced damage due to past or current rail operations. Therefore, because vibration levels would only increase an insignificant amount, if at all, through operation of unit coal trains over continuously welded rail, SEA anticipates that the proposed project would not result in any structural damage to buildings along the existing rail line.

SEA acknowledges that structures, particularly residences along the rail line, would experience more frequent vibration disturbance due to an increased number of passing trains. Tests conducted on Seventh Avenue NW in Rochester, Minnesota, however, indicated that ground vibration levels at distances of 100 feet or more from the track would be within the criteria for residential impact, and would not cause structural damage. Any residences located on soft, deep soils may experience ground vibration higher than that measured on Seventh Avenue NW. These levels are also not anticipated to be sufficient to cause structural damage.

Ground vibration is not expected to be a concern for structures beyond 400 feet from the tracks. But even low levels of ground vibration may affect sensitive medical equipment such as MRIs beyond 400 feet from the rail line. No such equipment has been identified along the existing rail line, with the exception of that discussed in Chapter 9, as noted above.

4.1.7 ENVIRONMENTAL JUSTICE

SEA conducted extensive analysis to determine the potential for disproportionately high and adverse impacts to minority or low-income communities, collectively referred to as environmental justice communities, as discussed in detail in Appendix D of the Draft EIS. SEA used data from the U.S. Bureau of Census for the census block group (the smallest geographic unit for which both race and income information is managed) to determine if environmental justice communities might be located along the existing DM&E rail line. SEA's criteria in the Draft EIS for classification of a census block group as having environmental justice status were:

- At least one-half of the census block group has minority status.
- At least one-half of the census block group is of low-income status.
- The percentage of minority population for the census block group is at least 10 percentage points higher than the percentage for the entire county in which the census block group is located.
- The percentage of low-income population for the census block group is at least 10 percentage points higher than the percentage for the entire county in which the census block group is located.

Based on these criteria, SEA determined that the existing rail line crosses eight environmental justice communities, four each in South Dakota and Minnesota.³ All these census block groups were identified as potential environmental justice communities because they meet the low-income criteria.

SEA received three categories of comments on the environmental justice analysis reported in the Draft EIS. The EPA commented on the methodology SEA had employed. Other commenters questioned SEA's use of 1990 instead of 2000 census data. Last, commenters took the position that ranchers and farmers should be considered low-income populations.

EPA's comments on the methodology SEA used primarily pertained to how SEA identified potential environmental justice communities. SEA's criteria, listed above, are consistent with those it has used in past cases. Early in the preparation of the Draft EIS, SEA consulted with EPA concerning the methodology for identifying potential environmental justice communities. In this case, two EPA administrative regions are involved, Region 5 for Minnesota and Region 8 for South Dakota and Wyoming. SEA determined that each region used different criteria for classification of a low-income community. Region 8 considered individuals at or below the national poverty level low-income, while Region 5 used 1.5 times the poverty level as the determinant for low-income status, believing that individuals above poverty level could still be struggling financially. While SEA requested guidance from EPA on a uniform standard for this project, EPA indicated no preference between the two criteria. Because SEA has used the poverty level in the past and Region 8, which covers the majority of the project area, also uses the poverty level, SEA considered its use appropriate as the indicator of low-income status.

In comments on the Draft EIS environmental justice methodology, EPA acknowledged the different criteria applied by Region 5 and Region 8 to identify low-income communities. EPA also concurred that a single criterion should be used to identify low-income populations. Because Region 5's criteria would be more inclusive and provide a more conservative analysis, EPA recommended that SEA use income levels at and below 1.5 times the poverty level as low-income. In view of EPA's recommendation, SEA has conducted additional analysis, as discussed later in this section, using Region 5's low-income criteria.

³ The Draft EIS identified nine potential environmental-justice communities along the existing rail line, five of which are located in Pierre, South Dakota and are discussed in Chapter 5 of this Final EIS.

Additionally, EPA recommended that SEA use state percentages for minority and low-income populations rather than county percentages, which may present a relatively homogeneous population not characteristic of the state as a whole because counties are much smaller areas. EPA also recommended that SEA compare the census block group percentages for minority and low-income populations to 1.5 times the state percentages for these groups. Classification of a census block group as either minority or low-income is based on its percentage of minority and low-income population being equal to or greater than 1.5 times the applicable state percentage. SEA did another environmental justice analysis based on EPA's recommendations, as discussed in detail in Appendix N, and discusses its results later in this section.

SEA received numerous comments from agencies (including EPA), communities, and citizens questioning why SEA had used 1990 rather than 2000 census data. Commenters stated that 1990 census data was out-of-date and no longer a valid representation of population characteristics. Additionally, some commenters indicated that various communities along the rail line had more recent census data. When SEA released the Draft EIS in September, 2000, the 2000 census was still underway, and no new data was available during final preparation of the Draft EIS. During printing and distribution of the Draft EIS, the Bureau of Census began to make available preliminary results from the 2000 census, generally at the state or county level. SEA's environmental justice analysis, however, requires data at the census block group level, the smallest geographic unit for which data on both race and income is obtained. SEA consulted with the Bureau of Census to determine whether census block group data were available for use in this Final EIS, but learned that this level of data will not be available until summer of 2002 or later.

Additionally, SEA recognizes that some counties and cities have developed their own estimates or projections of census type data. However, to conduct a valid environmental justice analysis, data for all affected census block groups, counties, and the state must be consistent. That is, all data must be developed using the same survey methodology and must be for the same sample period. It would not be appropriate for SEA to compare census data estimated or projected for the year 1999 with similar data projected for the year 1995. The only consistent data set available for the project area in this case is the 1990 census. While SEA recognizes that this data may be somewhat dated, it still provides the best available demographic information. Therefore, because no other appropriate data are available, SEA has conducted its additional environmental justice analysis using 1990 census data.

The final category of environmental justice comments suggested that ranchers and farmers should be considered low-income populations. SEA has identified low-income populations based on annual income levels reported to the Bureau of Census. These levels reflect annual income levels of individuals compared to national income levels and are

independent of occupation. While SEA recognizes that ranchers and farmers are subject to low markets for agricultural goods, some ranchers and farmers prosper even in difficult economic times. SEA notes that its additional analysis using 1.5 times the poverty level increases the conservatism of the environmental justice analysis. Additionally, the national poverty level accounts for the cost of living throughout the country, including areas such as the east and west coasts where the cost of living is higher than in the Midwest. Using 1.5 times the national level, which is already a conservative level for South Dakota and Wyoming, results in the additional analysis likely being more inclusive of potential environmental justice communities than that conducted for the Draft EIS. Therefore, SEA has chosen not to arbitrarily classify any particular occupational group as having environmental justice status, but has utilized its past methodology, and that recommended by EPA, of finding low-income populations based on their incomes.

In conducting the additional analysis recommended by EPA, SEA first sought census data to determine the percentage of persons considered low-income (at or below 1.5 times the national poverty level) for South Dakota, Minnesota, and each census-block group crossed by the existing rail line. SEA determined that census data needed to complete this analysis was not available. After consultation with EPA, SEA evaluated the percentage of households for each state and census block group that would be considered low-income, instead of the number of individuals.

After calculating the percentage of low-income households for each census block group and the states, SEA multiplied the state percentage by 1.5 to obtain the level above which EPA recommended that census block groups be classified as having environmental justice status. Initial calculations showed South Dakota having a low-income household percentage of 38.4, and 31.0 percent of Minnesota households were low-income. Increasing these percentages by 1.5 times resulted in percentages of 57.6 and 46.5, respectively. Because South Dakota's percentage was more than 50 percent and SEA had initially considered census block groups with low-income populations of 50 percent or greater as environmental justice communities, SEA took the more conservative approach of using 50 percent or more of the census block group.

Because 1.5 times the Minnesota percentage was 46.5 percent, SEA classified census block groups with a percentage of low-income households of 46.5 percent or greater as environmental justice communities. Based on this analysis, SEA determined that 41 census block groups would meet the criteria for environmental justice communities. The 16 census block groups in South Dakota included one each in Brookings, Hughes, and Hyde counties, six in Beadle County, four in Kingsbury County, and three in Hand County. The 25 census block groups in Minnesota included five each in Winona and Brown counties, three each in Steele, Lincoln, Lyon, and Redwood counties, one in Dodge County, and two in Waseca County.

SEA next calculated the minority population percentage for each state, multiplied it by 1.5, and compared it to the minority percentage for each census block group calculated for the Draft EIS analysis. Based on this comparison, SEA determined that one census block group in Minnesota met the criteria for environmental justice classification for minority populations. This census block group in Brown County also met the environmental justice criteria for low income.

Following identification of potential environmental justice communities, SEA did more analysis to determine whether these census block groups would be disproportionately affected by the proposed project. This was done according to the methodology discussed in the Draft EIS, Appendix D. SEA determined that eight census block groups in Minnesota and seven in South Dakota would potentially be subject to disproportionately high and adverse noise impacts (Appendix N). The Minnesota census block groups include one in Steele County, two each in Brown and Lyon counties, and three in Redwood County. The South Dakota groups include three in Kingsbury County, two in Hand County, and one each in Beadle and Hyde counties.

SEA also determined that 15 environmental justice communities would be subject to disproportionately high and adverse increases in accident frequencies at grade crossings. SEA identified four census block groups in Minnesota, including three in Brown County, and one in Lincoln County. Two of the Brown County census block groups would also likely experience disproportionately high and adverse impacts due to project-related increases in noise. In South Dakota, SEA identified 11 census block groups that would be subject to disproportionately high and adverse increases in accident frequencies at grade crossings. These include one in Brookings County (affected by two grade crossings), three in Beadle County (two affected by two grade crossings), one in Hyde County, one in Hand County (two grade crossings), one in Hughes County, and four in Kingsbury County (two affected by four grade crossings). SEA determined that seven of these – one in Brookings, four in Kingsbury, and two in Beadle County – would also experience disproportionately high and adverse impacts as a result of project-related increases in noise.

In Chapter 12, SEA presents recommended mitigation for project-related increases in noise, as well as a condition requiring that DM&E comply with its voluntary grade crossing mitigation plan, which SEA determined would provide improved safety at those grade crossings affecting environmental justice communities. These mitigation measures would minimize project-related impacts from noise and safety. While environmental justice communities would still experience some level of impact, they would not be significant or disproportionate with SEA's recommended mitigation.

4.2 RAIL YARDS

In the Draft EIS, SEA evaluated eight new rail yards and interchange connections as part of the proposed rail line extension and rehabilitation of the existing rail line (Chapters 3 and 4 of the Draft EIS). Three rail yards would be in Minnesota, four (two yards and two interchanges) would be in South Dakota, and one rail yard would be in Wyoming.

As discussed in the Draft EIS, rail yard locations were selected and planned by DM&E to serve multiple functions, including crew changes, regular inspections, fueling, and maintenance needs. By planning for multiple functions, the overall number of yards, and the attendant environmental impacts, could be minimized. However, in order to minimize the number of yards and increase their functions, yard location must be based on the distance between yards. In this case, DM&E proposed yards located between 225 and 275 miles, or 7 hours, apart. DM&E's other considerations for a new yard location included communities and towns, environmentally sensitive areas such as wetlands and road crossings, topography, and the location of existing rail yards.

In light of these considerations, and the desire to have yards serve multiple functions to minimize the number of yards needed, few alternative locations were available for new yards. In the Draft EIS, SEA evaluated alternative locations for two – the Middle East Staging and Marshaling Yard in Minnesota and the West Staging and Marshaling Yard in Wyoming.

Of all the yards evaluated in the Draft EIS, SEA received comments for only three that required additional analysis – the East and the Middle East Staging and Marshaling Yards in Minnesota, and the Central Staging and Marshaling Yard in South Dakota. The following sections discuss comments about these rail yards, additional analysis conducted, and SEA's recommendations, as appropriate, for rail yards. Additional information on rail yards can be found in the Draft EIS (Chapters 3 and 4).

4.2.1 EAST STAGING AND MARSHALING YARD (LEWISTON)

The East Staging and Marshaling Yard would be approximately 600 feet wide and 2.1 miles long, located between Utica and Lewiston, Minnesota. DM&E presented no alternative locations for the East Staging and Marshaling Yard, also called the East or Lewiston Yard. Topographic constraints and the need to be close to the eastern end of DM&E's rail line were factors in selecting locations for this yard. SEA conducted a detailed evaluation of the potential environmental impacts associated with construction and operation of a rail yard at this location in the Draft EIS.

SEA's evaluation of the Lewiston Yard included a wide range of environmental resources, including land use, water resources, soils, geology, noise, air emissions, transportation, safety, biological resources, cultural resources, and socioeconomics. However,

comments on the Lewiston Yard were generally confined to geology and transportation. SEA conducted additional analysis in response to these comments, as discussed below.

4.2.1.1 Geology

In the Draft EIS, SEA indicated that the Lewiston Yard would be located over dolomite bedrock covered by an average of 10 to 16 inches of soil, but made no mention of sinkholes or other karst features which could affect rail yard construction in the Lewiston Yard area. Commenters indicated that geological formations similar to the karst and sinkholes in Olmsted County, Minnesota, and the potential problems they presented to rail line construction, also applied to the area of the Lewiston Yard, making the site unsuitable for a rail yard.

In response to these comments, SEA made additional site visits to the Lewiston Yard location and investigated its specific geological characteristics. SEA visually identified numerous sinkholes, which were readily identifiable because they generally consist of a circular area of natural vegetation, often with large trees, surrounded by crop fields. SEA also identified several sinkholes based on features shown on U.S.G.S. quadrangle maps, and confirmed that the proposed yard site is in an area classified as karst. As discussed in more detail in Chapter 9, karst areas have a sinkhole density of 20 to hundreds per square mile, and sinkholes are a dominant feature of the landscape. It appears that sinkhole formation was recently active in the area (see Appendix M), suggesting that even where sinkholes are not present today, they could develop in the future.

Based on further analysis of karst issues, it appears that the presence of karst at DM&E's proposed Lewiston Yard site could complicate construction and operation of a rail yard. To build a yard at its proposed site, DM&E would need to undertake appropriate engineering and operation measures to mitigate the risk of sinkholes at this site, perform detailed geotechnical investigations of the soil and underlying rock formations, and perform careful monitoring for subsidence in the future for the life of the yard, which would be extremely costly.

Unlike the Rochester bypass proposal, which would also be located around karst features, it may be feasible to adjust the location of the Lewiston Yard to avoid karst topography.⁴ To the east, the topography is more varied and the existing rail line closely follows local drainages,

⁴ In analyzing the proposed 34.1-mile Rochester bypass, SEA determined that the mitigation that would be needed to construct and operate the proposed bypass could itself have potentially significant impacts by essentially creating an underground "dam" or concrete wall under the rail line. In contrast, the environmental impacts associated with mitigating the Lewiston Yard likely would be far less severe simply because the areas affected would not be nearly as long.

including Garvin Brook. Construction of a rail yard in this location would require extensive earthmoving activities and would likely have substantial effects on surface waters and wetlands. However, moving the yard site slightly west, to the area between Utica and St. Charles, Minnesota would place it in an area with a lower probability of sinkholes and over areas of shale. In addition, based on the available information, it appears that a rail yard slightly adjusted to the west would have impacts similar in nature and extent to those of the currently proposed site. In short, SEA believes that a slightly modified location to the west would minimize karst-related impacts and would not result in potentially significant impacts in the other environmental resource areas.

4.2.1.2 Transportation

SEA recognized in the Draft EIS that construction of the Lewiston Yard would affect one roadway, Township Road 13. The rail yard would cross this road, which, as discussed in the Draft EIS, would require rerouting or closure as it would not be able to cross through the rail yard. SEA indicated that rerouting or closure of Township Road 13 would reduce access through this area and increase traffic on other local roadways providing alternate access.

Commenters on the Draft EIS indicated that construction and operation of the Lewiston Yard would cut off access to farm fields, particularly for two farm families who currently live south of the existing rail line, and farm land on both the north and south sides of the rail line. Construction of the yard would require them to drive farm equipment around the yard and along State Highway 14, the primary east-west thoroughfare across southern Minnesota, to access fields on the north side of the rail line. This would reduce farm efficiencies by increasing travel time to reach fields, and fuel costs, as well as posing a potential safety hazard to farmers and motorists from operation of large, slow-moving farm equipment on Highway 14.

While SEA did not specifically mention these impacts in the discussion of the Lewiston Yard in the Draft EIS, SEA discussed repeatedly throughout the Draft EIS impacts similar to those raised by commenters. SEA concurs with the commenters that construction and operation of the Lewiston Yard would reduce access through the area, causing farmers to drive greater distances to access fields and use a high-traffic roadway in the process, creating potential safety hazards to themselves and other motorists.

During its additional site visits, SEA identified equipment crossings along the existing DM&E rail line where the Lewiston Yard would be located. While not suitable for passage of a vehicle, they currently allow passage of farm equipment over the rail line to access fields on the opposite side of the track. SEA realizes that it would not be possible to retain such crossings because many new rail lines would run parallel to the existing line, and agrees that reductions in access could create hazardous conditions on high-traffic local roadways. Therefore, SEA has

developed recommended mitigation to facilitate continued access to fields isolated by rail yard construction (see Chapter 12). While farmers may experience reduced efficiencies due to increased travel times and fuel use, SEA's recommended mitigation would minimize potential safety concerns.

4.2.1.3 Agricultural Land Use

The Minnesota Department of Agriculture commented that lands at the Lewiston Yard site are enrolled in the Minnesota Agricultural Land Preservation Program, under state statute 40A.01 (discussed in detail the Draft EIS in Chapter 3). Lands are enrolled for eight year terms. Enrollment in this program can be terminated only for emergencies or under executive order of the governor. Should eminent domain be required for DM&E to acquire lands enrolled in this program for construction of the Lewiston Yard, acquisition would be subject to review by the environmental quality board. The environmental quality board could suspend eminent domain for up to one year if it determines that the proposed action is not compatible with the goals of the program and there are other feasible alternatives. The Lewiston Yard may not be considered compatible with the goals of the program if DM&E were to use eminent domain to acquire land for the Lewiston Yard enrolled in the Agricultural Land Preservation Program, acquisition could be held up for some time.

4.2.1.4 SEA's Recommendation

Based on its analysis in the Draft and Final EIS, SEA has determined that the proposed Lewiston Yard would require extensive engineering measures, geotechnical investigation, and careful monitoring for the life of the yard. It appears that DM&E could avoid karst-related impacts by slightly adjusting the proposed location of the Lewiston Yard to the west.

4.2.2 MIDDLE EAST STAGING AND MARSHALING YARD (MANKATO)

The Middle East Staging and Marshaling Yard proposed by DM&E, also known as the Middle East or Mankato Yard, would serve as a staging yard for empty and loaded trains and marshaling yard for grain, manifest, and way freights; a point of interchange with UP and CP; a locomotive fueling and maintenance facility; a location for storage of maintenance of way equipment; and a base for train crews working between Utica and Winona, Minnesota. The following sections discuss alternatives SEA considered for this rail yard, a comparison of the impacts of the two alternatives based on comments on SEA's analysis in the Draft EIS, and SEA's recommendation for a preferred location for the Middle East Yard.

SEA considered two alternatives for the Middle East Yard, designated as Option A and Option B in the Draft EIS. Option A would be about 400 feet wide and 2.4 miles long, located

along the existing DM&E rail line between Minneopa State Park and Judson, Minnesota where the existing rail line runs along County Route 68. Option B would be 400 feet wide and 2.3 miles long, along the existing DM&E rail line adjacent to Shag Road, east of New Ulm, Minnesota. These alternative locations are approximately 10 miles apart.

SEA's detailed evaluation of the Middle East Yard alternatives for the Draft EIS analyzed potential impacts of construction and operation at each proposed yard location on environmental resources including land use, water resources, soils, geology, noise, air emissions, transportation, safety, biological and cultural resources, and socioeconomics. SEA determined that impacts on many of these resources would be similar for both rail yards because of their similar size, the characteristics of their locations, and operations. However, there are differences between the two options in terms of land use (including public lands and agricultural land) and wetlands.

SEA indicated in the Draft EIS that Option B would be environmentally preferred, based on its avoidance of the Minneopa State Park area, an important resource for citizens in and around Mankato. SEA stated that while the impacts on Minneopa State Park from Option A would be difficult to mitigate, the wetlands losses estimated for Option B could be mitigated under the Clean Water Act, Section 404 permit process. Greater impacts to agricultural land, including prime farmland, were not considered significant due to the extensive amount of prime farmland in Brown County. Additionally, Option B did not appear to create any significant operational difficulties that would affect the overall project's purpose of creating an efficient route for transport of PRB coal.

Comments on the Middle East Yard focused on three primary topics: Minneopa State Park, water resources and access. SEA's additional investigation of these issues is presented below.

4.2.2.1 Minneopa State Park

Commenters on Option A, including Minnesota DNR, expressed concern that a new rail yard between Minneopa State Park and Judson would produce significant impacts on Minneopa State Park and limit its potential for expansion. As discussed in the Draft EIS, the proposed location for the Middle East Yard is not within the present boundaries of Minneopa State Park. However, it would be within the statutory boundary of the park, including those lands approved by the Minnesota legislature for acquisition to expand the park. Commenters supported SEA's discussion in the Draft EIS that Minneopa State Park is an important resource to the area, noting its heavy use, and pointed out its planned expansion. They also indicated that construction of the Middle East Yard at Option A would reduce both the land available for park expansion and the area's desirability as a state park. Increased levels of rail activity associated with Option A would also reduce the quality of the recreational experience within the existing state park.

In preparing this Final EIS, SEA made additional site visits to Minneopa State Park and the Option A site, but does not believe that the Option A site would significantly affect users of the existing Minneopa State Park area. First, the rail yard would be at a distance from the park, and second, it would be in the flood plain, while the state park is on a wooded bluff approximately 100 feet above and screened from the flood plain. However, SEA reaffirms its position in the Draft EIS that Minneopa State Park is an important regional resource, particularly for citizens in and around Mankato. High use of the area and the potential for acquisition of lands adjoining the existing park make its expansion a reasonably foreseeable event. Construction of the Option A rail yard would limit the ability of the state to acquire lands contiguous with existing state park lands that would provide the quality recreational experience currently provided by existing park lands.

4.2.2.2 Water Resources

SEA recognized in the Draft EIS that Middle East Yard Option B would affect more wetlands than Option A, 14.2 acres versus 3.7 acres. However, Option A would affect more types of wetlands – including emergent, scrub/shrub, and forested – than Option B, which would only affect emergent and scrub/shrub wetlands. Option A would also potentially have a greater impact on water resources than would Option B, since it would likely require relocation or channelization of five intermittent streams, compared to one for Option B. As explained in the Draft EIS, SEA determined that loss of wetlands could be mitigated, preventing long-term reduction in the area of wetlands affected by construction of the Middle East Yard.

Commenters on the Draft EIS, including EPA and Minnesota DNR, expressed concerns about impacts of the rail yards on water resources. Both agencies noted, as had SEA in the Draft EIS, that Option B would result in the loss of more wetlands than Option A. But Minnesota DNR also asserted that the intermittent stream noted in the Draft EIS for Option B was actually a perennial stream prone to flooding. EPA stated its belief that Option A appeared to be the practicable alternative least damaging to wetlands.

When SEA visited the Option B site again in May of 2001, the stream running through the rail yard site was flowing, and there was evidence of recent overflow. Rainfall and high water prior to SEA's visit made it difficult to determine whether the stream is intermittent (as shown on U.S.G.S. quadrangle maps) or perennial (as stated by Minnesota DNR). However, the Option B area did appear to contain more wetlands, many apparently the result of drainage and flooding of the local stream.

Therefore, SEA agrees with EPA that the Option B yard site would have greater impacts on wetlands. However, Section 404 (b)(1) of the Clean Water Act provides the COE some

flexibility in selecting an alternative to the one having the least wetlands impact. Specifically, Section 404 (b)(1) states:

Except as provided under § 404 (b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.⁵

Based on all the available information on the Middle East Yard, SEA believes that both alternatives appear to be practicable. Option A would affect fewer wetlands acres, but would have potentially significant impacts on Minneopa State Park and require relocation and channelization of five streams as opposed to one for Option B. Option A would also affect about 0.9 acres of wooded wetlands, which are generally more difficult to mitigate than emergent or scrub/shrub wetlands.

Because the existing rail line would be a barrier between Option B and the Minnesota River, it would help prevent construction runoff and sedimentation into the river. Conversely, Option A would be constructed on the river side of the existing rail line, so that drainage would be away from the tracks and into the river. Thus, while Option A would have fewer impacts specifically on wetland acreage, it would have other impacts on aquatic resources such as streams and the Minnesota River. However, these impacts, and the wetlands impacts of either option, could be mitigated through the Clean Water Act, Section 404 permit process, resulting in no significant long-term differences in the impacts of the two alternatives on aquatic resources.

4.2.2.3 Transportation Access

In the Draft EIS, SEA noted that Option A would cross two roads, both with average daily traffic (ADT) levels estimated at less than or equal to 100 vehicles per day, while Option B would cross only one road (Township Road 97 or Shag Road) with an ADT of less than or equal to 100. SEA indicated that construction and operation of rail yards across these roads would result in reduced access and delays, but that these roads could be closed or rerouted.

Several commenters expressed concerns about reduced access to residences along Shag Road if Option B were constructed, indicating that closure where Shag Road crosses the rail line

⁵ 40 CFR 230.10(a).

would allow access to the area from only one direction. They also noted that the remaining access at the other end of Shag Road would also cross the existing line at the western end of the Option B rail yard. They believe that proximity of this single access point to the rail yard increases the likelihood that the crossing would be blocked, thereby delaying residents and emergency vehicles needing access to homes along Shag Road.

SEA recognizes that access across Shag Road could be reduced more often than at other roads crossing the existing rail line because of the slower speeds – substantially less than the 45 and 49 miles per hour contemplated for the project as a whole – of trains entering and leaving the yard. Train speeds could increase the blocked crossing time and potential vehicle delay. While access to residences along Shag Road would be maintained, it could be substantially reduced.

In addition, SEA recognizes that the Option B Middle East Yard would be confined to the area between the two existing crossings of the existing rail line and Shag Road. In contrast to Option A, where the road would cross the center of the rail yard, Option B would cross Shag Road near the end of the rail yard where only the existing rail line and one or two rail sidings would be traversed. It seems possible that the yard crossing of Shag Road could be maintained, but if not, minor relocation of Shag Road or redesign of the rail yard could also allow continued access for Shag Road across the existing rail line. Therefore, SEA has included recommended mitigation in Chapter 12 designed to preserve access at both ends of Shag Road.

4.2.2.4 SEA's Recommendation

In considering a preferred alternative for the Middle East Yard, SEA generally reaffirms its conclusions in the Draft EIS. The primary differences between the Middle East Yard alternatives are the loss of wetlands and potential state park lands. As discussed in the Draft EIS and above, both alternatives would affect water resources: Option B would impact more wetland acres while Option A would have greater impact on drainages and types of wetlands. However, SEA believes that these impacts could be reasonably mitigated as part of the Clean Water Act, Section 404 permit process, resulting in no significant long-term differences in the impacts of the two alternatives.

The remaining difference, removal of lands identified for expansion of the Minneopa State Park, would only occur as part of Option A. Moreover, these lands could not be replaced, since their value to the state park system is directly related to their proximity to existing state park lands. Construction of a rail yard at the Option A location would not only remove the 116.4 acres from potential development as state park lands but could also make adjacent lands unsuitable for recreational development due to the noise and safety concerns associated with an operating rail yard. Therefore, SEA retains its position in the Draft EIS, supported by Minnesota DNR, that Option B for the Middle East Yard is the environmentally preferred alternative.

4.2.3 CENTRAL STAGING AND MARSHALING YARD

Although SEA evaluated three locations for the Central Staging and Marshaling Yard (Central Yard), they were not considered alternatives, since each location would be determined by which Extension Alternative is selected (discussed in Chapter 3), if any. SEA evaluated the potential impacts of each rail yard upon a variety of natural and human resources, including land use, wetlands, vegetation, wildlife, cultural resources, noise, air quality, and socioeconomics.

SEA received few criticisms of the Central Yard, but numerous letters and petitions in general support of the proposed project and rail yard. Commenters indicated that the Central Yard location near Huron, South Dakota would provide needed economic benefits such as jobs and tax revenues. The only other comments specific to the Central Yard were that the location of the rail yard for Extension Alternative C, west of Huron, would cross a USFWS wetlands easement. The commenter acknowledged SEA's indication that the Extension Alternative B yard location east of Huron would also cross a USFWS easement.

Although SEA indicated in the Draft EIS that the Central Yard for Alternative C would affect approximately 55.9 acres of wetlands, it did not specifically state that these wetlands were part of a USFWS wetland easement. SEA reported in Chapter 4 of the Draft EIS that there were USFWS wetlands easements along the existing rail line in Beadle County. Therefore, SEA concurs with the commenter that the Alternative C rail yard would cross a USFWS wetlands easement. Because SEA recognized the potential for the proposed project, particularly the rail yards, to affect wetlands easements, it included recommended mitigation in the Draft EIS to minimize the impacts on them. Based on its review of the public comments and the analysis in the Draft EIS, SEA determined that the conclusions in the Draft EIS remain accurate, and SEA retains the recommended mitigation in Chapter 12 of this Final EIS.

4.3 SIDINGS

As part of the proposed PRB Expansion Project, DM&E would construct many new sidings along its existing rail line. Although some comments on the Draft EIS suggested that SEA had not considered the construction and operation of these sidings as part of its analysis for the Draft EIS, they were discussed in detail in Chapters 1 and 2. In addition, Tables 2-6 to 2-8 of the Draft EIS described the proposed locations for sidings necessary for the rail line Extension Alternatives.

SEA determined that constructing new sidings would disturb the existing right-of-way during installation of new ties, rail, and ballast. Furthermore, as explained in the Draft EIS, DM&E indicated that about 20 percent (120 miles) of the existing rail bed requires earthwork to

improve its condition and stability for operation of unit coal trains, which would cause additional disturbance. Because the precise location of rail bed reconstruction could not be identified and sidings would be constructed at points along the entire rail line, SEA estimated that the entire existing right-of-way would be disturbed by reconstruction. While this will not likely be the case, SEA's analysis used this conservative assumption, thus probably overstating actual impacts.

During operation of the rail line, the locations of sidings could affect vehicle delay and safety at locations where a siding crossed a roadway. As explained in the Draft EIS (Chapters 3 and 4), SEA evaluated the potential vehicle delay and accident frequencies to be expected from the siding layouts for each of the Extension Alternatives due to variations in the actual locations of these sidings and the roadways they would cross.

Other commenters indicated that it was difficult to determine the location of sidings since their locations were described by rail line milepost. Because persons not associated with railroads are unfamiliar with milepost locations along the rail line, commenters requested that SEA provide additional maps or figures illustrating the locations of proposed sidings. SEA has therefore included in Appendix J of this Final EIS, a list of proposed siding locations and maps of the existing DM&E rail line with milepost notations every five miles along the rail line.

Summary of Conclusions

For the reasons discussed earlier in this chapter, SEA recommends that if the Board should approve DM&E's proposal, the Action Alternative (consisting of rehabilitating DM&E's existing line) is preferable. SEA also recommends Option B for the Middle East Yard.

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APPENDIX D
BRIDGES AND HISTORIC STRUCTURES LIST

Minnesota Historical Bridges

Disposition of Eligible Bridges

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
6.10	M 9.5	MN	Through Plate Girder	1940	Yes	Yes	A, C	1940-1949	Replaced	Steel
6.30	M 10	MN	Deck Plate Girder	1912	Yes	Yes	A, C	1912-1949	Replaced	Steel
6.50	M 12	MN	Through Plate Girder	1906	Yes	Yes	A,C	1906-1949	Replaced	Steel
7.25	M 13	MN	Deck Plate Girder	1904	Yes	Yes	A, C	1904-1949	Replaced	Steel
7.35	M 14	MN	Timber Frame Bridge	1909	Yes	Yes	A	1909-1949	Replaced	Timber
8.10	M 15	MN	Deck Plate Girder	1904	Yes	Yes	A, C	1904-1949	Replaced	Steel
8.25	M 16	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
9.50	M 20	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
10.25	M 22	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1891-1949	Replaced	Stone Box
10.50	M 23	MN	Through Plate Girder	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
11.05	M 24	MN	Through Plate Girder	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
11.75	M 25	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
12.00	M 26	MN	Through Plate Girder	1910	Yes	Yes	A, C	1910-1949	Replaced	Steel
12.40	M 27	MN	Through Plate Girder	1913	Yes	Yes	A, C	1913-1949	Replaced	Steel
12.80	M 28	MN	Through Plate Girder	1919	Yes	Yes	A, C	1919-1949	Replaced	Steel
13.05	M 29	MN	I-Beam	1903	Yes	Yes	A, C	1903-1949	Replaced	Steel
13.40	M 30	MN	I-Beam	1903	Yes	Yes	A, C	194 1-1949	Replaced	Steel
13.50	M 30.5	MN	Wood Stringer Bridge	1962	n/a	No	n/a	n/a	Replaced	Misc
13.75	M 31	MN	Deck Plate Girder	1910	Yes	Yes	A, C	1910-1949	Replaced	Steel
14.25	M 32	MN	Stone Arch	1882	Yes	Yes	A, C	1882-1949	Rehabbed or in-kind	Arch
14.70	M 33	MN	Stone Arch	1880	Yes	Yes	A,C	1880-1949	Rehabbed or in-kind	Arch
15.00	M 34	MN	Deck Plate Girder	1901	Yes	Yes	A, C	1901-1949	Replaced	Steel
15.14	M 35	MN	Stone Arch	1880	Yes	Yes	A,C	1880-1949	Rehabbed or in-kind	Arch
15.30	M 36	MN	Stone Arch	1883	Yes	Yes	A, C	1883-1949	Rehabbed or in-kind	Arch
15.45	M 37	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
15.60	M39	MN	Deck Plate Girder	1898	Yes	Yes	A,C	1898-1949	Replaced	Steel
15.87	M 40	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
16.10	M 41	MN	I-Beam	1902	Yes	Yes	A, C	1902-1949	Replaced	Steel
16.30	M 42	MN	I-Beam	1905	No	No	n/a	n/a	Replaced	Steel
16.40	M 43	MN	I-Beam	1905	Yes	Yes	A, C	1905-1949	Replaced	Steel
16.50	M 44	MN	I-Beam	1905	Yes	Yes	A, C	1905-1949	Replaced	Steel
16.75	M 45	MN	I-Beam	1902	No	No	n/a	n/a	Replaced	Steel
16.90	M 46	MN	I-Beam	1903	Yes	Yes	A, C	1903-1949	Replaced	Steel
17.80	M 47	MN	Single Stone Box Culvert	1903	Yes	Yes	A	1903-1949	Replaced	Stone Box
18.20	M 48	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
18.80	M 51	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
19.50	M 53	MN	I-Beam	1904	Yes	Yes	A, C	1904-1949	Replaced	Steel
20.40	M 55	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
20.95	M 56	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
21.45	M57	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
22.20	M 59	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
24.15	M 61	MN	Single Stone Box Culvert	1910	Yes	Yes	A	1910-1949	Replaced	Stone Box

**Minnesota Historical Bridges
Disposition of Eligible Bridges**

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
24.45	M 62	MN	Stone Arch	1907	Yes	Yes	A, C	1907-1949	Rehabbed or in-kind	Arch
25.90	M 63	MN	Stone Arch	1907	Yes	Yes	A, C	1907-1949	Rehabbed or in-kind	Arch
27.50	M 65	MN	Single Stone Box Culvert	1895	Yes	Yes	A	1895-1949	Replaced	Stone Box
27.80	M 66	MN	I-Beam	1904	Yes	Yes	A, C	1904-1949	Replaced	Steel
29.40	M 71	MN	Open Deck Pile Trestle	1957	n/a	No	n/a	n/a	Replaced	Timber
29.80	M 73	MN	Single Stone Box Culvert	Ca. 1900	Yes	Yes	A	Ca. 1900-1949	Replaced	Stone Box
29.90	M 74	MN	Open Deck Pile Trestle	1959	n/a	No	n/a	n/a	Replaced	Timber
30.50	M75	MN	Single Stone Box Culvert	Ca. 1900	Yes	Yes	A	ca. 1900-1949	Replaced	Stone Box
30.90	M76	MN	I-Beam	1914	Yes	Yes	A,C	1914-1949	Replaced	Steel
31.10	M 77	MN	Through Plate Girder	1910	Yes	Yes	A, C	1910-1949	Replaced	Steel
31.70	M 78	MN	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
31.80	M 79	MN	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
31.87	M80	MN	I-Beam	1910	Yes	Yes	A,C	1910-1949	Replaced	Steel
32.45	M 83	MN	Open Deck Pile Trestle	1974	n/a	No	n/a	n/a	Replaced	Timber
33.10	M 85	MN	Through Plate Girder	1919	Yes	Yes	A, C	1919-1949	Replaced	Steel
33.25	M 86	MN	Through Plate Girder	1919	Yes	Yes	A, C	1919-1949	Replaced	Steel
33.45	M 87	MN	Through Plate Girder	1919	Yes	Yes	A, C	1919-1949	Replaced	Steel
33.80	M 88	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
34.40	M 89	MN	Through Plate Girder	1907	Yes	Yes	A, C	1907-1949	Replaced	Steel
34.85	M 90	MN	Open Deck Pile Trestle	1941	Yes	Yes	A	1941-1949	Replaced	Timber
34.90	M 91	MN	Open Deck Pile Trestle	1970	n/a	No	n/a	n/a	Replaced	Timber
35.70	M 92	MN	Open Deck Pile Trestle	1964	n/a	No	n/u	n/a	Replaced	Timber
36.30	M 93	MN	Open Deck Pile Trestle	1951	n/a	No	n/a	n/a	Replaced	Timber
36.75	M 94	MN	Through Plate Girder	1904	Yes	Yes	A, C	1904-1949	Replaced	Steel
37.25	M 95	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
38.15	M 96	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
38.55	M 97	MN	Single Stone Box Culvert	1899	Yes	Yes	A	1899-1949	Replaced	Stone Box
38.95	M 98	MN	Single Stone Box Culvert	1903	Yes	Yes	A	1903-1949	Replaced	Stone Box
39.50	M IOO	MN	Single Stone Box Culvert	1899	Yes	Yes	A	1899-1949	Replaced	Stone Box
40.05	M 101.5	MN	Deck Plate Girder	1930	Yes	Yes	A,C	1930-1949	Replaced	Steel
40.10	M IO2	MN	Stone Arch	1883	Yes	Yes	A,C	1883-1949	Rehabbed or in-kind	Arch
40.90	M 104	MN	Stone Arch	1910	Yes	Yes	A,C	1910-1949	Rehabbed or in-kind	Arch
41.05	M 105	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
41.85	M 106	MN	Open Deck Pile Trestle	1942	Yes	Yes	A	1942-1949	Replaced	Timber
42.50	M 107	MN	Open Deck Pile Trestle	1945	Yes	Yes	A	1945-1949	Replaced	Timber
43.10	M 108	MN	Open Deck Pile Trestle	1953	n/a	No	n/a	n/a	Replaced	Timber
43.50	M 109	MN	Single Stone Box Culvert	1891	Yes	Yes	A	189 1-1949	Replaced	Stone Box
43.75	M 110	MN	Single Stone Box Culvert	1905	Yes	Yes	A	1905-1949	Replaced	Stone Box
44.10	M 111	MN	Open Deck Pile Trestle	1940	Yes	Yes	A	1940-1949	Replaced	Timber
44.50	M 111.5	MN	Open Deck Pile Trestle	1966	n/a	No	ri/a	n/a	Replaced	Timber
44.60	M 112	MN	Open Deck Pile Trestle	1957	n/a	No	n/a	n/a	Replaced	Timber
45.40	M 113.5	MN	Open Deck Pile Trestle	1975	n/a	No	n/a	n/a	Replaced	Timber

**Minnesota Historical Bridges
Disposition of Eligible Bridges**

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
45.45	M 115	MN	Open Deck Pile Trestle	1942	Yes	Yes	A	1942-1949	Replaced	Timber
45.70	M 115.5	MN	Open Deck Pile Trestle	1971	n/a	No	n/a	n/a	Replaced	Timber
46.10	M 116	MN	Open Deck Pile Trestle	1956	n/a	No	n/a	n/a	Replaced	Timber
46.40	M 117	MN	Open Deck Pile Trestle	1946	Yes	Yes	A	1943-1949	Replaced	Timber
46.50	M 118	MN	I-Beam	1946	Yes	Yes	A	1946-1949	Replaced	Steel
46.55	M 120	MN	I-Beam	1966	n/a	No	n/a	n/a	Replaced	Steel
47.01	M 121	MN	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
47.30	M 122	MN	I-Beam	1910	Yes	Yes	A,C	1910-1949	Replaced	Steel
47.40	M 123	MN	I-Beam	1910	Yes	Yes	A,C	1910-1949	Replaced	Steel
47.90	M 125	MN	I-Beam	1910	Yes	Yes	A,C	1910-1949	Replaced	Steel
49.00	M 126	MN	Deck Plate Girder	1919	Yes	Yes	A,C	1919-1949	Replaced	Steel
49.60	M 128	MN	Deck Plate Girder	1916	Yes	Yes	A,C	1916-1949	Replaced	Steel
50.80	M 130	MN	Open Deck Pile Trestle	1957	n/a	No	n/a	n/a	Replaced	Timber
50.84	M 131	MN	Open Deck Pile Trestle	1957	n/a	No	n/a	n/a	Replaced	Timber
51.90	M 133	MN	Open Deck Pile Trestle	1942	Yes	Yes	A	1942-1949	Replaced	Timber
53.50	M 134	MN	Single Stone Box Culvert	1905	No	No	n/a	n/a	Replaced	Stone Box
54.10	M 136	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
54.80	M 137	MN	Stone Arch	1892	Yes	Yes	A, C	1892-1949	Rehabbed or in-kind	Arch
55.10	M 138	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box
55.40	M 139	MN	Single Stone Box Culvert	1894	Yes	Yes	A	1894-1949	Replaced	Stone Box
55.50	M 140	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box
55.60	M 141	MN	Single Stone Box Culvert	1894	Yes	Yes	A	1894-1949	Replaced	Stone Box
55.90	M 142	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box
56.05	M 143	MN	Single Stone Box Culvert	1894	Yes	Yes	A	1894-1949	Replaced	Stone Box
56.10	M 144	MN	Single Stone Box Culvert	1894	Yes	Yes	A	1894-1949	Replaced	Stone Box
56.20	M 145	MN	Single Stone Box Culvert	1895	Yes	Yes	A	1895-1949	Replaced	Stone Box
56.60	M 146	MN	Single Stone Box Culvert	1895	Yes	Yes	A	1895-1949	Replaced	Stone Box
57.90	M 148	MN	Single Stone Box Culvert	1905	Yes	Yes	A	1905-1949	Replaced	Stone Box
59.80	M 151	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
59.90	M 152	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
60.40	M 153	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
61.60	M 156	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
63.40	M 161	MN	I-Beam	1907	Yes	Yes	A,C	1907-1949	Replaced	Steel
64.70	M 165	MN	Single Stone Box Culvert	1896	No	No	n/a	n/a	Replaced	Stone Box
65.40	M 166	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
66.20	M 168	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
67.90	M 170	MN	Single Stone Box Culvert	1895	Yes	Yes	A	1895-1949	Replaced	Stone Box
68.10	M 171	MN	Single Stone Box Culvert	1905	Yes	Yes	A	1905-1949	Replaced	Stone Box
69.90	M 177	MN	Open Deck Pile Trestle	1944	Yes	Yes	A	1944-1949	Replaced	Timber
71.05	M 179	MN	Deck Plate Girder	1919	Yes	Yes	A, C	1919-1949	Replaced	Steel
73.50	M 183	MN	Single Stone Box Culvert	1901	No	No	n/a	n/a	Replaced	Stone Box
74.40	M 184	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
75.40	M 186	MN	Single Stone Box Culvert	1897	No	No	n/a	n/a	Replaced	Stone Box
76.10	M 188	MN	I-Beam	1913	Yes	Yes	A,C	1913-1949	Replaced	Steel
77.30	M 191	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box

**Minnesota Historical Bridges
Disposition of Eligible Bridges**

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
78.10	M 192	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
78.75	M 194	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
79.30	M 195	MN	Single Stone Box Culvert	1904	Yes	Yes	A	1904-1949	Replaced	Stone Box
80.20	M 196	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
82.10	M 201	MN	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
82.50	M 202	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
83.60	M 204	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
84.10	M 205	MN	Open Deck Pile Trestle	1960	n/a	No	n/a	n/a	Replaced	Timber
84.80	M 206	MN	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
84.90	M 207	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
85.10	M 208	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
85.80	M 209	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
86.35	M 210	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
88.98	M 219	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
89.75	M 220	MN	Single Stone Box Culvert	1905	Yes	Yes	A	1905-1949	Replaced	Stone Box
91.10	M 221	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
92.20	M 224	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
92.75	M 225	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
92.90	M 226	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
93.40	M 227	MN	I-Beam	1940	Yes	Yes	A,C	1940-1949	Replaced	Steel
93.60	M 228	MN	Open Deck Pile Trestle	1953	n/a	No	n/a	n/a	Replaced	Timber
93.85	M 229	MN	Single Stone Box Culvert	1895	Yes	Yes	A	1895-1949	Replaced	Stone Box
94.40	M 230	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
95.30	M 231	MN	Open Deck Pile Trestle	1956	n/a	No	n/a	n/a	Replaced	Timber
95.70	M 232	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
95.80	M 233	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
96.20	M 234	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
97.12	M 235	MN	I-Beam	1916	Yes	Yes	A,C	1916-1949	Replaced	Steel
97.90	M 236	MN	Single Stone Box Culvert	1897	No	No	n/a	n/a	Replaced	Stone Box
98.45	M 237	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
98.94	M 239	MN	Open Deck Pile Trestle	1951	n/a	No	n/a	n/a	Replaced	Timber
99.25	M 240	MN	Single Stone Box Culvert	1897	No	No	n/a	n/a	Replaced	Stone Box
100.50	M 243	MN	Single Stone Box Culvert	1903	Yes	Yes	A	1903-1949	Replaced	Stone Box
100.80	M 244	MN	Single Stone Box Culvert	1894	Yes	Yes	A	1894-1949	Replaced	Stone Box
101.20	M 245	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
102.10	M 246	MN	Single Stone Box Culvert	1894	Yes	Yes	A	1894-1949	Replaced	Stone Box
102.80	M 248	MN	Stone Arch	1884	No	No	n/a	n/a	Replaced	Arch
103.30	M 249	MN	I-Beam	1908	Yes	Yes	A,C	1908-1949	Replaced	Steel
105.45	M 252	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
105.60	M 253	MN	Single Stone Box Culvert	1911	Yes	Yes	A	1911-1949	Replaced	Stone Box
107.25	M 256	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
107.50	M 257	MN	Single Stone Box Culvert	1900	No	No	n/a	nia	Replaced	Stone Box
109.90	M 262	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
110.60	M 263	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
112.10	M 265	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
112.40	M 266	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box

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Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
113.54	M 269	MN	Deck Plate Girder	1916	Yes	Yes	A,C	1916-1949	Replaced	Steel
113.68	M 270	MN	Deck Plate Girder	1908	Yes	Yes	A,C	1908-1949	Replaced	Steel
113.90	M 271	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
114.55	M 273	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
115.10	M 274	MN	Single Stone Box Culvert	1896	No	No	n/a	n/a	Replaced	Stone Box
115.50	M 276	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
115.90	M 278	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
116.55	M 281	MN	Single Stone Box Culvert	1895	No	No	n/a	n/a	Replaced	Stone Box
116.65	M 282	MN	Single Stone Box Culvert	1895	No	No	n/a	n/a	Replaced	Stone Box
116.80	M 283	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Replaced	Stone Box
117.20	M 284	MN	Single Stone Box Culvert	1895	Yes	Yes	A	1895-1949	Replaced	Stone Box
118.08	M 286	MN	Open Deck Pile Trestle	1969	n/a	No	n/a	n/a	Replaced	Timber
118.80	M 287	MN	Single Stone Box Culvert	1896	No	No	n/a	n/a	Replaced	Stone Box
119.10	M 288	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Not On Preferred Route - Mankato	NA
119.30	M 289	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Not On Preferred Route - Mankato	NA
119.75	M 290	MN	Concrete Arch	1915	Yes	Yes	A	1915-1949	Not On Preferred Route - Mankato	NA
120.25	M 291	MN	Open Deck Pile Trestle	1972	n/a	No	n/a	n/a	Not On Preferred Route - Mankato	NA
120.60	M 293	MN	Single Stone Box Culvert	1896	Yes	Yes	A	1896-1949	Not On Preferred Route - Mankato	NA
122.40	M 298	MN	Concrete Box Culvert	1909	Yes	Yes	A	1909-1949	Not On Preferred Route - Mankato	NA
123.30	M 300	MN	Single Stone Box Culvert	1899	Yes	Yes	A	1899-1949	Not On Preferred Route - Mankato	NA
123.50	M 301	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Not On Preferred Route - Mankato	NA
127.83	MA 311	MN	Open Deck Pile Trestle	1942	Yes	Yes	A	1942-1949	Not On Preferred Route - Mankato	NA
127.96	MA 312	MN	Open Deck Pile Trestle	1956	n/a	No	n/a	n/a	Not On Preferred Route - Mankato	NA
128.53	MA 316	MN	Open Deck Pile Trestle	1972	n/a	No	n/a	n/a	Not On Preferred Route - Mankato	NA
128.72	MA 317	MN	Open Deck Pile Trestle	1972	n/a	No	n/a	n/a	Not On Preferred Route - Mankato	NA
128.90	MA 319	MN	Open Deck Pile Trestle	ca.1940	Yes	Yes	A,C	1940-1949	Not On Preferred Route - Mankato	NA
129.15	MA 321	MN	Open Deck Pile Trestle	ca.1940	Yes	Yes	A,C	1940-1949	Not On Preferred Route - Mankato	NA
129.40	MA 322	MN	Open Deck Pile Trestle	1972	n/a	No	n/a	n/a	Not On Preferred Route - Mankato	NA
129.55	MA 324	MN	Stone Arch	1887	Yes	Yes	A,C	1874-1949	Not On Preferred Route - Mankato	NA
143.39	M 1612	MN	Deck Plate Girder	1951	n/a	No	n/a	n/a	Replaced	Steel

Minnesota Historical Bridges Disposition of Eligible Bridges

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
143.60	M 1614	MN	Single Stone Box Culvert	1908	Yes	Yes	A	1908-1949	Replaced	Stone Box
144.21	M 1617	MN	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
144.52	M 1622	MN	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
144.90	M 1625	MN	Open Deck Pile Trestle	1931	No	No	n/a	n/a	Replaced	Timber
145.85	M 1637	MN	Open Deck Pile Trestle	1956	n/a	No	n/a	n/a	Replaced	Timber
146.33	M 1640	MN	Open Deck Pile Trestle	1969	n/a	No	n/a	n/a	Replaced	Timber
146.70	M 1641	MN	Open Deck Pile Trestle	1956	n/a	No	n/a	n/a	Replaced	Timber
146.85	M 1641	MN	Open Deck Pile Trestle	1945	Yes	Yes	A	1945-1949	Replaced	Timber
147.25	M 1643	MN	Open Deck Pile Trestle	1927	n/a	No	nia	n/a	Replaced	Timber
147.80	M 1644	MN	Concrete and I-Beam	1908	Yes	Yes	A,C	1908-1949	Replaced	Misc
147.90	M 1645	MN	I-Beam	1909	Yes	Yes	A,C	1909-1949	Replaced	Steel
150.53	M 1650	MN	Open Deck Pile Trestle	1942	Yes	Yes	A	1942-1949	Replaced	Timber
150.60	M 1651	MN	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
150.96	M 1654	MN	Open Deck Pile Trestle	1972	n/a	No	n/a	n/a	Replaced	Timber
151.41	M 1657	MN	Open Deck Pile Trestle	1927	Yes	Yes	A	1927-1949	Replaced	Timber
151.63	M 1658	MN	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
151.72	M 1659	MN	Open Deck Pile Trestle	1971	n/a	No	nia	n/a	Replaced	Timber
151.80	M 1660	MN	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
152.08	M 1661	MN	Open Deck Pile Trestle	1939	Yes	Yes	A	1939-1949	Replaced	Timber
152.20	M 1662	MN	Open Deck Pile Trestle	1968	n/a	No	n/a	n/a	Replaced	Timber
152.30	M 1663	MN	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Replaced	Timber
152.50	M 1664	MN	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
152.80	M 1665	MN	Open Deck Pile Trestle	1931	Yes	Yes	A	1931-1949	Replaced	Timber
152.95	M 1666	MN	Deck Plate Girder	1914	Yes	Yes	A,C	1914-1949	Replaced	Steel
153.38	M 1668	MN	Open Deck Pile Trestle	1939	Yes	Yes	A	1939-1949	Replaced	Timber
153.98	M 1672	MN	Open Deck Pile Trestle	1970	n/a	No	n/a	n/a	Replaced	Timber
154.21	M 1675	MN	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Replaced	Timber
154.30	M 1676	MN	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
154.31	M 1677	MN	Open Deck Pile Trestle	1944	Yes	Yes	A	1944-1949	Replaced	Timber
154.98	M 1679	MN	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
155.60	M 1682	MN	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
157.50	M 1686	MN	Single Stone Box Culvert	1910	Yes	Yes	A	1910-1949	Replaced	Stone Box
157.81	M 1687	MN	Through Plate Girder	1919	Yes	Yes	A,C	1919-1949	Replaced	Steel
158.72	M 1690	MN	Single Stone Box Culvert	1908	Yes	Yes	A	1908-1949	Replaced	Stone Box
158.74	M 1691	MN	Open Deck Pile Trestle	1927	Yes	Yes	A	1927-1949	Replaced	Timber
158.84	M 1693	MN	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
158.94	M 1694	MN	Open Deck Pile Trestle	1935	Yes	Yes	A	1935-1949	Replaced	Timber
159.50	M 1698	MN	Open Deck Pile Trestle	1927	Yes	Yes	A	1927-1949	Replaced	Timber
160.35	M 1699	MN	Open Deck Pile Trestle	1931	Yes	Yes	A	193 1-1949	Replaced	Timber
160.80	M 1700	MN	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1944	Replaced	Timber
161.47	M 1701	MN	Open Deck Pile Trestle	1931	Yes	Yes	A	1931-1949	Replaced	Timber
162.80	M 1703	MN	Triangular Lattice Through Truss	1913	Yes	Yes	A,C	1913-1949	Replaced	Steel
164.10	436	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
164.60	438	MN	Single Stone Box Culvert	1899	Yes	Yes	A	1899-1949	Replaced	Stone Box
164.80	439	MN	Single Stone Box Culvert	1899	Yes	Yes	A	1899-1949	Replaced	Stone Box

**Minnesota Historical Bridges
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Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
165.90	442	MN	Stone Arch	1910	Yes	Yes	A, C	1910-1949	Rehabbed or in-kind	Arch
166.10	442.5	MN	Through Plate Girder	1896	Yes	Yes	A, C	1896-1949	Replaced	Steel
166.50	442.75	MN	I-Beam	1911	Yes	Yes	A, C	1811-1949	Replaced	Steel
167.10	444	MN	I-Beam	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
168.30	445	MN	Single Stone Box Culvert	1871	Yes	Yes	A	1871-1949	Replaced	Stone Box
168.63	446	MN	I-Beam	1913	Yes	Yes	A,C	1913-1949	Replaced	Steel
169.20	448	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
170.10	449	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901 -1949	Replaced	Stone Box
171.14	451	MN	Open Deck Pile Trestle	1955	n/a	No	n/a	n/a	Replaced	Timber
171.90	452	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box
172.20	453	MN	Open Deck Pile Trestle	1957	n/a	No	n/a	n/a	Replaced	Timber
173.30	455	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box
174.90	457	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
177.40	460	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
177.78	462	MN	I-Beam	1910	Yes	Yes	A	1910-1949	Replaced	Steel
178.40	463	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box
179.90	464.5	MN	Through Plate Girder	1940	Yes	Yes	A	1940-1949	Replaced	Steel
180.40	465	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
181.30	466	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
181.66	468	MN	Open Deck Pile Trestle	1955	n/a	No	n/a	n/a	Replaced	Timber
182.10	469	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
182.60	470	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
182.70	471	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
183.25	472	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
183.50	473	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
184.12	474	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
184.90	475	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
185.50	476	MN	Single Stone Box Culvert	1901	No	No	n/a	n/a	Replaced	Stone Box
186.20	477	MN	Single Stone Box Culvert	1903	No	No	n/a	1903-1949	Replaced	Stone Box
186.76	477.75	MN	Through Plate Girder	1932	Yes	Yes	A	1932-1949	Rehabbed or in-kind	Steel
186.79	478	MN	Deck Plate Girder	1917	Yes	Yes	A, C	1917-1949	Replaced	Steel
187.50	480	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
191.10	487	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
191.50	488	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
191.80	489	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
192.30	490	MN	Concrete Box Culvert	1916	Yes	Yes	A	1916-1949	Rehabbed or in-kind	Concrete
192.70	491	MN	Open Deck Pile Trestle	1926	n/a	No	n/a	n/a	Replaced	Timber
193.50	494	MN	Single Stone Box Culvert	1899	Yes	Yes	A	1899-1949	Replaced	Stone Box
193.80	495	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
194.20	496	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
195.66	498	MN	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
195.90	500	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
196.10	501	MN	Single Stone Box Culvert	1894	Yes	Yes	A	1894-1949	Replaced	Stone Box

**Minnesota Historical Bridges
Disposition of Eligible Bridges**

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
196.74	502	MN	Deck Plate Girder	1924	Yes	Yes	A, C	1924-1949	Replaced	Steel
197.30	503	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
197.40	504	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
197.50	505	MN	Open Deck Pile Trestle	1946	Yes	Yes	A	1946-1949	Replaced	Timber
198.01	506	MN	I-Beam	1910	Yes	Yes	A,C	1910-1949	Replaced	Steel
198.80	507	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box
198.90	508	MN	Single Stone Box Culvert	1899	Yes	Yes	A	1899-1949	Replaced	Stone Box
199.50	510	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
202.10	517	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
203.39	520	MN	I-Beam	1910	No	No	n/a	n/a	Replaced	Steel
203.60	521	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
203.90	522	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
204.29	524	MN	Open Deck Pile Trestle	1952	n/a	No	n/a	n/a	Replaced	Timber
205.75	525	MN	Single Stone Box Culvert	1898	Yes	Yes	A	1898-1949	Replaced	Stone Box
206.20	526	MN	Deck Plate Girder, Triangular Lattice Through Truss	1919, 1920	Yes	Yes	A, C	1919-1949	Replaced	Steel
206.45	527	MN	I-Beam	1919	Yes	Yes	A,C	1919-1949	Replaced	Steel
206.73	528	MN	I-Beam	1918	Yes	Yes	A,C	1918-1949	Replaced	Steel
206.98	529	MN	Through Plate Girder	1919	Yes	Yes	A, C	1919-1949	Replaced	Steel
207.46	530	MN	I-Beam	1916	Yes	Yes	A,C	1916-1949	Replaced	Steel
207.71	531	MN	I-Beam	1913	Yes	Yes	A,C	1916-1949	Replaced	Steel
207.80	532	MN	Single Stone Box Culvert	1891	Yes	Yes	A	1891-1949	Replaced	Stone Box
209.25	534	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
211.90	539	MN	Single Stone Box Culvert	1898	No	No	n/a	n/a	Replaced	Stone Box
212.25	540	MN	Stone Arch	1904	Yes	Yes	A, C	1904-1949	Rehabbed or in-kind	Arch
213.90	511	MN	Open Deck Pile Trestle	1940	Yes	Yes	A	1940-1949	Replaced	Timber
214.85	544	MN	Open Deck Pile Trestle	1936	Yes	Yes	A	1936-1949	Replaced	Timber
216.20	546	MN	Single Stone Box Culvert	1903	Yes	Yes	A	1903-1949	Replaced	Stone Box
217.30	548	MN	Single Stone Box Culvert	1897	Yes	Yes	A	1897-1949	Replaced	Stone Box
219.30	554	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
220.10	556	MN	Deck Plate Girder	1917	Yes	Yes	A, C	1917-1949	Replaced	Steel
220.20	556.5	MN	Deck Plate Girder	1915	Yes	Yes	A,C	1915-1949	Replaced	Steel
220.38	557	MN	Cast-Iron Pipe Culvert	1905	Yes	Yes	A	1905-1949	Replaced	Misc
221.20	559	MN	Single Stone Box Culvert	1901	Yes	Yes	A	1901-1949	Replaced	Stone Box
221.81	560	MN	Stone Arch	1910	Yes	Yes	A,C	1910-1949	Rehabbed or in-kind	Arch
222.10	561	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
222.70	562	MN	Concrete Box Culvert	1923	Yes	Yes	A	1923-1949	Rehabbed or in-kind	Concrete
223.50	564	MN	Stone Arch	1905	Yes	Yes	A, C	1905-1949	Rehabbed or in-kind	Arch
224.80	565	MN	Stone Arch	1919	Yes	Yes	A,C	1919-1949	Rehabbed or in-kind	Arch
225.95	566	MN	Single Stone Box Culvert	1910	Yes	Yes	A	1910-1949	Replaced	Stone Box
226.20	567	MN	Single Stone Box Culvert	1892	Yes	Yes	A	1892-1949	Replaced	Stone Box

**Minnesota Historical Bridges
Disposition of Eligible Bridges**

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
227.70	1302	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
234.45	1312.5	MN	Open Deck Pile Trestle	1948	Yes	Yes	A	1948-1949	Replaced	Timber
235.90	1315	MN	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
236.20	1316	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
237.07	1317	MN	Open Deck Pile Trestle	1961	n/a	No	n/a	n/a	Replaced	Timber
237.59	1319	MN	Open Deck Pile Trestle	1943	Yes	Yes	A	1943-1949	Replaced	Timber
237.76	1320	MN	Open Deck Pile Trestle	1943	Yes	Yes	A	1943-1949	Replaced	Timber
238.31	1321	MN	Open Deck Pile Trestle	1955	n/a	No	n/a	n/a	Replaced	Timber
238.65	1322	MN	Open Deck Pile Trestle	1955	n/a	No	n/a	n/a	Replaced	Timber
239.20	1324	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
239.62	1325	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
239.80	1326	MN	Single Stone Box Culvert	1900	Yes	Yes	A	1908- 1949	Replaced	Stone Box
242.12	1330	MN	Open Deck Pile Trestle	1963	n/a	No	n/a	n/a	Replaced	Timber
243.12	1332	MN	Open Deck Pile Trestle	1952	n/a	No	n/a	n/a	Replaced	Timber
244.20	1333	MN	Open Deck Pile Trestle	1945	Yes	Yes	A	1945-1949	Replaced	Timber
244.60	1334	MN	Open Deck Pile Trestle	1969	n/a	No	n/a	n/a	Replaced	Timber
245.20	1336	MN	Single Stone Box Culvert	1910	Yes	Yes	A	1910-1949	Replaced	Stone Box
245.30	1337	MN	Open Deck Pile Trestle	1963	n/a	No	n/a	n/a	Replaced	Timber
245.80	1338	MN	Single Stone Box Culvert	3902	Yes	Yes	A	1902-1949	Replaced	Stone Box
245.90	1339	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
246.25	1340	MN	Single Stone Box Culvert	1902	Yes	Yes	A	1902-1949	Replaced	Stone Box
246.85	1341	MN	Double Intersection Warren Deck Truss	1902	Yes	Yes	A, C	1902-1949	No Work Necessary	Steel
247.35	1342	MN	Open Deck Pile Trestle	1952	n/a	No	n/a	n/a	Necessary - Replaced	NA
248.06	1345	MN	Open Deck Pile Trestle	1955	n/a	No	n/a	n/a	Replaced	Timber
248.42	1347	MN	Open Deck Pile Trestle	1931	Yes	Yes	A	193 1-1949	Replaced	Timber
249.40	1353	MN	Single Stone Box Culvert	1913	Yes	Yes	A	1913-1949	Replaced	Stone Box
250.05	1353	MN	Open Deck Pile Trestle	1952	n/a	No	n/a	n/a	No Work Necessary - Replaced	NA
251.30	3356	MN	Single Stone Box Culvert	1910	Yes	Yes	A	1910-3949	Replaced	Stone Box
251.72	1357	MN	Open Deck Pile Trestle	1969	n/a	No	n/a	n/a	Replaced	Timber
253.20	1350	MN	I-Beam	1912	Yes	Yes	A,C	1912-1949	Replaced	Steel
253.76	1361	MN	Single Stone Box Culvert	1904	Yes	Yes	A	1904-1949	Replaced	Stone Box
253.90	1363	MN	Single Stone Box Culvert	1910	Yes	Yes	A	1910-1949	Replaced	Stone Box
256.40	1366	MN	Single Stone Box Culvert	1904	Yes	Yes	A	1904-1949	Replaced	Stone Box
257.30	1368	MN	Single Stone Box Culvert	1905	Yes	Yes	A	1905-1949	Replaced	Stone Box
258.63	1371	MN	I-Beam	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
259.80	1374.5	MN	Open Deck Pile Trestle	1946	Yes	Yes	A	1946-1949	Replaced	Timber
259.90	1375	MN	Open Deck Pile Trestle	1931	Yes	Yes	A	193 1-1949	Replaced	Timber
260.30	1376	MN	Open Deck Pile Trestle	1935	Yes	Yes	A	1935-1949	Replaced	Timber
261.80	1380	MN	Open Deck Pile Trestle	1961	n/a	No	n/a	n/a	Replaced	Timber
263.42	1383	MN	Open Deck Pile Trestle	1963	n/a	No	n/a	n/a	Replaced	Timber
263.63	1384	MN	Open Deck Pile Trestle	1950	n/a	No	il/a	n/a	Replaced	Timber

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Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
263.86	1385	MN	Open Deck Pile Trestle	1955	n/a	No	n/a	n/a	Replaced	Timber
264.70	1386	MN	Open Deck Pile Trestle	1961	n/a	No	n/a	n/a	Replaced	Timber
265.20	1387	MN	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
265.55	1388	MN	Open Deck Pile Trestle	1961	n/a	No	n/a	n/a	Replaced	Timber
266.50	1391	MN	Stone Arch	1908	Yes	Yes	A,C	1908-1949	Replaced	Arch
267.10	1392	MN	Open Deck Pile Trestle	1946	Yes	Yes	A	1946-1949	Replaced	Timber
267.90	1393	MN	Open Deck Pile Trestle	1956	n/a	No	N/A	n/a	Replaced	Timber
268.47	1394	MN	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
268.95	1395	MN	Cast-Iron Pipe Culvert	1903	Yes	Yes	A	1903-1949	Replaced	Misc
269.19	1396	MN	Single Stone Box Culvert	1907	Yes	Yes	A	1907-1949	Replaced	Stone Box
269.82	1397	MN	Open Deck Pile Trestle	1967	n/a	No	n/a	n/a	Replaced	Timber
271.29	1398	MN	Open Deck Pile Trestle	1946	Yes	Yes	A	1946-1949	Replaced	Timber
272.85	1399	MN	I-Beam	1909	Yes	Yes	A	1909-1949	Replaced	Steel

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Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
276.53	1	SD	Open Deck Pile Trestle	1968	n/a	n/a	n/a	n/a	Replaced	Timber
278.18	2	SD	Open Deck Pile Trestle	1961	n/a	n/a	n/a	n/a	Replaced	Timber
280.31	5	SD	Open Deck Pile Trestle	1948	Yes	Yes	A	1948-1949	Replaced	Timber
280.92	6	SD	Single Stone Box Culvert	1904	Yes	Yes	A	1904-1949	Replaced	Stone Box
282.60	7	SD	Single Stone Box Culvert	1903	Yes	Yes	A	1903-1949	Replaced	Stone Box
283.44	8	SD	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Replaced	Timber
283.60	8.5	SD	Open Deck Pile Trestle	1956	n/a	n/a	n/a	n/a	Replaced	Timber
283.66	9	SD	Open Deck Pile Trestle	1954	n/a	n/a	n/a	n/a	Replaced	Timber
285.52	10	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
287.05	11	SD	Open Deck Pile Trestle	1968	n/a	n/a	n/a	n/a	Replaced	Timber
287.29	12	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
288.11	14	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
290.70	17.5	SD	Through Plate Girder	1937	Yes	Yes	A, C	1937-1949	Replaced	Steel
291.88	18	SD	Open Deck Pile Trestle	1960	n/a	n/a	n/a	n/a	Replaced	Timber
292.30	19	SD	Open Deck Pile Trestle	1965	n/a	n/a	n/a	n/a	Replaced	Timber
292.60	20	SD	Open Deck Pile Trestle	1968	n/a	n/a	n/a	n/a	Replaced	Timber
293.20	21	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
293.45	23	SD	Open Deck Pile Trestle	1956	n/a	n/a	n/a	n/a	Replaced	Timber
293.98	24	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
294.30	24.5	SD	Open Deck Pile Trestle	1972	n/a	n/a	n/a	n/a	Replaced	Timber
294.90	27	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
295.10	28	SD	Open Deck Pile Trestle	1960	n/a	n/a	n/a	n/a	Replaced	Timber
295.50	29	SD	Riveted Pratt Through Truss	1910	Yes	Yes	A, C	1910-1949	No Work Required	Steel
295.90	30	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
301.87	38	SD	Open Deck Pile Trestle	1936	Yes	Yes	A	1936-1949	Replaced	Timber
302.29	40	SD	Open Deck Pile Trestle	1956	n/a	n/a	n/a	n/a	Replaced	Timber
302.45	41	SD	Open Deck Pile Trestle	1959	n/a	n/a	n/a	n/a	Replaced	Timber
302.86	43	SD	Open Deck Pile Trestle	1940	Yes	Yes	A	1940-1949	Replaced	Timber
303.30	45	SD	Open Deck Pile Trestle	1959	a	n/a	n/a	n/a	Replaced	Timber
304.13	46	SD	Open Deck Pile Trestle	1935	Yes	Yes	A	1935-1949	Replaced	Timber
305.32	47	SD	Open Deck Pile Trestle	1953	n/a	n/a	n/a	n/a	Replaced	Timber
306.76	48	SD	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
307.10	49	SD	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
307.90	51	SD	Single Stone Box Culvert	1909	Yes	Yes	A	1909-1949	Replaced	Stone Box
308.88	52	SD	I-Beam	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
312.84	58	SD	Open Deck Pile Trestle	1940	Yes	Yes	A	1940-1949	Replaced	Timber
314.50	60	SD	Single Stone Box Culvert	1906	Yes	Yes	A	1906-1949	Replaced	Stone Box
315.24	61	SD	Open Deck Pile Trestle	1933	Yes	Yes	A	1933-1949	Replaced	Timber
318.74	72	SD	I-Beam	1909	Yes	Yes	A,C	1908-1949	Replaced	Steel
319.95	73	SD	Single Stone Box Culvert	1907	Yes	Yes	A	1907-1949	Replaced	Stone Box
320.45	73.5	SD	Single Stone Box Culvert	1907	Yes	Yes	A	1907-1949	Replaced	Stone Box

South Dakota Historical Bridges Disposition of Eligible Bridges

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
325.10	83	SD	Single Stone Box Culvert	1909	Yes	Yes	A	1909-1949	Replaced	Stone Box
326.70	88	SD	Single Stone Box Culvert	1911	Yes	Yes	A	1911-1949	Replaced	Stone Box
327.25	89	SD	Single Stone Box Culvert	1904	Yes	Yes	A	1904-1949	Replaced	Stone Box
327.39	90	SD	Open Deck Pile Trestle	1947	Yes	Yes	A	1947-1949	Replaced	Timber
328.14	91	SD	Open Deck Pile Trestle	1968	n/a	n/a	n/a	n/a	Replaced	Timber
330.60	95	SD	Single Stone Box Culvert	1900	Yes	Yes	A	1900-1949	Replaced	Stone Box
333.10	100	SD	Single Stone Box Culvert	1903	Yes	Yes	A	1903-1949	Replaced	Stone Box
335.79	105	SD	Open Deck Pile Trestle	1930	No	No	n/a	n/a	Replaced	Timber
337.76	107	SD	Deck Plate Girder	1909	Yes	Yes	A,C	1909-1949	Replaced	Steel
340.60	109	SD	Open Deck Pile Trestle	1940	Yes	Yes	A	1940-1949	Replaced	Timber
342.11	110	SD	Open Deck Pile Trestle	1945	Yes	Yes	A	1945-1949	Replaced	Timber
344.63	112	SD	Open Deck Pile Trestle	1939	Yes	Yes	A	1939-1949	Replaced	Timber
347.00	118	SD	Open Deck Pile Trestle	1952	n/a	n/a	n/a	n/a	Replaced	Timber
347.66	120	SD	Deck Plate Girder	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
348.65	121	SD	Single Stone Box Culvert	1909	Yes	Yes	A	1909-1949	Replaced	Stone Box
349.82	124	SD	Open Deck Pile Trestle	1962	n/a	n/a	n/a	n/a	Replaced	Timber
351.00	126	SD	Open Deck Pile Trestle	1962	n/a	n/a	n/a	n/a	Replaced	Timber
352.41	127	SD	Open Deck Pile Trestle	1963	n/a	n/a	n/a	n/a	Replaced	Timber
353.34	129	SD	Open Deck Pile Trestle	1952	n/a	n/a	n/a	n/a	Replaced	Timber
356.64	137	SD	Open Deck Pile Trestle	1938	Yes	Yes	A	1938-1949	Replaced	Timber
357.28	138	SD	Open Deck Pile Trestle	1927	Yes	Yes	A	1927-1949	Replaced	Timber
358.70	140	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Timber
362.04	142	SD	Deck Plate Girder	1904	Yes	Yes	A, C	1904-1949	Rehabbed or in-kind	Steel
365.55	144	SD	Single Stone Box Culvert	1909	Yes	Yes	A	1909-1949	Replaced	Stone Box
369.70	145	SD	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
371.25	147	SD	Single Stone Box Culvert	1907	Yes	Yes	A	1907-1949	Replaced	Stone Box
372.60	148	SD	Single Stone Box Culvert	1905	Yes	Yes	A	1905-1949	Replaced	Stone Box
375.20	150	SD	Precast Concrete Slab	1996	No	No	n/a	n/a	No Work Required	Concrete
379.80	153	SD	Open Deck Pile Trestle	1967	n/a	n/a	n/a	n/a	Replaced	Timber
381.85	156	SD	Single Stone Box Culvert	1909	Yes	Yes	A	1909-1949	Replaced	Stone Box
388.00	163	SD	Deck Plate Girder	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
389.25	166	SD	Single Stone Box Culvert	1907	Yes	Yes	A	1907-1949	Replaced	Stone Box
390.98	168	SD	Open Deck Pile Trestle	1946	Yes	Yes	A	1946-1949	Replaced	Timber
397.10	173	SD	Deck Plate Girder	1912	Yes	Yes	A, C(b)	1912-1949	Replaced	Steel
398.74	177	SD	Open Deck Pile Trestle	1935	Yes	Yes	A	1935-1949	Replaced	Timber
400.20	180	SD	Deck Plate Girder	1910	Yes	Yes	A,C	1910-1949	Replaced	Steel
403.41	186	SD	Open Deck Pile Trestle	1941	Yes	Yes	A	1941-1949	Replaced	Timber
406.10	188	SD	Open Deck Pile Trestle	1952	n/a	n/a	n/a	n/a	Replaced	Timber
407.60	189	SD	I-Beam	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
410.10	191	SD	Single Stone Box Culvert	1909	Yes	Yes	A	1909-1949	Replaced	Stone Box

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Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
410.70	192	SD	Single Stone Box Culvert	1909	Yes	Yes	A	1909-1949	Replaced	Stone Box
413.18	194	SD	Open Deck Pile Trestle	1931	Yes	Yes	A	1931-1949	Replaced	Timber
414.17	195	SD	I-Beam	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
418.15	200	SD	Single Stone Box Culvert	1910	Yes	Yes	A	1910-1949	Replaced	Stone Box
448.49	222	SD	Through Plate Girder	1914	Yes	Yes	A,C	1914-1949	Replaced	Steel
449.90	223	SD	Single Stone Box Culvert	1907	Yes	Yes	A	1907-1949	Replaced	Stone Box
450.10	224	SD	Single Stone Box Culvert	1907	Yes	Yes	A	1907-1949	Replaced	Stone Box
450.93	226	SD	Through Plate Girder	1912	Yes	Yes	A, C	19 12-1949	Replaced	Steel
452.15	228	SD	Open Deck Pile Trestle	1953	n/a	n/a	n/a	n/a	Replaced	Timber
452.70	229	SD	Open Deck Pile Trestle	1969	n/a	n/a	n/a	n/a	Replaced	Timber
453.46	230	SD	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
455.07	232	SD	Open Deck Pile Trestle	1934	Yes	Yes	A	1934-1949	Replaced	Timber
455.38	233	SD	Open Deck Pile Trestle	1935	Yes	Yes	A	1935-1949	Replaced	Timber
455.82	234	SD	Through Plate Girder	1911	Yes	Yes	A,C	1911-1949	Replaced	Steel
456.16	235	SD	Through Plate Girder	1911	Yes	Yes	A,C	1911-1949	Replaced	Steel
456.45	236	SD	Open Deck Pile Trestle	1947	Yes	Yes	A	1947-1949	Replaced	Timber
458.03	239	SD	Open Deck Pile Trestle	1970	n/a	n/a	n/a	n/a	Replaced	Timber
458.65	240	SD	Open Deck Pile Trestle	1939	Yes	Yes	A	1930-1949	Replaced	Timber
459.18	242	SD	Deck Plate Girder	1910	Yes	Yes	A, C	1910-1949	Replaced	Steel
459.60	243	SD	Through Plate Girder	1910	Yes	Yes	A, C	1910-1949	Replaced	Steel
459.95	244	SD	Double Stone Box Culvert	1908	Yes	Yes	A	1908-1949	Replaced	Stone Box
460.88	248	SD	Open Deck Pile Trestle	1939	Yes	Yes	A	1939-1949	Replaced	Timber
462.32	251	SD	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Replaced	Timber
462.57	252	SD	Through Plate Girder	1908	Yes	Yes	A, C	1908-1949	Replaced	Steel
463.41	254	SD	Open Deck Pile Trestle	1937	Yes	Yes	A	1937-1949	Replaced	Timber
464.04	255	SD	Through Plate Girder	1912	Yes	Yes	A,C	1912-1949	Replaced	Steel
464.30	256	SD	Through Plate Girder	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
465.61	259	SD	Through Plate Girder	1909	Yes	Yes	A, C	1909-1949	Replaced	Steel
466.30	261	SD	Through Plate Girder	1913	Yes	Yes	A,C	1913-1949	Replaced	Steel
466.62	263	SD	Open Deck Pile Trestle	1939	Yes	Yes	A	1939-1949	Replaced	Timber
467.48	265	SD	Through Plate Girder	1909	No	No	n/a	n/a	Replaced	Steel
472.65	271.25	SD	Open Deck Pile Trestle	1948	Yes	Yes	A	1948-1949	Replaced	Timber
473.43	272	SD	Open Deck Pile Trestle	1949	No	No	n/a	n/a	Replaced	Timber
473.70	272.5	SD	Open Deck Pile Trestle	1966	n/a	n/a	n/a	n/a	Replaced	Timber
474.00	274	SD	Open Deck Pile Trestle	1966	n/a	n/a	n/a	n/a	Replaced	Timber
474.54	275	SD	Open Deck Pile Trestle	1941	Yes	Yes	A	1941-1949	Replaced	Timber
476.80	288	SD	Deck Plate Girder	unknown	Yes	Yes	A, C(b)	[1940]-1949	Replaced	Steel
477.31	289	SD	Open Deck Pile Trestle	1948	Yes	Yes	A	1948-1949	Replaced	Timber
478.25	293	SD	Open Deck Pile Trestle	1934	Yes	Yes	A	1934-1949	Replaced	Timber
479.20	295	SD	Open Deck Pile Trestle	1948	Yes	Yes	A	1948-1949	Replaced	Timber
479.50	297	SD	Open Deck Pile Trestle	1947	Yes	Yes	A	1947-1949	Replaced	Timber
479.50	297A	SD	Open Deck Pile Trestle	1947	Yes	Yes	A	1947-1949	Replaced	Timber

South Dakota Historical Bridges Disposition of Eligible Bridges

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
480.10	298	SD	Double Stone Box Culvert	1907	No	No	n/a	n/a	Replaced	Stone Box
481.32	300	SI)	Open Deck Pile Trestle	1946	Yes	Yes	A	946-1949	Replaced	Timber
481.87	301.25	SD	Through Plate Girder	1907	Yes	Yes	A, C	1907-1949	Replaced	Steel
482.88	1500	SD	Pennsylvania Through Truss Triangular Lattice Through	1907	Yes	Listed	A, C	1907-1949	Rehabbed or in-kind	Steel
484.64	1506	SD	Truss	1906	Yes	Yes	A, C	1906-1949	Rehabbed or in-kind	Steel
485.02	1507	SD	Triangular Lattice Through Truss, Through Plate Girder	1921	Yes	Yes	C	1921-1949	Replaced	Steel
485.74	1508	SD	Triangular Lattice Through Truss	[1885]	Yes	Yes	A, C(b)	[1885]-1949	Replaced	Steel
486.48	1509	SD	Triangular Lattice Through Truss	[1885]	Yes	Yes	A, C(b)	[1885]-1949	Replaced	Steel
487.22	1510	SD	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Replaced	Timber
488.64	1512	SD	Through Plate Girder	1920	No	No	n/a	n/a	Replaced	Steel
489.48	1513	SD	Open Deck Pile Trestle	1927	Yes	Yes	A	1927-1949	Replaced	Timber
490.05	1514	SD	Open Deck Pile Trestle	1925	Yes	Yes	A	1925-1949	Replaced	Timber
491.50	1519	SD	Deck Plate Girder	1928	Yes	Yes	C	1928-1949	Replaced	Steel
492.43	1522	SD	Through Plate Girder	1905	Yes	Yes	A, C	1911-1949	Replaced	Steel
492.94	1523	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Timber
494.12	1527	SD	Triangular Lattice Through Truss	1924	Yes	Yes	A, C	1924-1949	Replaced	Steel
495.67	1531	SD	Triangular Lattice Through Truss	1925	Yes	Yes	C	1925-1949	Rehabbed or in-kind	Steel
496.81	1532.5	SD	Open Deck Pile Trestle	1942	No	No	n/a	n/a	Replaced	Timber
496.97	1533	SD	Open Deck Pile Trestle	1924	No	No	n/a	n/a	Replaced	Timber
497.23	1534	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Steel
499.38	1538	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Timber
500.37	1539	SD	Open Deck Pile Trestle	1943	Yes	Yes	A	1943-1949	Replaced	Timber
501.55	1545	SD	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Replaced	Timber
501.75	1546	SD	Open Deck Pile Trestle	1931	Yes	Yes	A	1931-1949	Replaced	Timber
502.28	1547	SD	Deck Plate Girder	1926	Yes	Yes	A,C	1926-1949	Replaced	Steel
502.76	1548	SD	Open Deck Pile Trestle	1922	Yes	Yes	A	1922-1949	Replaced	Timber
503.65	1552	SD	Through Plate Girder	1926	No	No	n/a	n/a	No Work Necessary -	Steel
507.41	1563	SD	Through Plate Girder	1924	Yes	Yes	C	1924-1949	Replaced	Steel
508.97	1567	SD	Triangular Lattice Through Truss	[1886]	No	No	n/a	n/a	Replaced	Steel
510.31	1569	SD	Triangular Lattice Through Truss	[1885]	Yes	Yes	C(b)	[1885]-1949	Replaced	Steel
511.70	1571	SD	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Replaced	Timber

South Dakota Historical Bridges Disposition of Eligible Bridges

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
			Triangular Lattice Through							
518.41	1593	SD	Truss	1924	Yes	Yes	C	1924-1949	Replaced	Steel
519.59	1597	SD	Open Deck Pile Trestle	1927	Yes	Yes	A	1927-1949	Replaced	Timber
519.94	1600	SD	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Replaced	Timber
			Triangular Lattice Through							
520.44	1602	SD	Truss	1885	Yes	Yes	C(b)	1885-1949	Replaced	Steel
521.48	1603	SD	Through Plate Girder	1922	Yes	Yes	A, C	1922-1949	Replaced	Steel
525.91	1612	SD	Open Deck Pile Trestle	1948	Yes	Yes	A	1948-1949	Replaced	Timber
526.12	1615	SD	Open Deck Pile Trestle	1921	Yes	Yes	A	1921-1949	Replaced	Timber
526.53	1617	SD	Open Deck Pile Trestle	1915	Yes	Yes	A	1915-1949	Replaced	Timber
530.16	1628	SD	Open Deck Pile Trestle	1924	Yes	Yes	A	1924-1949	Replaced	Timber
531.50	1631	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Timber
532.20	1632	SD	Open Deck Pile Trestle	1920	No	No	n/a	n/a	Replaced	Timber
532.90	1634	SD	Through Plate Girder	1930	Yes	Yes	A, C	1930-1949	Replaced	Steel
535.00	1639	SD	Open Deck Pile Trestle	1946	Yes	Yes	A	1946-1949	Replaced	Timber
			Triangular Lattice Through							
535.66	1640	SD	Truss	1886	Yes	Yes	A, C(b)	1886-1949	Replaced	Steel
			Triangular Lattice Through							
536.49	1642	SD	Truss	1886	Yes	Yes	A, C(b)	1886-1949	Replaced	Steel
537.28	1644	SD	Open Deck Pile Trestle	1946	Yes	Yes	A	1946-1949	Replaced	Timber
537.63	1645	SI)	Open Deck Pile Trestle	1932	Yes	Yes	A	1932-1949	Replaced	Timber
538.81	1648	SD	Open Deck Pile Trestle	1937	Yes	Yes	A	1937-1949	Replaced	Timber
			Triangular Lattice Through							
539.85	1652	SD	Truss	1886	Yes	Yes	A, C(b)	1886-1949	Replaced	Steel
540.35	1655	SD	Open Deck Pile Trestle	1918	Yes	Yes	A	1918-1949	Replaced	Timber
541.32	1657	SD	Open Deck Pile Trestle	1924	Yes	Yes	A	1924-1949	Replaced	Timber
			Triangular Lattice Through							
542.14	1659	SD	Truss	[1885]	Yes	Yes	A, C(b)	[1885]-1949	Replaced	Steel
542.63	1660	SD	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Replaced	Timber
542.94	1661	SD	Open Deck Pile Trestle	1922	Yes	Yes	A	1922-1949	Replaced	Timber
544.21	1665	SD	Open Deck Pile Trestle	1926	Yes	Yes	A	1926-1949	Replaced	Timber
544.64	1666	SI)	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Replaced	Timber
545.86	1670	SD	Open Deck Pile Trestle	1925	Yes	Yes	A	1925-1949	Replaced	Timber
546.63	1672	SD	Open Deck Pile Trestle	1922	Yes	Yes	A	1922-1949	Replaced	Timber
547.12	1673	SD	Open Deck Pile Trestle	1968	n/a	n/a	n/a	n/a	Replaced	Timber
			Triangular Lattice Through							
547.71	1674	SD	Truss	1886	Yes	Yes	C(b)	1886-1949	Replaced	Steel
548.60	1676	SD	Open Deck Pile Trestle	1920	Yes	Yes	A	1920-1949	Replaced	Timber
549.50	1677	SD	Open Deck Pile Trestle	1924	No	No	n/a	n/a	Replaced	Timber
550.11	1678	SD	Open Deck Pile Trestle	1939	Yes	Yes	A	1939-1949	Replaced	Timber
550.30	1678.5	SD	Open Deck Pile Trestle	1922	Yes	Yes	A	1922-1949	Replaced	Timber
550.37	1679	SD	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Replaced	Timber

South Dakota Historical Bridges

Disposition of Eligible Bridges

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
551.63	1681	SD	Open Deck Pile Trestle	1922	Yes	Yes	A	1922-1949	Replaced	Timber
552.50	1682	SD	Open Deck Pile Trestle	1921	Yes	Yes	A	1921-1949	Replaced	Timber
553.17	1684	S	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Replaced	Timber
555.94	1689	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Timber
556.63	1691	SD	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Replaced	Timber
557.23	1692	SI)	Open Deck Pile Trestle	1926	Yes	Yes	A	1926-1949	Replaced	Steel
559.52	1695	SD	Open Deck Pile Trestle	1920	Yes	Yes	A	1920-1949	Replaced	Timber
560.33	1697	SD	Riveted Pratt Pony Truss	unknown	Yes	Yes	A, C(b)	[1928]-1949	Replaced	Steel
562.84	1703	SD	Through Plate Girder	1921	Yes	Yes	C	1921-1949	Replaced	Steel
565.17	1711	SD	Triangular Lattice Through Truss	[1885]	Yes	Yes	A, C(b)	[1885]-1949	Replaced	Steel
565.70	1712	SD	Deck Plate Girder	1922	Yes	Yes	A, C	1922-1949	Replaced	Steel
567.37	1715	SD	Deck Plate Girder	1893	Yes	Yes	A, C(b)	1893-1949	Replaced	Steel
569.25	1719	SD	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Replaced	Timber
570.47	1725	SI)	Open Deck Pile Trestle	1932	Yes	Yes	A	1932-1949	Replaced	Timber
573.98	1734	SD	Open Deck Pile Trestle	1934	Yes	Yes	A	1934-1949	Replaced	Timber
575.96	1736	SD	Open Deck Pile Trestle	1940	Yes	Yes	A	1940-1949	Replaced	Timber
576.81	1738	SI)	Open Deck Pile Trestle	1922	Yes	Yes	A	1922-1949	Replaced	Timber
577.52	1739	SD	Open Deck Pile Trestle	1939	Yes	Yes	A	1939-1949	Replaced	Timber
578.57	1741	SD	Open Deck Pile Trestle	1940	No	No	n/a	n/a	Replaced	Timber
580.36	1745	SD	Open Deck Pile Trestle	1942	Yes	Yes	A	1942-1949	Replaced	Timber
580.80	1746	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Timber
583.12	1749	SD	Open Deck Pile Trestle	1921	Yes	Yes	A	1921-1949	Replaced	Timber
587.96	1760	SD	Open Deck Pile Trestle	1924	Yes	Yes	A	1924-1949	Replaced	Timber
588.44	1762	SD	Open Deck Pile Trestle	1924	Yes	Yes	A	1924-1949	Replaced	Timber
589.05	1764	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Replaced	Timber
593.14	1776	SD	Open Deck Pile Trestle	1925	Yes	Yes	A	1925-1949	Not On Preferred Route - Wall Hill	NA
593.43	1778	SD	Open Deck Pile Trestle	1930	Yes	Yes	A	1930-1949	Not On Preferred Route - Wall Hill	NA
594.92	1786	SD	Deck Plate Girder	1928	Yes	Yes	A, C	1928-1949	Not On Preferred Route - Wall Hill	NA
595.06	1787	SD	Deck Plate Girder	1925	Yes	Yes	A, C	1930-1949	Not On Preferred Route - Wall Hill	NA
596.48	1794	SD	Deck Plate Girder	1924	Yes	Yes	C	1924-1949	Not On Preferred Route - Wall Hill	NA
596.97	1797	SD	Deck Plate Girder	1924	Yes	Yes	C	1929-1949	Not On Preferred Route - Wall Hill	NA
597.40	1799	SD	Open Deck Pile Trestle	1922	Yes	Yes	A	1922-1949	Not On Preferred Route - Wall Hill	NA
597.70	1800	SD	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Not On Preferred Route - Wall Hill	NA

South Dakota Historical Bridges Disposition of Eligible Bridges

Mile Post	Number	State	Main Span Type	Year Built	Integrity	Eligible	Criteria	Significance	Disposition	Class Type
598.51	1802	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Not On Preferred Route - Wall Hill	NA
598.96	1804	SD	Open Deck Pile Trestle	1934	Yes	Yes	A	1934-1949	Not On Preferred Route - Wall Hill	NA
599.80	1807	SD	Through Plate Girder	1922	Yes	Yes	A, C	1922-1949	Not On Preferred Route - Wall Hill	NA
600.17	1809	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Not On Preferred Route - Wall Hill	NA
600.46	1810	SD	Through Plate Girder	1925	Yes	Yes	A, C	1925-1949	Not On Preferred Route - Wall Hill	NA
602.27	1813	SD	Triangular Lattice Through Truss (spans I&4); Warren Through Truss (spans 2&3)	[1885]	Yes	Yes	A, C(b)	[1885]-1949	Not On Preferred Route - Wall Hill	NA
603.39	1815	SD	Open Deck Pile Trestle	1930	Yes	Yes	A	1930-1949	Not On Preferred Route - Wall Hill	NA
603.75	1816	SD	Open Deck Pile Trestle	1930	Yes	Yes	A	1930-1949	Not On Preferred Route - Wall Hill	NA
603.93	1817	SD	Open Deck Pile Trestle	1923	Yes	Yes	A	1923-1949	Not On Preferred Route - Wall Hill	NA
604.32	1821	SD	Open Deck Pile Trestle	1940	Yes	Yes	A	1949-1949	Not On Preferred Route - Wall Hill	NA
605.42	1823	SD	Open Deck Pile Trestle	1928	Yes	Yes	A	1928-1949	Not On Preferred Route - Wall Hill	NA
605.81	1824	SD	Open Deck Pile Trestle	1930	Yes	Yes	A	1930-1949	Not On Preferred Route - Wall Hill	NA
606.70	1828	SD	Open Deck Pile Trestle	1929	Yes	Yes	A	1929-1949	Not On Preferred Route - Wall Hill	NA
607.60	1831	SD	Deck Plate Girder	1929	Yes	Yes	C	1929-1949	Not On Preferred Route - Wall Hill	NA
609.50	1843.5	SD	Open Deck Pile Trestle	1932	Yes	Yes	A	1932-1949	Not On Preferred Route - Wall Hill	NA
609.76	1844	SD	Open Deck Pile Trestle	1949	Yes	Yes	A	1949	Not On Preferred Route - Sec 5	NA
610.20	1845	SD	Through Plate Girder	1927	Yes	Yes	A,C	1927-1949	Not On Preferred Route - Sec 5	NA

**APPENDIX E
OTHER SECTION 303 PROPERTIES LIST**

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
<i>Minnesota</i>					
<i>Federal</i>					
Wildlife Refuge	USFWS	Upper Mississippi Fish and Wildlife Refuge	1 mile east of Minnesota City	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	USFWS	Habitat easement	1 mile northwest of Eagle Lake, Blue Earth County	No – Private ownership	Not Applicable
<i>State</i>					
Wildlife Refuge	DNR	East Side State WMA	2.5 miles west of Chester; adjacent to rail line for approx. 0.1 mile	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Gordon W. Yeager State WMA	East of Rochester, rail line passes through 1.3 miles of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Rochester State Game Refuge	Around City of Rochester; rail line passes through 8 miles of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Wildlife Refuge	DNR	Pheasants Forever State WMA	2.5 miles NW of Kasson; rail line passes within 1.5 miles to south of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Claremont State Game Refuge	East of Claremont; rail line passes through 3 miles of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	McMartin State WMA	Approximately 0.6 miles south of Claremont	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Waseca State WMA	2.5 miles east of Waseca; rail line is the south border of site for 0.8 mile	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Tom Cliff Jr. Memorial State WMA	On the NE side of Clear Lake; rail line passes 1.5 miles south of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Born State WMA	3 miles NW of Janesville; less than 500 ft south of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
					diminishing wildlife habitat
Wildlife Refuge	DNR	East Minnesota River State Game Refuge	North of Mankato; rail line passes through less than one mile of SE corner of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Swan Lake State WMA	Less than 1 mile north of Judson and rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Fritsche Creek State WMA	North of New Ulm; north of Minnesota River	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Somsen State WMA	3.5 miles west of New Ulm; less than 1 mile south of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Rosenau-Lambrecht State WMA	3.5 miles west of New Ulm; rail line is border for 0.15 miles of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Romberg State WMA	2 miles east of Sleepy Eye; less than 200 ft south of	Yes – Public ownership of wildlife area and potential	No direct or constructive use – No additional ROW required and no ecological

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
			rail line	recreation	intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Boise Lake State WMA	4 miles east of Springfield; 1.5 miles SW of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Vogel State WMA	3.5 miles SW of Springfield; 1 mile south of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Lamberton State WMA	3 miles NE of Lamberton; 4,500 ft north of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Greenhead State WMA	1 mile west of Tracy; 3,400 ft north of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Garvin State WMA	1.5 miles NW of Garvin; less than one mile north of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Yankton State WMA	Less than 1 mile SE of Balaton; rail line	Yes – Public ownership of wildlife	No direct or constructive use – No additional ROW

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
			passes through 0.5 mile of this area	area and potential recreation	required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Happy Hollow State WMA	1.5 miles NW of Balaton; 0.5 mile NE of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Rock State WMA	2.5 miles NW of Balaton; 2,500 ft north of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Gadwall State WMA	1 mile SW of Burchard; 0.6 south of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Tyler State WMA	Southwest of Tyler; less than 200 ft south of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Discors State WMA	1.5 miles west of Tyler; less than 200 ft south of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Hole-in-Mountain	2.5 miles south of	Yes – Public	No direct or constructive

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
		State WMA	Lake Benton; rail line is east border for 0.8 mile of this area	ownership of wildlife area and potential recreation	use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	DNR	Alton State WMA	1 mile SE of Verdi; 1,000 ft south of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Public Recreation/Wildlife Refuge	DNR	Flandrau State Park	South of New Ulm	Yes – Public recreation area	No direct or constructive use – No additional ROW required and no affect related to increase in noise, aesthetics, access, vibration, or ecological intrusion substantially diminishing wildlife habitat
Public Recreation/Wildlife Refuge	DNR	Minneopa State Park	West of Mankato	Yes – Public recreation area	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation/Wildlife Refuge	DNR	Hythecker Prairie State Scientific and Natural Area (SNA)	2 miles southwest of Claremont	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation/Wildlife Refuge	DNR	Cottonwood River Prairie State SNA	3.5 miles southwest of Springfield	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Public Recreation/Wildlife Refuge	DNR	Richard J. Dorer Memorial Hardwood State Forest	Winona County	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	DNR	Sakatah Singing Hills State Trail	Mankato to I-35 in Faribault	Yes – Public use trail	No direct or constructive use – while the existing rail line does cross this property, the south bypass alternative avoids crossing this property. Fewer trains per day would cross the trail on the existing rail line under the operations of the Project, thereby benefiting trail users.
Public Recreation	DNR	Red Jacket Trail	South to north Mankato City limits	Yes – Public use trail	No direct or constructive use – the trail does not cross the existing or south bypass alternative rail lines.
<i>Local</i>					
Public Recreation	Winona County	Farmers Community Park	Southwest of Winona; adjacent to and east of the rail line	Yes – Public Recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise, aesthetics, access, or vibration

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Public Recreation	Olmsted	Chester Woods County Park	South of Chester; within 500 ft of rail line	Yes – Public Recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise, aesthetics, access, or vibration
Public Recreation	Steele	Crane Creek County Park	3 miles west of Owatonna; within 1 mile of rail line	Yes – Public Recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise, aesthetics, access, or vibration
Public Recreation	Waseca	Goose Lake County Park	2.5 miles east of Waseca; adjacent to rail line	Yes – Public Recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise, aesthetics, access, or vibration
Public Recreation	Blue Earth	Williams County Park	West of Mankato; adjacent to rail line	Yes – Public Recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise, aesthetics, access, or vibration

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Public Recreation	Redwood	Plum Creek County Park	One mile SW of Walnut Grove; within 1 mile of rail line	Yes – Public Recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise, aesthetics, access, or vibration
<i>South Dakota</i>					
<i>Federal</i>					
Public Land	USFS	Buffalo Gap National Grassland	Southwestern SD	No – primary use is grazing, only casual recreation	Not Applicable
Public Recreation	USFS	Roadless Areas	Three RARE II within project area (PIC), two Inventoried Roadless areas near and one within the project area	No – primary use is grazing, limited recreation potential due to remote nature of areas	Not Applicable
Public Land	BLM	Open lands	Southwest SD	No – primary use is grazing, only casual recreation	Not Applicable
Public Land	BOR	Angustora Unit	Angustora Canyon	No – no public recreation or wildlife use	Not Applicable
Public Land	BOR	Oahe Unit	Pierre and Pierre canal	No – no public recreation or wildlife use	Not Applicable
Wildlife Refuge/Public	USFWS	Waterfowl Production Area	Various (table 4.1-6)	Yes – Public ownership of wildlife	No direct or constructive use – No additional ROW

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Recreation				area and potential recreation	required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area	2 miles southwest of Volga, < 1 mile north of rail line	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area	3 miles northwest of Volga, rain line passes through about ½ mile of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area - Dry Lake/ Selken/ Van Moorlehen	6 miles northwest of Volga, rail line passes through about 2 miles	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area	less than 1 mile north of Arlington, rail line is a little more than 1 mile south	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area	1 mile northwest of Arlington, rail line is 0.1 mile north	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
					diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area - Pickering	1 mile southeast of Hetland, rail line is 1.3 miles north	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area	2 miles northwest of Lake Preston, rail line is 0.7 mile south	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area	3 miles east of De Smet, rail line is immediately adjacent to the south for 0.5 mile	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area - Halverson	Just east of De Smet, rail line passes through approximately 1.5 miles of this area	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area - Beaver	3 miles east of Cavour, rail line is 0.7 mile south	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public	USFWS	Waterfowl	3 miles southeast of	Yes – Public ownership of wildlife	No direct or constructive use – No additional ROW

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Recreation		Production Area - Maga Ta-Hohpi and Weaver	Wolsey, rail line is 0.8 mile north	area and potential recreation	required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	USFWS	Waterfowl Production Area	2 miles east of Wolsey, rail line is 0.15 mile south	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge	USFWS	Wildlife easements	Private property (locations not determined)	No – private property	Not Applicable
<i>State</i>					
Wildlife Refuge/Public Recreation	SDGFP	State Game Production Area	De Smit (T111N, R56W, S34	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	SDGFP	State Game Production Area	1 mile southeast of Iroquies, T110N, S8	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public Recreation	SDGFP	State Game Production Area	3.5 miles northwest of Wolsey, T111N, R64W, S18 and T111N, R65W, S13	Yes – Public ownership of wildlife area and potential recreation	No direct or constructive use – No additional ROW required and no ecological intrusion substantially diminishing wildlife habitat
Wildlife Refuge/Public	SDGFP	Woodruff Lake State Game	1.5 miles southwest of Harrold, T112N,	Yes – Public ownership of wildlife	No direct or constructive use – No additional ROW

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Recreation		Production Area	R75W, S18 and T112N, R76W, S13	area and potential recreation	required and no ecological intrusion substantially diminishing wildlife habitat
Public Recreation	SDGFP	Missouri River Trail	Farm Island Recreation Areas	Yes – Public use trail	Direct use due to temporary trail closure. Construction would accommodate need for crossing.
Public Recreation	SDGFP	La Framboise Island National Recreational Trail	Pierre	Yes – Public use trail	No direct use as rail line would not permanently alter or temporarily close any portion of the trail or access to the trail.
<i>Local</i>					
Public Recreation	City of Brookings	Hillcrest Park/pool	US 14 and 17 th Avenue	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Brookings	Sexauer Park	Harvey Dunn St. and 11 th St	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Brookings	Pioneer Park	US 14 and Western Ave	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Brookings	South Side Park	2 nd St. South and Main Ave. South	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Public Recreation	City of Brookings	Pedestrian/Bicycle Trail	East of 22 nd Ave	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Arlington	City Park	Southeast of Arlington	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Lake Preston	City Park	Southeast of Lake Preston	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Huron	City Park	Central Huron	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Huron	Winter Park	105 7 th St. SE	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Huron	Ravine Lake Park	800 Easy St.	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Huron	Riverside Park	340 Riverview Drive	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
Public Recreation	City of Huron	Prospect Park	1625 Idaho Ave SE	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	City of Miller	City Park	Northwest side of Miller	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	Hughes County	Roadside Park	2.5 miles northeast of City of Blunt, just north of rail line	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation	Pennington County	Roadside Park	0.25 miles west of the Pennington/Jackson County Line, just south of the rail line	Yes – Public recreation	No direct or constructive use – No additional ROW required and no affect related to increase in noise
Public Recreation		Cottonwood Path	Ft. Pierre	Yes – Public use trail	Direct use due to temporary trail closure. Trail would only be closed when overhead work is required. Temporary detour would be identified and would be approximately 5,000 feet long
Wyoming					
Federal					
Public Land	USFS	Thunder Basin	Northeastern	No – primary use is	Not Applicable

Resource Type	Ownership	Type	Location	Section 303 Eligible	Determination of Use
		National Grassland (TBNG)	Wyoming	grazing	
Public Land	BLM	Public lands	Throughout	No – primary use is grazing	Not Applicable
<i>State</i>					
Public Land	Wyoming Office of State Lands and Investments	State Land Grazing Leases	Dispersed through project area	No – primary use is grazing	Not Applicable

APPENDIX F
DM&E BRIDGE ALTERNATIVES EVALUATION

**DM&E PRB Section 4(f) Statement
Additional Bridge Information**

Listed below is additional documentation to support a categorical conclusion that there is not a feasible and prudent avoidance alternative to replacing the bridges previously identified in the environmental analysis supplied with the original EIS Document prepared for the project and the Draft 4(f) Statement analysis submitted in March, 2006. In keeping with the original Statement, we've addressed each of the typical bridge types separately. We've included typical rail car axle loads that the structures were designed for, 40 to 50 thousand pounds per axle. The proposed typical axle load for a coal car is 71,500 to 78,000 pounds. The length of span and axle configuration of the rail cars determines the actual load a given span may need to carry.

Timber Bridges

These bridges, as explained in the Statement, consist of the following:

- Five-pile creosote treated timber bent substructures
- Creosote treated timber caps on top of the piling
- Creosote treated timber stringers, 3 per rail, stretching between the bents supported on the caps
- Creosote treated timber open decks where the ties supporting the rail are directly fixated to the stringers.

The bridges at these locations were generally built in the 1940's replacing timber bridges constructed earlier. The construction is typical of timber railway bridges for lightly used railroad lines around the country and not unique to these sites. The 1940 era construction conformed to railroad standards of the day which did not provide for today's heavy axle, 100 to 125-ton car unit trains. The load rating of these bridges is typically around a Cooper's E-55. Current railroad standards for bridge design call for a Cooper's E-80 loading. The AREMA Manual, Chapter 7 Timber Structures, recommends a minimum of 6-pile per bent and at least 4 stringers per rail for 13' spans.

Timber bridges, due to the natural forces of timber decay and mechanical forces causing wear on the structure, typically have a life span of 40 to 50 years. The mechanical forces cause further structure degradation and reduce the load carrying capacity of the structure. Based on this information alone, it is clear that none of the bridges in this category is fit for heavy-haul train service.

The alternatives are discussed below. Due to the nature of this type of timber structures, the typical similar design and the common age and condition, they can be treated as a structural type category. Maintaining the existing structure unchanged does not meet the project goals. Feasible and prudent alternatives do not exist to replacing the structure. As detailed below, the preferred alternative is replacement of this structure type, Alternative D.

Alternative A – No-build alternative

As presented in the original Draft 4(f) Statement, the existing structures barely provide the performance to carry existing traffic loads. They will not support the proposed project traffic and loadings and in the next several years would be replaced on an individual basis to maintain the current levels of traffic. This alternative, while leaving

the structure as it is, does not meet the project goals and is not feasible and prudent for the project or for avoidance of replacement of the structures.

Alternative B – Rehabilitate the existing structure

The existing structure was not designed to carry the proposed loading and is currently overstressed. Rehabilitation would replace existing members with similar material maintaining the look of the bridge, but not increasing the load carrying capacity. It is not prudent to use this option as timber of the sizes used in the 1940's is difficult to find and very expensive to obtain, fabricate and use for construction. Even if found and even if the premium price was paid, the weaker timber infrastructure would not sustain the heavy haul traffic. This alternative is not feasible as it would not support the proposed traffic to meet the project goals. Therefore, this alternative is not a prudent or feasible avoidance alternative for the replacement of the structures.

Alternative C – Upgrade and or replace the existing structure with new timber components

Additional piling would need to be driven at each bent, existing piling would also need to be replaced. Additional stringers would need to be added with existing stringers replaced. To provide for longevity and meet current standards for track maintenance, the existing open deck would need to be replaced with a ballast deck. Upgrading the structure in place is not feasible as the spacing of the existing piling make it difficult to add additional pile that provide adequate additional support. Typically upgrading of the structure would change the look of the current structure, not maintaining the historical integrity of the existing bridge. Replacing the structure with a new timber structure would also not maintain the historical integrity of the existing structure. The alternative to replace the structure with a new timber structure with bents driven between the existing bents is not favored due to the impacts of the continual maintenance on the future train traffic, cost and difficulty of obtaining the new large size timbers, impacts to the opening size restricting the hydraulic flow and the life-cycle cost of replacement verses the anticipated life-span. While theoretically possible, this alternative would radically change the look of the existing structure, involve far more impact to waterways due to far more pilings being driven than necessary, and result in an inferior end-product that would be difficult to maintain.

Alternative D – Replace the structure with a non-timber structure

Site conditions, hydraulics and hydrology and construction methods that minimize impacts to existing train traffic will determine the type of structure used. Current railroad practice is to design a structure that will typically have a 100-year life span and be designed to support a Cooper's E-80 loading or greater depending on the type of structure. The structure is also designed to support the heavy axle cyclic loading created by unit trains proposed for this project.

Precast concrete box culverts, bridges comprised of precast concrete ballast decks on steel pile bents or ballast deck steel spans on steel pile bents meet the design and longevity criteria embodied in the AREMA Manual for Railway Engineering and DM&E standards. This alternative supports the project goals and is favored to use for these sites and provides a structure that meets the project's goals.

Steel Structures

a. Steel “I-Beam”

Steel “I-beams” were typically used in the early part of this century before the advent of wide flange structural steel rolled shapes. This early century span type consisted of one or more beams per rail supporting treated timber bridge ties on an open deck construction supporting the rail. These spans, due to their typical short length, in the 25- to 30-foot range, are subject to a high number of cyclic loadings. This high cyclic loading is exacerbated by their being designed for the light axle loads, typically 40 to 50 thousand pounds, of the era. This type of structure was used by railroads throughout the country during the early part of the century as they met the then current design standards and supplied a bridge span that was longer and more permanent than the timber bridges but fit the “short” span category. They are not unique to this area. Based on a review of the inventory, none of the bridges in this category are equipped with steel of a heavy enough section to accommodate heavy haul traffic on a sustained and safe basis.

The beams are typically supported by un-mortared and un-reinforced masonry piers or timber pile bents. Not all supports have been tested to state with certainty that each is unfit for heavy-haul purposes, but it is immaterial to the final outcome because of the lightness of steel section for each bridge in this category. Even in the highly unlikely event that some base support infrastructure was found that could support heavy haul loadings, it would serve no purpose as the steel superstructure is too light.

Due to the similar beam type and short span lengths coupled with the construction era of the structure, this type of bridge is treated as a structural type category. Maintaining the existing structure unchanged does not meet the project goals. Feasible and prudent alternatives do not exist to replacing the structure. As detailed below, the preferred alternative is replacement of this structure type, Alternative D.

Alternative A – No-Build Alternative

These bridges, with their short spans and light load carrying design, have reached the age and number of loading cycles where fatigue failure is a concern with the current levels of traffic. Current inspections are monitoring these structures for warning symptoms of fatigue failure. In addition, the light design will not support the heavier axle loads and increased volume of the proposed traffic to meet the project goals. This alternative, while leaving the structure as it is, does not meet the project goals and is not feasible and prudent for the project or for avoidance of replacement of the structures.

Alternative B – Rehabilitation

This alternative involves the replacement of the existing structure members with similar types of beams. The existing beams are no longer rolled, and would not support this traffic even if they were. The depth and size of the members, if they existed, would not meet current design standards. A repair procedure does not exist that creates new fatigue life in the existing spans. In addition, the existing substructures, with non-reinforced masonry or timber pile will not support the anticipated future loadings. Rehabilitation does not provide a feasible method to maintain the historic integrity of the structure and it would not support the proposed traffic to meet the project goals.

Alternative C – Upgrade or replace with similar components

This alternative does not maintain the historical integrity of the structure. “I-beams” of the type and size originally used, if one were to add beams to increase the load carrying capacity, do not exist. One would also need to upgrade or replace the substructure – doing this while maintaining train traffic would require relocated substructure unit which would typically require different span lengths than those currently in use, requiring a new structure. A new structure does not maintain the historic integrity of the existing structure.

Alternative D – Replacement with new structure

Site conditions, hydraulics and hydrology and construction methods that minimize impacts to existing train traffic will determine the type of structure used. Current railroad practice is to design a structure that will typically have a 100-year life span and be designed to support a Cooper’s E-80 loading or greater depending on the type of structure. The structure is also designed to support the heavy axle cyclic loading created by unit trains proposed for this project.

Precast concrete box culverts, bridges comprised of precast concrete ballast decks on steel pile bents or ballast deck steel spans on steel pile bents meet the design and longevity criteria embodied in the AREMA Manual for Railway Engineering and DM&E standards. This alternative is preferred alternative to use for these sites and provides a structure that meets the project’s goals.

b. Through Plate Girder

These structures consist of two main steel girders supporting a steel flooring system between them that supports an open deck of creosote timber ties supporting the rail. The spans are typically supported by un-mortared and un-reinforced masonry piers or timber pile bents. These spans typically range up to 80 feet in length.

The bridges constructed prior to mid-century were designed to carry 40-50 thousand pound axle loads. The initial determination that the spans need replacement is based on this design load history. The main girders and portions of the flooring system were built-up of smaller structural steel members riveted together to form girders, floorbeams and stringers. The steel members were then connected together to form a span. This type of construction is typical of the era and span length they are used for. They were typically used throughout the country for moderate length spans requiring a shallower depth between the top of rail and low steel elevation providing additional vertical clearance under the structure.

Due to the similar girder type, span lengths and the construction era of the structures, this type of bridge is treated as a structural type category. However, due to the nature of the built-up construction and the typical span length, steel fatigue of the main girders is not a major concern. This same type of construction for the main girders may also provide the load carrying capacity to support the loads created by the proposed traffic. However, the internal flooring system, due to the “short span” nature if the floorbeams and stringers supporting the deck may not support the loads created by the proposed traffic and they are subject to steel fatigue similar to the “I-beam” bridges. Therefore the alternatives to be used involve a review process that will be conducted during the design phase of the

project to determine the approach that meets project criteria while at the same time providing the detailed documentation to support the selection of the alternative to meet 4(f) requirements.

During final design, the following process will be used:

- Utilizing field condition information and existing plans, conduct a rating review of the main girders and flooring system to determine load carrying capacity of the structure and its components in accordance with Chapter 15 of the AREMA Manual for Railway Engineering.
- Based on the rating determine the following:
 - Load carrying capacity of the main beams and flooring system are found to be adequate to support the proposed project, no change required.
 - Load carrying capacity of the flooring system inadequate, thus it does not meet the project goals.
 - Determine conceptual upgrade or replacement option
 - Determine if it is prudent to perform the work based on impacts of upgrade or replacement option on train operations and cost of performing the work. This work would change the historical integrity of the interior portion of the structure which is typically not visible. Exterior visible changes may be seen when rivets are removed and replaced with high-strength structural bolts.
 - If not prudent based on the impacts to train operations, extensive construction costs time frame, then replace the span.
 - Load carrying capacity of the main girders inadequate.
 - Typically, for this type of design, if the main girders are inadequate, the interior flooring system will also be inadequate.
 - Rehabilitating or upgrading the main girders typically involves adding or removing and replacing cover plates on the top and bottom flanges, removing rivets and reconnecting the members with high-strength bolts. This work is very time consuming, labor intensive, may damage, in the construction process, additional steel components all resulting in a very expensive procedure. In addition, the historical integrity of the structure is not maintained. Coupled with the cost and impacts of replacing the flooring system, it is not prudent to upgrade the existing structure and a new structure will be utilized as a replacement.

If the girder webs are also found to be inadequate in addition to the top and bottom flanges, it is not feasible to upgrade the webs and the top and bottom flanges as the entire girder is essentially being replaced. If this is the case, a new structure will be utilized as a replacement.

If it is determined through the above process that it is not feasible or prudent to keep the existing structure or perform the flooring system rehabilitation/replacement, then a new structure will be constructed. Precast concrete box culverts, bridges comprised of precast concrete spans with ballast decks on steel pile bents or ballast deck steel spans on steel pile bents meet the design and longevity criteria embodied in the AREMA Manual for Railway Engineering and DM&E standards. This alternative is the preferred alternative to use for these sites where it is not feasible or prudent to keep the existing structure.

c. Deck Plate Girder

These structures consist of two main girders directly supporting an open deck of creosote timber ties supporting the rail. The spans are typically supported by un-mortared and un-reinforced masonry piers or timber pile bents. These spans typically range up to 80 feet in length with the predominant length in the 30 to 50-foot range.

The bridges constructed prior to mid-century were designed to carry 40-50 thousand pound axle loads. The initial determination that the spans need replacement is based on this design load history. The main girders, normally two per span, were built-up of smaller structural steel members riveted together. The main girders, typically spaced seven to nine feet apart, are connected together with steel framing called diaphragms and a top and bottom lateral system to form a span. This type of construction is typical of the era and span length they are used for. They were typically used throughout the country for moderate length spans where the taller girders below the rail did not create a clearance problem with the feature crossed.

Due to the similar girder type, span lengths and the construction era of the structures, this type of bridge is treated as a structural type category. However, due to the nature of the built-up construction and the typical span length, steel fatigue of the main girders is not a major concern. This same type of construction for the main girders may also provide the load carrying capacity to support the loads created by the proposed traffic.

The alternatives to be used involve a review process that will be conducted during the design phase of the project to determine the approach that meets project criteria while at the same time providing the detailed documentation to support the selection of the alternative to meet 4(f) requirements.

During final design, the following process will be used:

- Utilizing field condition information and existing plans, conduct a rating review of the girders to determine load carrying capacity of the structure and its components in accordance with Chapter 15 of the AREMA Manual for Railway Engineering.
- Based on the rating determine the following:
 - Load carrying capacity of the beams is found to be adequate to support the proposed project, no change required.
 - Load carrying capacity of the main girders inadequate.
 - Rehabilitating or upgrading the main girders typically involves adding or removing and replacing cover plates on the top and bottom flanges, removing rivets and reconnecting the members with high-strength bolts. This work is very time consuming, labor intensive, may damage, in the construction process, additional steel components all resulting in a very expensive procedure. In addition, the historical integrity of the structure is not maintained. The required work requires complete closure of the track over the bridge causing severe disruptions to train service to DM&E customers. It is not prudent to upgrade the existing structure and a new structure will be utilized as a replacement.

If the girder webs are also found to be inadequate in addition to the top and bottom flanges, it is not feasible to upgrade the webs

and the top and bottom flanges as the entire girder is essentially being replaced. If this is the case, a new structure will be utilized as a replacement.

If it is determined through the above process that it is not prudent to keep the existing structure or feasible to perform the beam rehabilitation/upgrade, then a new structure will be constructed. Precast concrete box culverts, bridges comprised of precast concrete spans with ballast decks on steel pile bents or ballast deck steel spans on steel pile bents meet the design and longevity criteria embodied in the AREMA Manual for Railway Engineering and DM&E standards. This alternative is the preferred alternative to use for these sites where it is not prudent to keep the existing structure.

d. Through Riveted Truss

These steel structures are used where the span lengths are typically longer than 80 feet. There were utilized to minimize the weight of steel used on longer spans to utilize the erection equipment of the day. These types of structures were used around the country on various railroads and are of similar construction. The bridges constructed prior to mid-century were designed for axle loads in the 40 to 50 thousand pounds. The initial determination that the spans need replacement is based on this design load history. The spans are typically supported on un-reinforced, non-mortared stone masonry piers or multiple rows of timber piles with timber corbels and blocks used to support the bearings.

The main girders consist of small steel members riveted to form steel shapes framed into a truss that is approximately 30 feet tall. Two trusses are framed together with a top lateral system and supporting a bottom flooring system that supports the creosote tie open deck that supports the rail and train traveling through the truss. The flooring system is similar to the TPG flooring system. The trusses typically range from 16-feet to 18-feet apart.

Due to the similar truss type, span lengths and the construction era of the structures, this type of bridge is treated as a structural type category. However, due to the nature of the built-up construction and the typical span length, steel fatigue of the main truss girders is not a major concern. This same type of construction for the main trusses may also provide the load carrying capacity to support the loads created by the proposed traffic. However, the internal flooring system, due to the "short span" nature if the floorbeams and stringers supporting the deck may not support the loads created by the proposed traffic and they are subject to steel fatigue similar to the "I-beam" bridges. Therefore the alternatives to be used involve a review process that will be conducted during the design phase of the project to determine the approach that meets project criteria while at the same time providing the detailed documentation to support the selection of the alternative to meet 4(f) requirements.

During final design, the following process will be used:

- Utilizing field condition information and existing plans, conduct a rating review of the main trusses and flooring system to determine load carrying capacity of the structure and its components in accordance with Chapter 15 of the AREMA Manual for Railway Engineering.
- Based on the rating determine the following:
 - Load carrying capacity of the main trusses and flooring system are found to be adequate to support the proposed project, no change required.

- Load carrying capacity of the flooring system inadequate, thus it does not meet the project goals.
 - Determine conceptual upgrade or replacement option
 - Determine if it is prudent to perform the work based on impacts of upgrade or replacement option on train operations and cost of performing the work. This work would change the historical integrity of the interior portion of the structure which is typically not visible. Exterior visible changes may be seen when rivets are removed and replaced with high-strength structural bolts.
 - If not prudent based on the impacts to train operations, extensive construction costs time frame, then replace the span.
- Load carrying capacity of the main trusses inadequate.
 - Typically, for this type of design, some of the components could be found to be adequate and other parts such as the top and bottom chords could be found to be inadequate
 - Rehabilitating or upgrading the main truss members typically involves adding or removing and replacing those components found to be inadequate, removing rivets and reconnecting the members with high-strength bolts. Modern structural steel shapes are used which would not maintain the historical integrity of the structure. This work is very time consuming, labor intensive, may damage, in the construction process, additional steel components all resulting in a very expensive procedure. Coupled with the cost and impacts of replacing the flooring system, it is not prudent to upgrade the existing structure and a new structure will be utilized as a replacement.

If it is determined through the above process that it is not feasible or prudent to keep the existing structure or perform the flooring system rehabilitation/replacement, then a new structure will be constructed. Precast concrete box culverts, bridges comprised of precast concrete spans with ballast decks on steel pile bents or ballast deck steel spans on steel pile bents meet the design and longevity criteria embodied in the AREMA Manual for Railway Engineering and DM&E standards. This alternative is the preferred alternative to use for these sites where it is not feasible or prudent to keep the existing structure.

e. Deck Riveted Truss

This structure is of similar construction to the Through Riveted Truss, except the flooring system and trains travel on top of the truss and the truss hangs below. The approach will be the same as the Through Riveted Truss bridges.