

Soil disturbance would occur during construction of the bypass by impacting an area that is not currently used for railroad activities. The proposed route would impact approximately 359 acres of soil. Soil compaction could result from construction activities using heavy equipment and could decrease the productivity of those soils. Cut and fill operations could result in soil types being mixed. The removal of vegetation could increase erosion. Additionally, the numerous hills, steep drainages, and fills necessary to establish a suitable rail line grade, could expose soils to conditions likely to increase erosion. Impacts would generally be restricted to the proposed rail line right-of-way.

Slope steepness and drainage would require careful rail line design and construction consideration to help prevent landslides in areas that contain a high amount of shale. Slope ratios in these areas would likely have to be flatter than 3:1 and benching (stair-stepping) might be appropriate, increasing the amount of excavation. Springs would also need to be avoided because pooling water tends to initiate landslides. Extra drainage systems (e.g., drainage ditches, culverts, concrete-lined vs. natural ditches) would be necessary to remove water from the rail line and adjacent sideslopes to prevent it from accumulating and causing soils and rocks to slide.

Impacts to soil resources would be minimized by implementation of appropriate erosion control measures, prompt re-establishment of vegetation, and the confinement of construction activities to the rail line right-of-way, as described for Alternative P-2. Stabilization of sideslopes and fill areas through the use of wider excavations and fills and the installation of adequate drainage structures would help prevent landslides and slope slumping.

#### **5.2.4 PALEONTOLOGICAL RESOURCES**

Paleontological resources occur extensively in western South Dakota and may occur throughout the Pierre project area, primarily in gravel deposits and bedrock. As stated in Chapter 4 of the Draft EIS, these resources vary in age and fauna and consist of units that include mammals, reptiles, amphibians, birds, fish and numerous invertebrates, and plant species. Geologic formations are broadly categorized as Quaternary, Tertiary and Cretaceous.

##### **Alternative P-1: No-Action**

This alternative would not have project-related impacts on paleontological resources. Construction of the original rail line and facilities likely destroyed any such resources that occurred within the right-of-way. Operation and maintenance of the rail line is not expected to have further impacts.

### **Alternative P-2: Existing Rail Line**

Only minimal excavation and surface disturbance is anticipated during reconstruction and would largely include only surface earthwork within previously disturbed areas. Any paleontological resources occurring along the existing rail line right-of-way were likely destroyed during initial construction of the rail facilities or remain buried under the deeper soils in the area. Reconstruction and operation of the existing rail line would not, therefore, be expected to impact paleontological resources.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Construction of the Pierre bypass could destroy undetected paleontological resources within the right-of-way due to the excavation and cuts into subsurface geologic units necessary to establish the rail grade. Such resources in the proposed bypass corridor would likely be found where deep cuts and excavations were required. These resources are not normally found in shallow excavations. The likelihood of encountering paleontological resources in areas where deep cuts are required is also fairly low because of the generally scattered nature of these resources in this portion of South Dakota. Chapter 12 of this Final EIS, however, includes a recommendation that construction crews that encounter major paleontological resources be required to notify the appropriate agencies and take appropriate actions at the work site to protect paleontological resources.

## **5.2.5 LAND USE**

This section evaluates the potential changes to local land use from construction and operation of the proposed project. Categories of land use include agricultural land, residential areas, business and industrial areas, and public facilities. Land use totals reported in this section do not include roadways or distances across rivers and therefore may not equal the total distance reported for the project. Many of the impacts mentioned in this section are discussed in greater detail in the sections on air quality, noise and vibration, transportation, and safety.

### **5.2.5.1 Agriculture**

Land outside the developed portions of Pierre and Fort Pierre is primarily used as rangeland and for farming. Land categorized as agricultural includes that cultivated for the production of crops, used as pasture/rangeland, or hayed. SEA identified these lands from aerial photography and site visits.

### **Alternative P-1: No-Action**

The existing rail line through Hughes and Stanley counties is adjacent to approximately 4.3 miles of agricultural land, primarily range and pastureland. Impacts to cropland, pasture, and grasslands would not vary from current conditions. No impacts to these resources would occur since there would be no project-related rail line improvements or rail construction. There would be no loss of agricultural land associated with this alternative.

### **Alternative P-2: Existing Rail Line**

The existing rail line is adjacent to approximately 4.3 miles of agricultural land. Impacts related to the reconstruction of the rail line would primarily occur within the existing rail corridor. Potential impacts to agricultural land could include soil compaction and crop damage from construction equipment within the existing right-of-way in areas where agricultural activities have encroached on the right-of-way or in limited areas where reconstruction activity may be required outside the right-of-way. While these activities could potentially impact agricultural land, any impacts would be expected to be minimal and of a temporary nature.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Construction of Alternative P-3 would convert approximately 652.5 acres of rangeland and pasture to railroad right-of-way. Potential impacts to agricultural land during construction and operation of Alternative P-3 include soil mixing and compaction, vegetation damage, erosion, and noise disturbance. Landowners would be compensated for the land taken as required right-of-way. Fencing could be installed along the right-of-way to prevent livestock from entering the rail line vicinity and SEA has recommended fencing mitigation in Chapter 12. But portions of the fields would be dissected by the rail line, limiting access to both sides by livestock and landowners. Noise and activity related to construction and operation of the proposed rail line would potentially disturb livestock on adjacent property. Below-grade livestock crossings could be installed where feasible, allowing livestock to cross to opposite sides of the field under the tracks (See Chapter 12). However, landowner access to intersected properties would be limited to existing roads, equipment crossings (if installed), or unprotected private crossings, resulting in increased inconvenience and reduced safety. In some cases, divided parcels could be too small for economic use for livestock grazing. The loss of land could decrease pasture size, production, and the number of livestock the parcel of land would support, thereby reducing the landowner's income.

During operation of Alternative P-3, the entire length of the rail line would be adjacent to grazed and ungrazed pasture, except where it crosses the Missouri River. A large portion of the route, approximately 7,000 feet, would be parallel to a county road. The remaining length of rail

line (approximately 25.4 miles, counting the length of both sides of the right-of-way) would be adjacent to agricultural land.

#### **5.2.5.2 Residential**

In the Draft EIS, SEA defined residential land as land adjacent to the rail line and developed for residential use as neighborhoods, subdivisions, rural homes, and farmsteads. SEA used aerial photos, U.S.G.S. topographic quadrangle maps, and site visits to determine the presence and location of homes along the existing and proposed rail alignments.

#### **Alternative P-1: No-Action**

Approximately 0.3 mile of residential land adjacent to the existing rail line would continue to experience the same conditions that are currently present. No additional residential land would be affected. These residences would continue to experience existing levels of train noise, vibration, vehicle delays, and safety impacts.

#### **Alternative P-2: Existing Rail Line**

The existing rail line passes through the cities of Pierre and Fort Pierre, adjacent to approximately 0.3 mile of land zoned for residential use in Pierre and approximately 1.1 miles zoned for residential use in Fort Pierre. Currently, over 650 homes are located within 1,000 feet of the rail line in the two cities. The majority of the route through Pierre and Fort Pierre is adjacent to areas zoned and developed for commercial or industrial use, which act as a buffer for many residential areas. However, there are approximately 50 residences within 200 feet of the tracks between Central Avenue and River Quay, a distance of about 1.4 miles. Impacts to residential areas during rail line reconstruction would include increased noise, dust, traffic delays, and safety concerns. These specific issues are discussed in more detail in the sections on noise and vibration, transportation, and safety in this Chapter and the Draft EIS.

SEA received numerous comments from residents in Pierre and Fort Pierre expressing concern that increased rail traffic would decrease residential real estate values. As explained elsewhere in this Final EIS, the demand for particular property is affected by numerous factors such as the physical location of the property, economic considerations, and demand for real estate. During construction and operation of the proposed rail line in Pierre, properties in the vicinity of the rail line could experience declines in real estate value. But these declines could be short-term. Over time, it is expected that some residents, at least in part, would adapt to rail operations and that rail operation impacts would become part of the normal community environment. Additionally, over time, some residents would relocate and new individuals would

move into the area. These residents would do so fully aware of the environment created by the operating rail line.

### **Missouri River Bridge**

Alternative P-2 would include reconstruction of the existing Missouri River bridge or construction of a new bridge at the same location. Reconstruction or construction activities would result in short-term and long-term impacts to the six residences that are within 500 feet of the existing bridge. Increases in noise and increased traffic on local roads, and a decrease in air quality from construction activities and equipment (vehicle emissions, fugitive dust) would be temporary impacts that would occur for the duration of the bridge construction (two to three years).

Long-term, operational impacts that could result from bridge operation are exposure to increased noise and air emissions from train traffic. Impacts to real estate values for the six homes in proximity to the rail line could be an additional impact, as declines in real estate values may result due to the perceived decrease in the quality of life.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Impacts to residential areas from construction and operation of Alternative P-3 would be minimal. The majority of the route passes through areas zoned for agricultural use and only three homes are located within 1,000 feet of the proposed route. All three homes are located along State Route 34, east of Pierre. The presence of Alternative P-3 could make the lands around it unattractive for future residential development.

### **Missouri River Bridge**

Alternative P-3 would require construction of a new Missouri River bridge over Lake Sharpe. Four homes along State Route 34 are within one mile of the proposed bridge. The closest home is approximately 0.5 mile from the proposed bridge site. Residents in these homes may experience increased traffic, noise, and air emissions from construction vehicles traveling along State Route 34 to access construction sites. These impacts would be temporary, lasting only as long as bridge construction (between 2 and 3 years). Operational impacts would have many of the same characteristics of current conditions due to the presence of the existing rail line near these homes. However, the number of trains passing through the area would increase. This would result in increased noise impacts. Additionally, the view from these homes overlooking the wide, scenic Lake Sharpe area of the Missouri River would now also include the new rail bridge. However, these impacts are not considered to be significant.

### **5.2.5.3 Business and Industrial**

Land designated for business or industrial use includes areas which contain shops, store fronts, manufacturing facilities, hotels, and other places of commerce, where people go to work or to purchase goods and services. Potential impacts to business and industrial lands are described in detail in the Draft EIS and include increased noise, dust, safety concerns, and traffic delays.

#### **Alternative P-1: No-Action**

There would be no project-related effects to businesses under Alternative P-1 because the status quo would be retained. However, potential improvements to the existing line, which could benefit existing rail shippers, would not be made, and the line could continue to deteriorate.

#### **Alternative P-2: Existing Rail Line**

Approximately 5.9 miles of land zoned and developed for business and industrial use is adjacent to the existing rail line through Pierre and approximately 1.7 miles through Fort Pierre. Impacts during reconstruction would be similar to those described in the Draft EIS, including reduced access for customers and employees, safety concerns from the presence of large construction equipment, and possible interruption of rail service to existing shippers. Some impacts to businesses and shippers located adjacent to the existing rail line could occur during construction. For example, construction could increase noise levels and dust and cause traffic delays during reconstruction of roadway/rail grade crossings. These impacts would be temporary, however, occurring only during the few weeks required to rehabilitate the existing rail line.

The existing rail line is adjacent to several businesses, including hotels, convention center facilities, and car dealerships. Increased noise levels from passing trains are a concern for businesses, particularly hotels. It is expected that hotels located along the existing rail line that have rooms with exterior windows, such as the Ramkota, would potentially experience noise disturbance sufficient to disturb patrons. SEA noted during site visits in April 2001 that many of the rooms at the Ramkota are not located on exterior walls. It is expected that patrons in these rooms would experience only minimal noise from passing trains. Delays at roadway crossings may initially deter some customers from patronizing local businesses, but it is expected that these impacts will not have any long-term impact on businesses adjacent to the tracks as customers adjust to new train traffic patterns.

Rail line operations are expected to improve the rail service to local shippers. More efficient rail service and the proximity of the line to Highways 34, 14, and 83 could make the area more attractive to new business and industry, as well as providing a good transportation network for existing businesses. The increased train traffic would be expected to result in increased noise, reduced access to certain areas, and greater roadway delays at rail line crossings. These impacts, while potentially disruptive in some areas, are not expected to be significant to individual businesses.

Nevertheless, because Pierre is the State Capital, people visit Pierre to attend meetings and conventions and do business with legislators and state agencies. These individuals, as well as residents of Pierre and its businesses, could experience substantial disruptions in their efforts to move about the City as a result of Alternative P-2. To minimize such impacts, SEA has recommended in Chapter 12, that, if Alternative P-2 is approved, the Board require improved grade crossing warning devices and a separated grade crossing along the existing rail line through Pierre.

### **Missouri River Bridge**

Reconstruction of the existing Missouri River bridge or construction of a new bridge in the same area would have minimal impacts to businesses and industry in the area. No businesses are located immediately adjacent to the bridge; therefore noise levels during construction and operation are not expected to affect businesses. However, construction (or reconstruction) of the bridge, which could last between 2 and 3 years, would result in temporary inconveniences, such as the need to adapt to new traffic patterns, which would make it harder to access local businesses. Upon completion of the bridge, traffic patterns should revert to pre-construction conditions so that the long-term impact to businesses should not be significant.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

The proposed Pierre bypass would not cross any land zoned for commercial or industrial use. New businesses could be attracted to the area by the benefits of a modern rail line and potential commercial development. However, development is only likely to occur at the east and west ends of town because the terrain to the south of the river would require extensive earth moving activities to develop those properties. In addition, a designated wildlife area east of Pierre would limit the land available for development in that direction.

#### **5.2.5.4 Public Facilities**

Public services considered in this section include schools, hospitals, public parks, libraries, government buildings, and public safety facilities. Public lands adjacent to or within

1,000 feet of the proposed or existing rail line are also considered. The following discusses the potential environmental impacts to such facilities from each of the three Pierre alternatives.

### **Alternative P-1: No-Action**

Approximately 2,000 feet of the existing rail line in Pierre is adjacent to schools, religious, or hospital property and approximately 1,600 feet is adjacent to public land. South of the existing rail line are a public school and the Pierre Indian School, located within 1,500 feet of the line. Four public schools are located on the north side of the existing rail line as it passes through Pierre. Pierre Junior High School is approximately one block north of the rail line, with the school athletic fields adjacent to the rail line. Riggs High School is approximately 2,000 feet north of the rail line, Washington School is approximately 1,000 feet north, and Buchanan School and Ball Field are approximately 2,000 feet north of the existing rail line. The Boys Club and the Oahe Child Development Center are located within 200 feet of the tracks. St. Mary's Hospital is approximately 400 feet south of the existing rail line, on the side of Highway 14 opposite the rail line. In Fort Pierre, Stanley County High School and two other schools are located east of the rail line, adjacent to the tracks. Athletic fields and an auditorium are also located east of the rail line, within 1,000 feet. The rail line is within approximately 1,000 feet of 15 recreational areas or parks, including Cottonwood Path, Hyde Stadium, and Capitol Lake (see Section 5.2.17). Approximately 6,500 feet of the Farm Island Recreation Area is adjacent to the south side of the existing rail line. Additionally, approximately 2,000 feet of land zoned for public use is adjacent to the existing rail line in Pierre.

Public services and facilities in and around Pierre would continue to experience the current level of impacts from operation of the DM&E railroad, including noise and blocked grade crossings during periodic train movements and switch activities. No project-related improvements would be made to the track. Accidents or derailments on the unimproved line would require public services such as police, fire department, and ambulance services.

### **Alternative P-2: Existing Rail Line**

Public services and facilities within proximity to Alternative P-2 would be the same as described for Alternative P-1. Noise and dust impacts during reconstruction are not expected to substantially affect these facilities because of the distance between the rail line and the facilities, confinement of reconstruction activities to the rail line right-of-way, and the availability of dust control mitigation. During reconstruction, users of the public facilities could experience delays in traffic, and delayed emergency vehicle response, as discussed in Chapter 4 of the Draft EIS. It is likely that a majority of the reconstruction activities would occur during the summer, however, thereby avoiding impacts to children while schools are not in session.

Impacts to public facilities, including schools, parks, and churches, from operation of the rail line, following reconstruction, would be similar to those currently experienced, except that the frequency of trains would be increased. Potential safety issues would be a concern for those crossing the tracks to reach public facilities. Delays to vehicles waiting for trains to pass would be shorter (because the train speed would increase) but would be more frequent. Facilities adjacent to the rail line also would experience noise and vibration from passing trains more frequently. However, improved track conditions should reduce or maintain the current level of noise (other than train horn noise) and vibration effects from passing trains at or near existing levels.

The cities of Pierre and Fort Pierre expressed concerns during the Draft EIS comment period about fire truck, ambulance, and police traffic experiencing greater delays due to increased rail operations. There is currently one below-grade crossing each in the City of Fort Pierre and Pierre. The Fort Pierre crossing at Cedar Avenue is not paved and narrows to one lane where it crosses under the existing DM&E Bad River bridge, between support columns. This unimproved underpass does not provide adequate clearance for fire equipment and is often unusable due to flooding or bad weather. Fort Pierre is one of the communities that has entered into a Negotiated Agreement with DM&E. Accordingly, consistent with the Board's practice, SEA has not recommended imposition of any site-specific mitigation for Fort Pierre. However, during reconstruction of the Bad River Bridge, DM&E is encouraged to consider this underpass for improvement to provide an adequate all-weather crossing for emergency vehicles. The grade separation in Pierre, at U.S. Highway 14 between S. Central and N. Highland Streets, is also in need of improvement to allow passage for all types of emergency vehicles. This crossing should also be considered by DM&E for improvement as part of the rail line rehabilitation.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Construction of the proposed bypass would affect one public facility, Antelope Creek Recreation Area. The proposed route bypasses Pierre and Fort Pierre to the south, avoiding schools, churches, hospitals, and city buildings, but would cross Antelope Creek Recreation Area, a Corps of Engineers facility, west of where the rail line would cross the Missouri River. During construction of the rail line and the new Missouri River Bridge, large equipment and construction activities would increase noise and dust in the area and could periodically limit access to the Antelope Creek area.

Train traffic during operation of the proposed bypass would cause noise disturbances at the park and could cause minor traffic delays.

## **5.2.6 WATER RESOURCES**

Water resources considered in this section include surface water, wetlands, and groundwater. Existing resources in the project area and potential impacts from each of the three alternatives are presented below. Section 4.3.7 of the Draft EIS presents a detailed discussion of the potential impacts to water resources, including increased erosion and sedimentation, alterations to flow patterns, loss of wetlands, reductions in water quality, and possible contamination from fuel and other contaminant spills.

### **5.2.6.1 Surface Water Impacts**

Surface waters considered in this section include streams, rivers, lakes, and ponds, as depicted on U.S.G.S. topographic quadrangle maps. Each stream shown on these maps and crossed by the existing or proposed alternative was included for the evaluation of the alternatives' potential impacts to surface waters.

#### **Alternative P-1: No-Action**

The existing rail line crosses 17 intermittent streams, the Missouri River once, and the Bad River twice. The Bad River and Lake Sharpe are currently listed as impaired under the Clean Water Act, Section 303(d), due to accumulated sediment. No construction or reconstruction would occur under this alternative; thus no project-related impacts would occur to the surface waters.

#### **Alternative P-2: Existing Rail Line**

The 17 intermittent streams crossed by the existing route could be impacted by reconstruction of the rail line. Impacts such as increased sedimentation from erosion of disturbed areas adjacent to waterways and instream work would be temporary and occur during the short construction period in the Pierre area (several days for replacement of culverts, 1-3 weeks for bridges). Erosion at waterways or along the remainder of the route could affect water quality within nearby, downstream lakes and waterways such as Lake Sharpe, the Missouri River, and the Bad River. Because these waterbodies are currently impaired due to sediment, reconstruction of the river crossing and disturbance to adjacent stream banks could exacerbate the problem. However, these disturbances would be temporary and could be minimized by implementation of appropriate erosion and sedimentation control measures. Alterations to stream banks and beds during reconstruction at crossings could change stream flow patterns, resulting in longer term changes in-stream characteristics and hydrology. However, any such changes are expected to be

minor because the crossings are already there. During reconstruction there is also the potential for the introduction of contaminants from accidental spills of fuel or other contaminants.

Operation of the rail line would also include the potential for spills of fuel or other contaminants, which could reduce water quality in-streams. Potential impacts to surface waters are discussed in detail in Chapter 4 of the Draft EIS. Following completion of reconstruction, spills would be unlikely because track improvements are expected to reduce derailments. Compliance with existing regulatory procedures for handling, storing, and disposing of potential contaminants would also reduce the likelihood of spills (see Chapter 12).

### **Missouri River Bridge**

Improvements to the existing rail line would require rehabilitation of the Missouri River Bridge or construction of a new bridge between Pierre and Fort Pierre, South Dakota. Chapter 4 of the Draft EIS provides a detailed discussion of the potential impacts to water quality from construction or reconstruction of the Missouri River bridge. These impacts would include increased sediment and turbidity resulting from instream activities and disturbance to adjacent stream banks.

Alternative P-2 would cross the Missouri River at Lake Sharpe in Hughes County. The lake has been classified, under the Clean Water Act, Section 303(d), as an impaired water of the United States, because of accumulated sediment that can be detrimental to organisms in the area and to water quality. Construction of a new river crossing for Alignment P-2 would disturb the river bank, potentially increasing sedimentation into the river. Any required instream work would likely disturb existing bottom sediments and increase the total suspended solids (TSS). Increases in sediment could further exacerbate the existing problems in the lake, resulting in greater levels of impairment. However, the level of sediment introduced into the river during construction could be reduced with appropriate erosion and sedimentation control measures, as recommended in Chapter 12 of this Final EIS. The river crossing construction would be expected to last one to two years. Following construction and the restoration of the river bank (in accordance with the mitigation recommended in Chapter 12), sediment levels should return to previous conditions.

If it is determined that the existing rail bridge could not be adequately rehabilitated, a new rail bridge would be constructed immediately upstream of the existing bridge. The construction of a new rail bridge would render the existing rail bridge unnecessary for operations and too costly to maintain. If ownership of the existing rail bridge could not be transferred, the Coast Guard would likely require that it be removed. The bridge would be removed according to Coast Guard regulations, and salvage activities would likely include removal of all bridge superstructure and piers. These activities could cause temporary disturbance to sediment in the

river and soil on the adjacent banks. However, impacts would be short-term, lasting only for the duration of bridge removal.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Alternative P-3 would include no improvements to the existing rail line; thus no impacts at the 20 existing water crossings would occur. However, Alternative P-3 would require the crossings of 25 intermittent streams, the Missouri River, Antelope Creek, and the Bad River. These waterways would be temporarily affected during construction. Soil erosion within the proposed right-of-way, caused by earth disturbances, removal of ground cover adjacent to stream crossings, and earthwork to prepare the bridge approaches could lead to sedimentation and increased TSS in surface waters. As discussed for Alternative P-2, increased sedimentation into Lake Sharpe and the Bad River could exacerbate their impaired status. Impacts would likely be greater than for Alternative P-2 due to Alternative P-3 requiring all new construction at new locations. Instream work could disturb bottom sediments and increase suspended solids at culvert and bridge installation sites. Some crossings could require channelization, bank stabilization, and stream realignment that could change stream flow patterns for short distances downstream.

Fuels and other contaminants could be introduced into the streams during construction and operation from accidental spills. During operations, compliance with existing regulatory procedures for handling, storing, and disposing of potential contaminants and a decreased risk of derailment should make spills unlikely. Long-term impacts could include potential alteration of stream banks and beds at stream crossings that could change drainage patterns, stream flow velocities, and flood plain characteristics. In some instances, the rail line could act as a dam, causing changes to surface drainage patterns along the route.

Operation and maintenance of the rail line with the proposed amount of rail traffic would introduce the potential for foreign matter to be released into the river via accidental spills or from derailment, possibly resulting in increased sedimentation or introduction of fuel or other hazardous chemicals. Adherence to proper handling and storage procedures for hazardous chemicals, however, would reduce the risk of contamination in the event of a derailment.

### **Missouri River Bridge**

The Missouri River crossing would require a long bridge, approximately 1.5 miles in length, not including approaches and abutments which could add another 0.5 mile in length. Construction to put support piers for the bridge in place would cause an increase in TSS, and river bank and instream activities would cause increased sediment and turbidity. Disturbance of the riverbank and placement of fill to create approaches and abutments on both sides of the river

would likely result in increased erosion and sedimentation in the river. Such impacts would likely exacerbate the impaired condition of Lake Sharpe, as discussed above. Impacts to water quality would be expected during construction of the bridge and possibly during maintenance activities. Construction of such a large bridge would require a significant amount of time (a minimum of 2 years) and instream work.

In contrast to the existing bridge location, which crosses the Missouri River in a fairly narrow area (approximately 1,900 feet, or 0.3 mile), the bridge required for Alternative P-3 would cross at one of the river's widest points (approximately 6,500 feet at the proposed crossing location), Lake Sharpe. During the comment period, SEA received numerous comments indicating that two new bridges had recently been constructed over the Missouri River in South Dakota. Commenters therefore questioned why SEA considered the construction of a new bridge at a new location under Alternative P-3 to raise significant environmental concerns. SEA has determined, through consultation with the Coast Guard, that the two new bridges noted by commenters were constructed at narrow points on the Missouri River. These new bridges are approximately 0.5 mile or less in length, not including approaches and abutments. They also cross perpendicular to the river. In contrast, the bridge associated with Alternative P-3 would span approximately 1.5 miles of water, require additional distance as part of bridge approaches and abutments, and cross the river at an angle. Thus, the bridge over Lake Sharpe would be significantly longer than both the existing or, if necessary, new DM&E rail bridge between Pierre and Fort Pierre and the two bridges referenced by commenters. Therefore, SEA does not believe the proposed bypass bridge is comparable to the two other bridges noted by commenters.

As noted for Alternative P-2, the construction of a new rail bridge under Alternative P-3 would make the existing rail bridge unnecessary and too costly to maintain. Removal, if needed, would be conducted according to Coast Guard regulations. Salvage activities would likely include removal of all bridge superstructure and piers.

### **5.2.6.2 Wetlands**

Wetlands are important regional ecosystems that provide sediment and pollutant filtration for surface water. They also provide flood water retention, erosion control, and foraging, resting, and nesting habitat for waterfowl, mammals, fish, reptiles, and amphibians. The Draft EIS provides a definition of jurisdictional wetlands and the different types of wetlands in the project area. In the Pierre project area, the majority of wetlands present are emergent or riverine wetlands.

Table 5-1 provides the acreage and type of palustrine (vegetated) wetlands present, assuming a 200-foot right-of-way, along the existing and proposed bypass rail lines.

<b>Table 5-1                      Comparison of Palustrine Wetlands                      For the Pierre/Fort Pierre Alternatives, South Dakota</b>		
<b>Wetlands Type</b>	<b>Alternatives                      P-1 and P-2                      (acres)</b>	<b>Alternative P-3                      (acres)</b>
Emergent	19.5	6.3
Scrub-Shrub	0.4	0
Emergent/Scrub-Shrub	6.1	0
Scrub-shrub/Forested	0.5	0
<b>Total</b>	<b>26.5</b>	<b>6.3</b>

**Alternative P-1: No-Action**

Approximately 37.0 acres of wetlands occur within 100 feet of either side of the existing rail line through the cities of Pierre and Fort Pierre. A large portion of those wetlands (81 percent) are palustrine emergent wetlands (approximately 30.0 acres). No project-related impacts are expected to occur to wetlands as a result of the No-Action alternative, as the rail line would remain unchanged.

**Alternative P-2: Existing Rail Line**

Wetlands along Alternative P-2 are described in Table 5-1. Approximately 26.5 acres of wetlands (based on National Wetland Inventory maps) presently occur within the existing DM&E rail line right-of-way. However, while proposed reconstruction of the rail line could potentially impact these emergent wetlands, wetlands within the existing right-of-way would primarily be affected by construction of rail passing sidings adjacent to the existing rail line. Because no rail passing sidings are proposed through Pierre, only rail line reconstruction activities would occur. Reconstruction activities would generally be confined to the existing railbed. Therefore, it is anticipated that few if any of the wetlands within the existing right-of-way would be lost as a result of reconstruction activities through Pierre.

Changes to surface water, drainage flow, erosion, and sedimentation resulting from reconstruction of the rail line could also affect adjacent wetlands. Installation of rail line drainage structures may drain adjacent wetlands. These indirect impacts are difficult to quantify because final design of the proposed rail line reconstruction is not yet completed. However, the COE has

indicated that, as part of issuing any Clean Water Act, Section 404 permits, it would require DM&E to design and construct stream and wetland crossing structures to maintain the current stream bed elevation to prevent changes to the hydrology of adjacent wetlands.

Operation and maintenance along the existing rail line, following reconstruction, would have similar effects to what is currently experienced. Contaminants, such as fuel, lubricants, or herbicides could damage wetland vegetation and contaminate water or soil, should they enter wetlands following improper handling or use, or in the unlikely event of a derailment.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Approximately 6.3 acres of wetlands occur within the proposed 200-foot right-of-way of Alternative P-3. All of the wetlands are emergent wetlands, the majority of which occur within the vicinity of the proposed Missouri River crossing. Wetlands located within the 200-foot rail line right-of-way would be converted to rail bed and ditches during the proposed construction. These impacts would be permanent and would include clearing of vegetation, excavation, grading, and placement of fill material to raise the rail bed. Changes in surface water drainage, flow, erosion, or sedimentation could also cause changes to wetlands outside of the right-of-way, resulting in more than 6.3 acres of wetlands being impacted. These indirect impacts could not be quantified because final designs have not been completed. Wetlands similar to those lost but smaller and of lower quality would likely reestablish in the right-of-way following reconstruction activities.

Construction of the proposed Missouri River bridge would also permanently impact wetlands along Alternative P-3. Wetlands located along the edge of the river or within the floodplain would be totally lost. Impacts would also occur where bridge piers would be placed in the river, floodplain, and wetlands adjacent to the river to support the bridge. Additional temporary impacts would occur to other wetlands during the placement of those piers from construction activity and equipment.

Operation and maintenance of Alternative P-3 would continue to impact wetlands along the new rail line. The impacts would be similar to those described for Alternative P-2, including the potential for introduction of fuel or contaminants in the unlikely event of a derailment. However, for Alternative P-3, these impacts would occur where no such threat has previously existed.

### 5.2.6.3 Groundwater

The project is unlikely to affect groundwater in the Pierre project area because groundwater levels are generally deeper than the cuts that would be required to create a suitable rail bed grade. In the event of an accidental hazardous materials spill, however, leaching of the hazardous substance could potentially contaminate groundwater. However, the generally deep soils and depth to groundwater in the area would prevent contaminants from leaching deep enough to reach the water table. Also, because the transport of hazardous materials in the Pierre area by DM&E is negligible, the potential of a spill occurring is unlikely. Contamination could also occur from an accidental spill of fuel or oil during maintenance or operation of trains along the proposed rail line. Improved track conditions and compliance with regulatory procedures for handling, storing, and disposing of potential contaminants, however, would reduce this risk.

### 5.2.7 AIR QUALITY

Potential impacts to air quality are expected to be similar for each of the Pierre action alternatives. Emissions during reconstruction and construction depend on the type of activity and the length of the alternative. New construction would have greater emissions than reconstruction of the existing rail line because more heavy equipment (particularly that used for earthwork) would be used for a longer time to complete the work. Greater ground disturbance would potentially lead to more fugitive dust.

During operation of the line, increased emissions from locomotives operating on the rail line and from motor vehicles waiting at grade crossings could also contribute to local air quality effects. Air quality impacts were calculated according to the methodology presented in Appendix E of the Draft EIS. Table 5.2 presents gross-ton miles and locomotive air emissions for designated levels of rail traffic for each alternative. SEA also examined the issue of fugitive coal dust and determined it would not present a significant problem (see Chapter 3 of this Final EIS for more detailed discussion). SEA also evaluated the potential exposure to hazardous air pollutants (HAPs) as a result of diesel locomotive emissions and has determined that exposure levels would be well below levels associated with potential risk to human health (see Chapter 9 of this Final EIS for more detailed discussion).

Alternative	# Trains per Day (MNT)	Gross-Ton Miles	HC tpy	CO tpy	Nox <sup>3</sup> tpy	SO <sub>2</sub> tpy	PM <sub>10</sub> tpy	Pb tpy
<b>P-1</b>	3 (20 MNT)	156,945,537	1.72	4.63	27.59	2.90	1.17	0.000095
<b>P-2</b>	11 (20 MNT)	575,466,969	6.32	16.98	101.17	10.63	4.28	0.000347
<b>P-2</b>	21 (50 MNT)	1,282,794,700	14.09	37.85	225.52	23.69	9.53	0.000774
<b>P-2</b>	37 (100 MNT)	2,394,805,147	26.30	70.66	421.02	44.22	17.80	0.001446
<b>P-3</b>	11 (20 MNT)	48,711,114	5.29	14.21	84.69	8.89	3.58	0.000291
<b>P-3</b>	21 (50 MNT)	1,073,800,058	11.79	31.68	188.78	19.83	7.98	0.000648
<b>P-3</b>	37 (100MNT)	2,004,640,263	22.01	59.15	352.43	37.01	14.90	0.001210
HC - Hydrocarbons      CO - Carbon Monoxide      PM <sub>10</sub> - Particulate Matter (less than 10 microns in diameter) SO <sub>2</sub> - Sulfur Dioxide      NO <sub>x</sub> - Oxides of Nitrogen      Pb - Lead      tpy - tons per year								

**Alternative P-1: No-Action**

Under the No-Action Alternative, no reconstruction or construction activities would occur, and no unit coal trains would be transported over the rail line. Locomotive emissions and emissions from motor vehicles delayed at blocked crossings would remain at current levels.

**Alternative P-2: Existing Rail Line**

During reconstruction of the approximately 17.8 miles of existing DM&E rail line through the cities of Pierre and Fort Pierre, temporary road closures and rerouted traffic could result in greater motor vehicle emissions associated with traffic congestion or delays. Reconstruction activities would create dust and emissions from construction vehicles. Trains

delayed by construction would also potentially increase emissions in the area. These impacts would be temporary and are not considered significant.

Locomotive air emissions for designated levels of rail traffic are presented in Table 5-2 and detailed in the Draft EIS. An increase in the number of trains passing through the area would increase the overall amount of locomotive emissions and could increase vehicle emissions as a result of a greater number of delay events. Increased train speeds are not expected to result in any significant reductions in air quality, although trains would pass through the area more quickly and delay times for vehicles at road crossings could be shorter than those being experienced now.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Alternative P-3 involves construction of new rail line to the east and south of Pierre and Fort Pierre. Ground disturbance and earthwork would create fugitive dust and emissions from construction equipment.

During rail line operation, locomotive traffic would contribute emissions to the airshed along the Alternative P-3 alignment. Table 5.2 contains the estimated amount of pollutants produced during normal operation under operating levels of 20 million tons of coal annually (8 coal trains), 50 million tons of coal annually (18 coal trains), and 100 million tons of coal annually (34 coal trains). Increased emissions from vehicles delayed at grade crossings during train passing events would also occur. However, proposed grade crossings along the bypass route are generally located in rural areas with little vehicle traffic (less than 5,000 vehicles per day) and good air quality. Therefore, additional emissions would not result in significant changes to air quality along Alternative P-3.

## **5.2.8 NOISE AND VIBRATION**

As shown in Table 4.1-8 in the Draft EIS, two trains per day currently pass through the Pierre area, with additional rail traffic occurring irregularly as part of wayfreight and switching operations. The construction, or reconstruction, and operation of the proposed PRB Expansion Project through or around the cities of Pierre and Fort Pierre would result in an increase in noise and vibration, as discussed in the Draft EIS.

Section 3.2.9 of the Draft EIS provides a description of noise sources associated with rail construction and operation, such as noise generated by construction equipment, wayside noise, and locomotive horn sounding. SEA determined the number of noise sensitive receptors, including homes, schools, hospitals, and churches, potentially impacted by the Pierre/Fort Pierre alternatives. The distance from the rail line where the average daily noise level ( $L_{dn}$ ) would be

equal to 65 dBA and 70 dBA was then calculated for the existing level of traffic and at the levels of traffic evaluated by SEA (20 million tons of coal annually, 50 million tons of coal annually, 100 million tons of coal annually).

SEA also determined in the Draft EIS that structures within 100 feet of the existing rail line could experience increased vibration due to operation of heavier and faster unit coal trains sufficient to cause structural damage. SEA indicated that structures up to 400 feet away could be subject to lesser levels of vibration, causing disturbance and inconvenience to residents. Additionally, SEA noted that vibration-sensitive equipment, such as MRIs, electron microscopes, and analytical balances, could be affected by project-related vibration at distances greater than 400 feet. The following sections discuss SEA's noise and vibration analysis for the Pierre/Fort Pierre Alternatives.

### 5.2.8.1 Noise

The construction, reconstruction, and operation of each of the Pierre/Fort Pierre action alternatives would result in increased noise levels.

#### Alternative P-1: No-Action

Approximately 615 noise sensitive receptors are currently located within 1,000 feet of the existing rail line. This includes residences, schools, parks, recreation areas, and hospitals. The total number of noise sensitive receptors exposed to average daily noise levels associated with normal train operation would remain the same (Table 5.3). No construction activities or change in rail operations would occur under Alternative P-1; thus no project-related changes in noise levels would occur.

<b>Table 5-3</b> <b>Noise Sensitive Receptors Exposed to</b> <b>Noise Levels of 65 and 70 dBA L<sub>dn</sub> for Pierre Alternatives</b>				
<b>Alternative</b>	<b>No. Trains/Day</b>	<b>Wayside</b>	<b>Wayside/horn</b>	<b>Horn</b>
P-1	4	0/0	0/0	354/204
P-2	11	9/0	69/6	930/311
P-2	21	12/3	135/22	1,611/706
P-2	37	20/8	286/54	2,034/1,776

Alternative	No. Trains/Day	Wayside	Wayside/horn	Horn
P-3	11	0/0	0/0	0/0
P-3	21	0/0	0/0	0/0
P-3	37	0/0	0/0	0/0

**Alternative P-2: Existing Rail Line**

Reconstruction of the existing rail line would result in increased noise levels from construction machinery for the duration of the reconstruction period. Operation of the reconstructed rail line would also result in increased noise levels because locomotive traffic on the rail line would be increased. The number of noise sensitive receptors exposed to average daily noise levels (L<sub>dn</sub>) of 65 dBA and 70 dBA from wayside noise, the combination of wayside noise and horn noise, and only horn noise are shown in Table 5-3.

Increased levels of noise from Alternative P-2 would also occur to Farm Island Recreational Area, Hughes County Fairgrounds, and other parks along the existing rail line, causing disturbance to recreationists at these facilities. The potential increased frequency of passing trains required to sound their horns in proximity to Farm Island Recreation Area could result in significant disturbance to overnight campers using the area.

Several houses are located near the existing Missouri River Bridge crossing. Three are located on the east bank and a new neighborhood has developed along the west bank, north of the bridge. Noise disturbance would occur during rehabilitation or reconstruction of the existing bridge. Construction of a new bridge would result in a greater increase in noise levels due to the need for more construction equipment. Rehabilitation of the existing bridge or construction of a new bridge would last for approximately 2 to 3 years. Following rehabilitation or new bridge construction, increased rail operations would increase noise levels along the existing rail line and rail bridge. The noise sensitive receptors affected by adverse levels of noise (65 and 70 dBA L<sub>dn</sub>) in proximity to the existing Missouri River bridge are included in Table 5-3. Noise mitigation for noise receptors in Pierre that fall within the Board’s contours for noise mitigation is included in Chapter 12.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Increased noise levels would occur during construction and operation of the proposed bypass. Machinery used for construction activities such as grading, rail installation, and site preparation would produce noise during the construction period. However, the sparsely populated, rural setting in which the proposed bypass would be built would expose few noise sensitive receptors to increased noise levels. Four homes are located across State Route 34 from where Alternative P-3 diverges from the existing line, east of Pierre. There are no grade crossings within 1,250 feet of the homes that would require a horn sounding by passing trains. Therefore, under this alternative, only wayside noise would be a factor for these four homes. None of the homes would be within the 65 dBA or 70 dBA noise contour for wayside noise only. Because these homes are located so near to the divergence of the bypass route from the existing route, they would likely be more affected by, and are actually closer to, rail operations on the existing rail line serving Pierre shippers.

Construction of a new Missouri River bridge would not occur closer than approximately 2,500 feet from the nearest house. On the south bank of the river, however, the bridge would be approximately 1,500 feet from Antelope Creek Recreational Area. Increased noise levels during construction and operation may be undesirable to those using the park for recreational purposes.

#### **5.2.8.2 Vibration**

In the Draft EIS, SEA determined that the proposed action alternatives would likely result in increased ground vibration from operation of larger and heavier trains than currently operate over the existing DM&E rail line. Vibration contours established by SEA and potential impacts to structures within these described distances are outlined in the Draft EIS. The area surrounding the Pierre/Fort Pierre alternatives was analyzed by SEA, and the number of structures within each vibration contour was determined. Structures located within 100 feet of the rail line would be the most likely to experience damage from vibration. Beyond 400 feet, only structures that contain sensitive equipment, such as hospitals, could potentially be impacted.

In preparing this Final EIS, SEA conducted additional detailed analysis of train-produced vibration (Appendix M). Based on this testing, SEA has determined that structures would likely need to be less than 50 feet from the rail line for vibration levels to be sufficient to cause structural damage. SEA also determined that structures within 400 feet from the rail line could experience disturbance and inconvenience from rail-related vibration, and that vibration-sensitive equipment could be affected beyond this distance.

**Alternative P-1: No-Action**

Approximately 4 homes are within 100 feet of the existing rail line and approximately 9 homes are between 101 and 200 feet from the existing rail line. Approximately 92 homes are located between 201 and 400 feet from the existing rail line (Table 5.4). No facilities that contain sensitive equipment are located within 400 feet of the existing rail line. The level of vibration created by DM&E rail traffic on the existing rail line would remain unchanged.

<b>Alternative</b>	<b>0 - 100 Feet</b>	<b>101 - 200 Feet</b>	<b>201 - 400 Feet</b>
P-1	4	9	92
P-2	4	9	92
P-3	0	0	0

**Alternative P-2: Existing Rail Line**

While the number of houses located along Alternative P-2 are the same as for Alternative P-1, rail traffic on the existing route could increase substantially under this alternative. Structures currently located in proximity to the rail line could experience an increase in vibration because of the proposed transport of heavier loads at higher speeds. The hospital is located approximately 400 feet south of Alternative P-2, on the other side of U.S. Highway 14. No increases in existing vibration levels at the hospital are anticipated due to the distance from the rail line, vibration caused by vehicle traffic (particularly large trucks), and the use of continuously welded rail (see Chapter 12).

**Alternative P-3: Pierre/Fort Pierre Bypass**

There are no homes within 400 feet or facilities containing vibration-sensitive equipment within 1,000 feet of Alternative P-3. Therefore, no impacts from vibration are anticipated from this alternative.

**5.2.9 BIOLOGICAL RESOURCES**

The existing biological resources within the project area, including vegetation, wildlife, and endangered species, are described in detail in the Draft EIS. The following discusses the

potential impacts to these resources from the three Pierre alternatives. The distances measured adjacent to the existing rail line are presented in miles totaled from both sides of the existing or proposed track. The distance of land presented for the proposed rail line bypass includes land that would be converted from its present condition to railroad right-of-way.

### **5.2.9.1 Vegetation**

Vegetation in the project area is primarily short grass prairie, often used for livestock grazing. Generally, short grass prairie is dominated by native grasses such as gramma grass (*Boutelova* sp.), western wheatgrass (*Elymus smithii*), needle grasses (*Stipa* sp.), and buffalo grass (*Buchloe dactyloides*). Section 4.1.8.1 of the Draft EIS provides a detailed description of short grass prairie vegetation. The majority of the land is used for agricultural purposes, primarily for grazing livestock. Impacts to vegetation would result from conversion to rail line right-of-way, clearing, invasion of undesirable species, loss of soil from erosion, and herbicide use.

#### **Alternative P-1: No-Action**

The existing rail line is approximately 17.8 miles in total length. Approximately 4.3 miles of the route are adjacent to agricultural land. The remainder of the route is adjacent to developed land as it passes through Pierre and Fort Pierre. The Missouri River crossing is also within the city limits of Pierre and Fort Pierre and does not include any undeveloped areas. No additional impacts to vegetation would result from this alternative. Rather, normal rail line operation and maintenance would continue to occur within the existing rail line corridor, including the minimal trimming, mowing, and herbicide use for vegetation control that currently occurs.

#### **Alternative P-2: Existing Rail Line**

Vegetation that could be affected by this alternative is the same as for Alternative P-1. Impacts to existing vegetation would primarily occur within the existing rail line right-of-way and would likely include clearing or damage from construction equipment, loss due to herbicide use, trimming and mowing, and ground disturbance. Non-native vegetation or undesirable species could invade the project area following soil disturbance. The edge of the proposed right-of-way would be expected to revegetate following the completion of construction activities. Overall, little impact to vegetation within the existing right-of-way is anticipated.

Rehabilitation of the existing Missouri River Bridge could require removal of trees and vegetation at the bridge footings. Construction of a new bridge would require removal of vegetation and trees along the river bank at the sites of new bridge approaches and abutments.

Areas disturbed during construction could be re-seeded and vegetation reestablished following the completion of construction activities.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Approximately 26.9 miles of Alternative P-3 is adjacent to agricultural land used primarily for grazing livestock. At Antelope Creek Recreation Area, this alternative would cross an area planted with vegetation to serve as a windbreak for facility users and for wildlife habitat. This vegetation consists primarily of woody shrubs and trees, including both deciduous and coniferous species.

Activities associated with the construction of Alternative P-3 would cause temporary and permanent impacts to vegetation. Permanent impacts would be caused by the conversion of approximately 652.5 acres of agricultural land to railroad right-of-way. Alternative P-3 would convert approximately 2.0 acres of deciduous and coniferous trees and shrubs planted in the Antelope Creek Recreation Area. Soil disturbance could cause the loss of native plant communities within the disturbed area and promote the invasion of undesirable species. Potential spills of fuel or other hazardous substances during construction and operation of the proposed rail line may affect vegetative communities within the right-of-way and in adjacent areas.

Following construction, the edge of the proposed right-of-way would likely re-vegetate as described in Chapter 4 of the Draft EIS. Maintenance of these areas by DM&E during rail line operation would require mowing and trimming to control excess growth of ground cover and woody vegetation. Herbicide application to control weeds during operation of the proposed rail line could affect adjacent communities by killing or damaging vegetation.

Construction of a new Missouri River Bridge would require the removal or alteration of existing vegetation at each bank. Grasses exist on the north bank and scrub/shrub wetlands and scattered cottonwoods occur on the south bank. The acreage of these communities are included in the vegetation totals presented previously. Construction activities would impact shoreline vegetation on both banks. Impacts include removal of vegetation for construction, compaction of soils from construction equipment and activity, and invasion of disturbed areas by undesirable species.

#### **5.2.9.2 Wildlife**

Wildlife common to the area include big game species such as white-tailed deer (*Odocoileus virginianus*) and wild turkey (*Meleagris gallopavo*), and other game species including ring-necked pheasant (*Phasianus colchicus*), Northern pintail (*Anas acuta*), Canada

goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), and blacktail jackrabbit (*Lepus californicus*). Non-game wildlife species in the area include eastern tiger salamander (*Ambystoma tigrinum*), lined snake (*Tropidoclonion lineatum lineatum*), killdeer (*Charadrius vociferus*), lark sparrow (*Chondestes grammacus*), big brown bat (*Eptesicus fuscus*), and red-tailed hawk (*Buteo jamaicensis*). More detailed discussion of the types and species of wildlife found within the Pierre/Fort Pierre area is included in the Draft EIS.

### **Alternative P-1: No-Action**

Wildlife that currently inhabit habitat along the existing rail line would continue to encounter the same impacts. It is likely that local wildlife have adapted to some extent to the existing rail traffic. In addition, the majority of this route, approximately 15 miles, occurs within the cities of Pierre and Fort Pierre. These developed areas tend to have only limited types and numbers of wildlife present. Only approximately 8.6 miles of the rail line right-of-way provides potential wildlife habitat.

### **Alternative P-2: Existing Rail Line**

Some short-term and long-term impacts are anticipated to local wildlife during reconstruction and operation of the existing rail line pursuant to Alternative P-2. While local wildlife are likely used to activities associated with rail line traffic, increased rail traffic and train speed would increase the amount of disturbance to wildlife. Reconstruction and operational impacts could include habitat loss, increased noise disturbance, train-wildlife collisions, increased disturbance from human presence, and the potential introduction of fuel or other contaminants into the environment. However, these impacts are not likely to be significantly different from impacts currently experienced along the existing rail line.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

Construction of Alternative P-3 would convert 652.5 acres of agricultural land, and 6.3 acres of wetlands that currently provide wildlife habitat. Wildlife currently utilizing these areas for cover and forage would relocate to adjacent or nearby areas during construction. Construction of the rail line could cause some loss of ground nests and ground nesting birds. Foraging, nesting, and cover habitat would be lost. Local wildlife would be faced with the obstacle of crossing a rail line where none previously existed. The presence of the rail line across rural lands would increase wildlife mortality because of wildlife-train collisions.

Construction of a new Missouri River bridge would impact 6.3 acres of mixed emergent and scrub/shrub wetlands along the south shoreline of the river. The loss of this habitat would affect waterfowl, possibly upland birds, amphibians, songbirds, and reptiles that may currently

inhabit the area. During construction activities, noise levels could cause some wildlife to relocate to nearby areas of suitable habitat.

### **5.2.9.3 Aquatic and Fisheries**

The existing Missouri River crosses between the cities of Pierre and Fort Pierre. Fishing and other recreational activities are an important resource in the Missouri River, particularly in Lake Oahe and Lake Sharpe. None of the proposed alternatives would affect Lake Oahe because it is upstream from Pierre. Lake Sharpe, however, is located downstream from Pierre and could be affected by project-related construction or reconstruction activities. Impacts to fish and other aquatic organisms during reconstruction or construction activities would likely be related to increases in TSS.

#### **Alternative P-1: No-Action**

The existing DM&E rail line crosses 20 waterbodies, the majority (17) of which are intermittent streams. Three crossings of perennial rivers occur, one of the Missouri River and two of the Bad River. These rivers contain native and game fishes such as crappie (*Pomoxis* sp.), yellow perch (*Perca flavescens*), bigmouth buffalo (*Ictiobus cyprinellus*), walleye (*Stizostedion vitreum*), northern pike (*Esox lucius*), smallmouth bass (*Micropterus dolomieu*), channel catfish (*Ictalurus punctatus*), and shortnose gar (*Lepisosteus platostomus*). This alternative involves no project-related construction or reconstruction activities and would, therefore, have no impacts on these resources.

#### **Alternative P-2: Existing Rail Line**

As stated for Alternative P-1, 20 waterbody crossings occur along the existing DM&E rail line through Pierre and Fort Pierre. Potential impacts to aquatic organisms, such as alteration of available habitat and abrasion of gills from increased sediment caused by construction or reconstruction activities, are described in the Draft EIS. During reconstruction of the existing rail line, impacts would occur primarily in the Missouri River and Bad River because aquatic resources in the 17 intermittent streams along the route would be limited and construction activities could occur when the streams are dry. Accidental spills of contaminants during reconstruction and operation could pose a hazard to fish and other aquatic organisms if these materials enter waterways in quantities sufficient to reduce water quality. Following rail line reconstruction, the chance of spills would be reduced due to the improved condition of the rail line.

Reconstruction of the Missouri River Bridge would likely cause increases in sediment downstream from the bridge and may alter hydrology during construction activities, due to the placement of additional piers in the river. Increased sediment and changes in hydrology can affect aquatic organisms in many ways. The development of eggs and larvae can be impeded, migration patterns can be altered, and feeding habits can be changed. Fish habitat and mussel beds can be damaged by instream bridge or culvert activities, if those organisms are present at the site. These impacts would likely not be significant because they would be restricted to the localized area of the bridge. However, they could last between 2 and 3 years. Aquatic organisms in the portion of the river where bridge construction would occur would likely relocate during construction if water quality in the area of the bridge is affected. Section 4.3.10.3 of the Draft EIS provides more discussion of the potential impacts to fisheries from bridge construction activities.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

The proposed bypass around Pierre and Fort Pierre would cross 28 waterways, including 25 intermittent streams and three perennial streams, the Missouri River, Antelope Creek, and the Bad River. Impacts to aquatic resources would occur primarily from crossing the three perennial streams and would be similar to those discussed for Alternative P-2. Construction of a new bridge would result in greater impacts than reconstruction of existing bridges because in-stream work would be required to set bridge piers in place. The in-stream work would increase TSS and displace local aquatic organisms during construction. Increases in sediment could cause the loss of fish eggs and larvae, mussels, and other sensitive aquatic organisms. Other construction-related impacts include accidental dropping of construction materials or hazardous chemicals. These impacts would be short-term and should not significantly impact aquatic life because they would only occur during construction activities. Following construction, the new piers would provide additional structural habitat for fish and other aquatic organisms, and the likelihood of chemical spills during operation or maintenance would be minimal.

#### **5.2.9.4 Endangered, Threatened, and Sensitive Species**

A list of Federally threatened and endangered species within the South Dakota project area is provided in Section 4.1.8.4 of the Draft EIS. In the Pierre area, seven Federally protected species have been recorded to occur or have the potential to occur. These are the piping plover (*Charadrius melodus circumcinctus*, endangered), whooping crane (*Grus americana*, endangered), interior least tern (*Sterna antillarum*, endangered), Topeka shiner (*Notropis topeka*, endangered), pallid sturgeon (*Scaphirhynchus albus*, endangered), American burying beetle (*Nicrophorus americanus*, endangered), and bald eagle (*Haliaeetus leucocephalus*, threatened). The sturgeon chub (*Macrhybopsis gelida*) has been under consideration for listing as threatened but recent USFWS recommendations propose removal of the fish from consideration (66 FR

19910). Potential impacts to protected species are discussed in detail in Chapter 4 of the Draft EIS and in the biological assessment (Appendix H), and include death of individuals, reduced survival, and loss of habitat.

Within the project area, piping plover are known to occur only during breeding or nesting season, where they can be found on islands or sandbars in the Missouri River near Pierre, South Dakota. The U.S. Fish and Wildlife Service recently designated critical habitat<sup>2</sup> for the piping plover in South Dakota. No areas of critical habitat would be affected by any of the Pierre/Fort Pierre alternatives. Therefore, it is unlikely any of the Pierre/Fort Pierre alternatives would affect this species. Whooping cranes can be observed in the area during migrations between Mexico and Canada. Fourteen sightings have occurred in Hughes County and 20 sightings have been recorded in Stanley County. The pallid sturgeon occurs in the Missouri River (Lake Sharpe) in Hughes and Stanley counties. Bald eagle communal roosts and winter concentration areas occur along the Missouri River, upstream and downstream from the existing DM&E Missouri River crossing at Pierre. Three nocturnal roosts are present within one mile of the crossing and concentrations of wintering eagles have been documented north of the bridge.

At this time, any area in South Dakota with significant humus and/or topsoil suitable for burying carrion is considered potential habitat for the America burying beetle. It was, therefore, considered in SEA's analysis, although the beetle's presence has not actually been recorded in the project area.

Suitable nesting and foraging sites for the interior least tern occur along the Cheyenne River near its confluence with Lake Oahe, upstream from Pierre. Two sightings of least tern have been recorded on the Missouri River near Pierre in Hughes County, and Fort Pierre in Stanley County. Topeka shiner have been collected in the Cheyenne River embayment at Lake Oahe, north of the project area. Sturgeon chub were collected in the Cheyenne River between Angostura Dam and Lake Oahe in 1996. The proposed project would not likely impact interior least tern, Topeka shiner, or sturgeon chub because none of these sightings were within the proposed or existing DM&E corridor.

### **Alternative P-1: No-Action**

Habitat occurs for the whooping crane, pallid sturgeon, and bald eagle along the existing DM&E rail line in the Pierre area. The suitable habitat for these protected species is primarily associated with the Missouri River. Under Alternative P-1, current activities on the existing line would not change and there would be no project-related impacts to these species. Continued

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<sup>2</sup> Federal Register, June 12, 2001. Volume 66, Number 113, page 31759

deterioration of the existing rail line, however, would increase the risk of accidental spills. Should a derailment result in a spill of fuel or other contaminants that enter the Missouri River, these species could be affected. Loss of individual pallid sturgeon could result, and whooping crane, bald eagle, and pallid sturgeon could be impacted.

### **Alternative P-2: Existing Rail Line**

Proposed reconstruction of the existing DM&E rail line could result in increased sedimentation from erosion and in-stream work at stream crossings, as well as the Missouri and Bad River crossings. Increased sedimentation in the Missouri River could affect downstream populations of the pallid sturgeon by reducing habitat and forage areas. However, pallid sturgeon are generally adapted to high level of turbidity and could use increased sedimentation as an advantage to catch prey.

Channelization of tributaries to the Missouri River also crossed by the existing rail line could also increase sedimentation in the river by eliminating pool habitats and increasing water velocities and erosion. This could increase organic nutrients, resulting in a decrease of dissolved oxygen from decomposition of these materials. Such impacts are expected to be minimal due to limited in-stream work in perennial streams and the generally flowing water conditions in Lake Sharpe and the Bad River. The risk of introducing contaminants into the Missouri River that could affect pallid sturgeon, bald eagles, and whooping crane would be reduced by improved track conditions.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

The proposed bypass would require new bridge crossings of the Missouri River, Antelope Creek, and the Bad River, as well as 25 bridge or culvert crossings of smaller, intermittent streams. Construction activities associated with installing the new bridges and culverts could increase sedimentation, as described above. Increased sedimentation is unlikely to impact the pallid sturgeon, as discussed for Alternative P-2. Construction of the new bridge in proximity to numerous large cottonwood trees would likely make these areas unsuitable for roosting and perching sites for bald eagles, and make adjacent wetlands unsuitable for whooping cranes due to disturbance of these sensitive species.

During operation of Alternative P-3, impacts from fuel or hazardous material spills could impact pallid sturgeon downstream from the spill location and could impact whooping cranes and bald eagles by affecting prey species. However, the possibility of a spill would be remote due to transport over new, modern rail line and the minimal amounts of hazardous materials that would be transported.

## 5.2.10 TRANSPORTATION

Potential impacts to transportation include delays for motorists and rail traffic, detours, and inconvenience for pedestrians and vehicles crossing the rail line at the crossing location. See Chapter 4 of the Draft EIS, which discusses in detail the types of impacts to transportation in the Pierre area and SEA's methods for evaluating potential traffic delays due to increased rail traffic.

### **Alternative P-1: No-Action**

The existing rail line, Alternative P-1, has 19 public roadway/rail grade crossings. Alternative P-1 would not result in changes to existing transportation conditions. Rail traffic levels and operating speeds would remain at the present level and traffic delays at the 19 public roadway/rail grade crossings along the existing rail line would not be expected to change.

### **Alternative P-2: Existing Rail Line**

As stated for Alternative P-1, the existing DM&E rail line has 19 grade crossings of roads, highways, and city streets, including U.S. Highway 14. All roadways crossed by Alternative P-2 would experience minor delays, reduced access, or detours during reconstruction activities. These would be temporary delays, limited to the few days required for reconstruction of the particular crossing. Additionally, reconstruction activities would likely involve only a few crossings at any one time, leaving the other crossings available for motorist or pedestrian use.

Following reconstruction, increased train operation through Pierre and Fort Pierre would block crossings and delay traffic. SEA identified four crossings that would have ADT's of over 5,000 vehicles per day.<sup>3</sup> These crossings were evaluated to determine if they would experience project-related increased delays. As discussed below, SEA determined that all four would experience reductions in delay per stopped vehicle due to increased train speeds for each level of rail traffic analyzed (20, 50, and 100 million tons of coal annually). Individual train events would result in shorter delays because of the increased speeds. More trains passing through the town would increase the likelihood of a motorist encountering a crossing blocked by a project-related train.

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<sup>3</sup> As explained in the Draft EIS, the potential effects of increased train traffic for highways with ADT volumes below 5,000 for drivers would be minimal.

As discussed above, SEA is recommending, as mitigation, that DM&E be required to install a grade separated crossing in Pierre, at Sioux Avenue or another mutually acceptable location in view of the unique circumstances present in this community and the fact that the bypass that has been proposed would not be workable (see Chapter 12). Some commenters have suggested that a grade separated crossing in Pierre would not be feasible. In response, SEA conducted its own site visits and engineering review. SEA found that a grade separation at Sioux Avenue could be accomplished by elevating a portion of Sioux Avenue over DM&E's existing line, and realigning some portions of Capital Avenue and East Wells Avenue. Construction could take two to five years and would be complicated by the heavy traffic caused by the convergence of State Highways 14 and 34, numerous side and frontage roads, and several businesses, including St. Mary's Hospital (approximately 400 feet to the south), being located at or near this crossing. Impacts to transportation during construction of a grade separation would include reduced access to homes, businesses, and other facilities in the vicinity, rerouted or detoured traffic, and emergency vehicle and traffic delays, which could at times be significant. Following construction, however, the grade separation would provide an unobstructed crossing for traffic, which would eliminate the potential for delay from passing trains and reduce noise for citizens and visitors to the State Capital.

In the Draft EIS, the ADT counts for the Harrison Street crossing in Pierre was reported as 100 vehicles per day using FRA's grade crossing database. In its comments, the State of South Dakota stated its data showed that the actual ADT for this crossing is 3,798. The "Pierre Railroad Bypass Study, May 27, 1999" prepared by Banner Associates indicated that the ADT is 7,005. Therefore, SEA has revised the safety and vehicle delay analysis to conservatively use the greater value of 7,005.<sup>4</sup> The results of SEA's delay analysis include consideration of the increased ADT at Harrison Street.

The existing DM&E rail line crosses the access road to the Farm Island Recreation Area on the Missouri River. The State of South Dakota expressed concern that, during the summer, increased train traffic at the park entrance crossing would back up traffic on State Route 34 because it is a two lane highway with no turn lane at the park entrance. Should such a back up occur, it would cause traffic delays and safety issues for park visitors as well as others traveling east on State Route 34 away from Pierre. To alleviate the traffic concerns, the State has requested that a turn lane be added on State Route 34 at the turn into the park entrance to reduce the effects of such a back up by allowing vehicles delayed from entering the park to be able to move out of the way of through traffic. However, it would be inappropriate to require DM&E to undertake road improvements. Additionally, faster train speeds would result in fewer vehicles

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<sup>4</sup> SEA has adjusted the ADT for Harrison Street as part of its safety analysis. The results of this analysis are discussed in the safety section of this chapter.

being delayed, and potentially backed up on the highway. While delays would be more frequent, they would likely affect traffic less than the current, slower trains.

### 20 Million Tons of Coal Annually

There are two public crossings in Fort Pierre (Central Street, FRA ID No. 18950P, MP 481.90 and Highland Avenue, FRA ID No. 189848N, MP 481.60) and two crossings in Pierre (Highway 14/34, FRA ID No. 189846A, MP 481.10 and Harrison Street, FRA ID No. 189844L) with ADT's above 5,000 for which SEA performed vehicle delay calculations. Under this operating scenario (20 million tons of coal annually) the daily amount of time that each grade crossing would be blocked would increase from approximately 11.6 minutes (existing conditions) to approximately 25.3 minutes (train length of 6,400 feet) and 28.6 minutes (train length 7,400 feet) or from 4 times daily (2.9 minutes each) to 11 times daily (2.3 minutes for 6,400-foot trains, 2.6 minutes for 7,400-foot trains), respectively. However, all four grade crossings evaluated would experience a reduction in delay per stopped vehicle. This would be due to increased train speeds from the existing speed of a maximum of 30 miles per hour (as listed for these crossings in FRA's database, though, in actuality, trains now operate at these crossings at approximately 10 miles per hour) to the proposed speed of 40 miles per hour. The increase in rail traffic would result in the grade crossings being blocked more often, but for a shorter duration of time per train passing. The level of service would be level A (explained in detail in Appendix G of the Draft EIS) following rehabilitation for both train length scenarios. Because the crossing would not be blocked as long during each train incident and normal traffic flow would resume following the passage of the train, all four crossings would experience a reduction in maximum vehicle queue length.

### 50 Million Tons of Coal Annually

Under this operating scenario, the daily amount of time that each grade crossing would be blocked would increase from approximately 11.6 minutes (existing conditions) to approximately 48.3 minutes (train length of 6,400 feet) and 54.6 minutes (train length 7,400 feet) or from 4 times daily (2.9 minutes each ) to 21 times daily (2.3 minutes for each 6,400-foot train and 2.6 minutes for each 7,400 foot-train). However, all four grade crossings evaluated would experience a reduction in delay per stopped vehicle. This would be due to increased train speeds from the existing speed of less than 30 miles per hour to the proposed speed of 40 miles per hour. The increase in rail traffic would result in the grade crossings being blocked more often, but for a shorter duration per train passing. The level of service would be level B following rehabilitation for both train length scenarios. Because the crossing would not be blocked as long during each train incident, all four crossings would experience a reduction in maximum vehicle queue length.

### 100 Million Tons of Coal Annually

At the 100 MNT level of rail operations, the daily amount of time that each grade crossing would be blocked would increase from approximately 11.6 minutes (existing conditions) to approximately 85.1 minutes (train length of 6,400 feet) and 96.2 minutes (train length 7,400 feet) or from 4 times daily (2.9 minutes each) to 37 times daily (2.3 minutes for each 6,400-foot train and 2.6 minutes for each 7,400 foot-train). However, all four grade crossings evaluated would experience a reduction in delay per stopped vehicle. This would be due to increased train speeds from the existing speed of a maximum of 30 miles per hour to the proposed speed of 40 miles per hour. The increase in rail traffic would result in the grade crossings being blocked more often, but for a shorter duration per train passing. The level of service would be level C following rehabilitation for both train length scenarios. Because the crossing would not be blocked as long during each train passing, all four crossings would experience a reduction in maximum vehicle queue length.

### **Alternative P-3: Pierre/Fort Pierre Bypass**

The proposed Pierre bypass would cross three roads that do not currently have rail line crossings in the area: the access road to Antelope Creek Recreation Area, State Road 1806, and U.S. Highway 83. Short-term impacts, primarily during construction, would include reduced access, lane reductions, temporary closures, and detours around the crossings.

Long-term impacts during operation would include vehicle delays during train crossing events and the new risk of vehicle/train collisions along the roadways. None of the roads crossed by the proposed bypass have ADT volumes of 5,000 vehicles per day or greater. However, considering the topography in the area and the potential grade-line of Alternative P-3, a new grade separation at the U.S. Highway 83 crossing south of Fort Pierre would likely be necessary. Construction of this crossing could result in traffic delays for travelers due to lane reductions, detours, or temporary closures to allow for construction over the highway. Following completion of the separation, no delays to motorist would normally occur along this road due to rail operations.

### **5.2.11 SAFETY**

The Pierre/Fort Pierre alternatives present potential safety hazards for motorists at grade crossings and pedestrians at highway/rail grade crossings and along the rail line. As discussed in Chapter 4 of the Draft EIS, road safety during construction and reconstruction would be reduced because of increased traffic and congestion on roadways from closures or detours at crossings and transportation of materials and crews to work sites. Impacts would also include increased road hazards resulting from accelerated wear and tear on roadways due to increased operation of