STB Decision ID # 28334

Service Date: **October 7, 1997**
Comment Due Date: **October 27, 1997**

Environmental Assessment

Finance Docket No. 33388 (Sub No. 6)

CSX Corporation and CSX Transportation, Inc.,
Norfolk Southern Corporation and Norfolk Southern Railway Company

—Control and Operating Leases/Agreements—

Conrail Inc. and Consolidated Rail Corporation

Norfolk Southern/Conrail Rail Connection–Alexandria, Indiana

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ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED CONNECTION AT ALEXANDRIA, INDIANA

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) was prepared by the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA) in accordance with the Board's orders in Decision No. 9, served on June 12, 1997, and Decision No. 12, served on July 23, 1997, in Finance Docket No. 33388. This EA consists of five chapters. The EA describes the potential environmental impacts of a proposed new connection between the existing Norfolk & Western Railway Company, a subsidiary of Norfolk Southern Railway Company (NS), and Conrail (CR) rail lines in Alexandria, Indiana to be constructed by NS (see Figure 1.1). The proposed connection would include approximately 1,052 feet of new rail line and would require 2.3 acres of urban land for the construction site. The proposed construction site is surrounded by existing CR and NS lines. Rail traffic on this connection is anticipated to average seven trains per day. According to NS, this connection would provide a new, more efficient train route between points in the upper Midwest and points in the southeastern United States, would increase rail traffic capacity, improve service to shippers, and reduce train delays in Chicago, Illinois and rail traffic congestion in Fort Wayne, Indiana.

After providing an overview of the proposed construction plan, this EA describes various aspects of the existing environment at the site of the proposed connection. It then addresses the potential environmental impacts of construction of the proposed connection. Next, the different alternatives considered in developing the proposed construction plan are discussed. Finally, a summary is provided of agency comments which relate to the project, along with NS' response to agency comments and explanations of mitigation measures proposed by NS and SEA's recommended mitigation measures.

As shown in Table ES-1, potential environmental impacts related to the proposed project are insignificant or nonexistent. Based on its independent analysis of all the information available at this time, SEA concludes that the proposed project is not expected to have any significant adverse impact on land use, water resources, biological resources, or air quality. Nor would the proposed project have significant adverse impacts on safety, electric transmission facilities, cultural resources, or on minority and low-income groups. Overall transportation and energy efficiency of the NS system will be improved by the construction of the connection.

Any increase in noise levels during construction would be limited to normal work hours and would only occur during the three- to six-month construction period. Noise level increases related to future operation on the connection would be minor.

SEA concludes that the construction of the proposed rail line connection would not significantly affect the quality of the environment with the implementation of the mitigation measures set forth in this EA. Accordingly, Sea recommends that the Board impose the mitigation measures set forth in Section 5.3 as conditions in any final decision approving construction at Alexandria, Indiana.

Table ES-1
SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

PROPOSED RAIL CONNECTION AT ALEXANDRIA, INDIANA

Impact Type	Environmental Assessment Criteria	Evaluation of Criteria
Land Use	Length of Proposed Connection	1,052 feet
	New Right-of-Way Required	1.3 acres
	Effect on Prime Farmland	None
	Effect on Coastal Zone Management Areas	None
	Effect on Parks, Forest Preserves, Refuges and Sanctuaries	None
Water Resources	Effect on Groundwater	None
	Effect on Surface Water	None
	Effect on Wetlands	None
Biological Resources	Loss of Critical Habitat	None
	Effect on Threatened or Endangered Species	None
Air Quality	Impact to Air Quality due to Construction	Negligible
Affected Sensitive Noise Receptors	Affected Sensitive Noise Receptors Within Ldn 65 Noise Contour	20 Residences
Transportation and Safety	Train Movement Over Connection	7 trains per day
	New At-Grade Crossings	None
	Effect on Transportation of Hazardous Materials	None
Cultural Resources	Effect on Sites Listed on the NRHP	None
	Effect on Sites Potentially Eligible for Listing on the NRHP	None
	Effect on Archaeological Sites	None
Energy	Changes in Fuel Consumption due to Construction	Negligible
	Change in Fuel Consumption due to Operation (gallons per year saved)	314,000
	Effect on Transportation of Energy Resources and Recyclable Commodities	None
	Overall Energy Efficiency	Improved
	Rail to Motor Carrier Diversions	None
Environmental Justice	High and Disproportionate Impact on Minority and Low-Income Groups	None

SEA specifically invites comments on all aspects of this EA including the scope and adequacy of the recommended mitigation. SEA will consider all comments received in response to the EA in making its final recommendations to the Board. Comments (an original and 10 copies should be sent

to: Vernon A. Williams, Secretary, Surface Transportation Board, 1925 K Street, NW, Suite 700, Washington, DC 20423. Mark the lower left corner of the envelope: Attention: Dana White, Environmental Comments, Finance Docket No. 33388 (Sub Nos. 1-7). You may also direct questions to MS. White at this address or by telephoning (888)869-1997)

Date made available to the public: October 7, 1997

Comment due date: October 27, 1997

CHAPTER 1
Description of the Proposed Action

CSX Corporation and CSX Corporation Inc. (CSX), Norfolk Southern Corporation and Norfolk Southern Railway Corporation (NS), and Conrail Inc. and Consolidated Rail Corporation (Conrail) have filed a joint application with the Surface Transportation Board (Board) seeking authorization for the acquisition of Conrail by CSX and NS. The fundamental objective of the proposed acquisition is to divide existing Conrail assets and operations between CSX and NS. As a result, certain Conrail facilities and operations would be assigned individually to either CSX or NS through operating agreements or other mechanisms, and certain other existing Conrail facilities would be shared or operated by both CSX and NS. As a part of their joint application, CSX and NS have petitioned the Board to grant waivers which would allow the railroads to begin construction on a limited number of connections following an environmental review and approval of the constructions, but in advance of a final ruling on the primary transaction.

A connection at Alexandria, Indiana is proposed to integrate the Conrail lines into the NS system. This Environmental Assessment has been prepared by the Board's Section on Environmental Analysis (SEA) to determine whether early construction of the proposed connection would have any significant impacts to the human environment.

1.1 OVERVIEW OF THE PROPOSED RAIL CONNECTION

1.1.1 Location and Description

Alexandria is approximately 74 miles northeast of Indianapolis. The new project would connect NS' current main line between Marion, Indiana and Anderson, Indiana to CR's main line between Muncie, Indiana and Lafayette, Indiana. The connection would provide a new, more efficient train route between points in the upper Midwest and points in the southeastern United States, would increase rail traffic capacity, improve service to shippers, and reduce train delays in Chicago and rail traffic congestion in Fort Wayne, Indiana. According to NS, without the proposed connection, the NS traffic would have to be routed via the CSX line from Muncie, through Anderson, Indiana, before reaching destinations in the upper Midwest, which is a more circuitous route that adds an additional 16 miles.

The proposed action at Alexandria, Indiana would involve the construction, operation, and maintenance of a new connection between existing CR and NS rail lines. The proposed design includes 1,052 feet of new rail line and would require approximately 2.3 acres of new land. Approximately 1.3[1] acres would be utilized by track.

The proposed Alexandria, Indiana connection would be located 250 feet northeast of the existing CR/NS intersection. The proposed construction site is located in the south-central part of the City of Alexandria, southwest of the intersection of Berry and Curve Streets (Figure 1.1). The site is bordered on the north by Berry Street, on the east by Curve Street, on the west by the existing CR Marion to Anderson line and on the south by NS' existing Frankfort to Muncie line.

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[1] Additional design work has been completed since submission of the initial Environmental Report on June 23, 1997. Some specific parameters such as acreage required have been updated in this EA.

The proposed construction site is primarily used today for a scrap yard operation. The west and south sides of the site are bordered by 30-foot strips of vegetation dominated by weeds and grasses, characteristic of disturbed areas. A buried AT&T fiber-optic cable is located along the east side of the CR line. A small woodland exists south of the proposed site along the south side of the NS line. An electrical substation, owned by Indiana & Michigan Electric, is located 500 feet west of the proposed construction. Residences are located to the north and south of proposed construction site. NS' objectives are to construct a connection which will permit safe and efficient train operations while maximizing safety and minimizing potential impacts on area residences.

1.1.2 Changes in Rail Traffic

The proposed track would connect two through routes that carry all general commodities. Since new territory is not being opened, any more specific traffic information is not available at this time. Traffic on the new connection would average 7 trains per day. Traffic is expected to predominantly consist of general merchandise trains, with one local train each day, each way, and one grain train once a week. The CR track north of the proposed connection will have an increase in trains per day from 5 to 7. The NS track east of the proposed connection will have an increase in trains per day from 3 to 12.

1.1.3 Construction Requirements

The proposed construction site is located in the south-central part of the City of Alexandria, Indiana. The proposed connection site is southwest of the Berry and Curve Street intersection, and would occupy approximately 2.3 acres. Berry Street crosses the northern portion of the proposed construction site. The site is bordered on the east by Curve Street and Black Street, on the west by the existing CR line and on the south by the existing NS line. The proposed construction site consists primarily of property used today for a scrap yard operation. The west and south sides of the site are bordered by 30-foot strips of vegetation dominated by weeds and grasses, characteristic of disturbed areas. A buried AT&T fiber-optic cable runs along the east side of the CR line. A small woodland exists south of the proposed site along the south side of the NS line. An electrical substation is 500 feet west of the proposed construction. Residential properties are located to the north and south of the project area.

NS' construction specifications and procedures meet or exceed the practices recommended by the American Railway Engineering Association (AREA). The entire length of the proposed connection would involve new construction. New rails, ties, subgrade, subballast and ballast materials would be used for the roadbed. Recycled rail may be used where practical. The design specifications for the project are set out in Table 1-1 below. A typical cross-section is provided in Figure 1.2.

Table 1-1
Design Specifications for the Alexandria, Indiana Connection

Maximum train speed	10 miles/hour
Maximum curvature	12 degrees, 0 minutes

Maximum grade	0.31 percent
Minimum weight of rail	136 pounds per yard
Tie lengths	8 feet, 6 inches
Grade of ties	4 and 5
Ties per mile	3,168
Ballast depth	12 inches
Minimum subballast depth	12 inches
Minimum subgrade width	32 feet
Minimum depth of ditches	1 foot, 0 inches
Maximum side slopes	2 feet horizontal : 1 foot vertical
Maximum cut	9.0 feet
Maximum fill	no fill

The topography along the proposed connection is level. Only general surface grading of the area would be necessary. In Alexandria, only minor grading would be required to construct the roadbed and side ditches. All required grading, drainage and erosion control permits would be obtained prior to work. Grading activities typically consist of the following:

- removal and disposal of vegetative and non-vegetative debris,
- excavation and compaction of existing material to achieve desired subgrade elevation in cut sections,
- placement and compaction of borrow material as required to achieve desired subgrade elevation in fill sections,
- placement of compacted subballast layer upon finished subgrade,
- recontouring of property and ditches as required to ensure drainage, and
- seeding and mulching of all areas in which existing ground is disturbed.

The property on which the proposed connection would be located is rectangular-shaped and is not a uniform right-of-way corridor. The proposed track right-of-way would utilize a strip approximately 40-feet wide, centered on the existing rail line in most areas.

The proposed connection would not cross any streams or wetlands, and no residences would need to be moved as a result of the proposed project. A scrap yard (or portions thereof) would need to be relocated. The at-grade crossing of Berry Street would be expanded to accommodate the proposed track and would be upgraded by adding gates and flashing lights. Black Street would not be impacted by the project.

Exact numbers for the labor force and duration of the construction period are not available, but the project is expected to require 10 to 15 people and three to six months to complete. It is expected that

the work would be done during normal working hours. It is planned that the majority of the construction activities would be performed by qualified contractors working for NS. The project would be advertised in recognized trade journals and bids would be solicited in accordance with NS' Corporate Standard Procedures. The contractor could hire new or additional employees specifically for the project.

Portions of the track and signal work would be performed by NS' existing Maintenance of Way and Structures (MW&S) and Signal and Electrical Department maintenance and construction crews. No new NS positions are anticipated to be created specifically for this project.

1.1.4 Operation

The proposed track would connect two through routes that carry all general commodities. Since new territory is not being opened, any more specific traffic information is not available at this time. Traffic on the new connection would average 7 trains per day. Traffic is expected to predominantly consist of general merchandise trains, with one local train each day, each way, and one grain train once a week.

1.1.5 Maintenance

Track inspections would be performed as outlined in NS' MW&S Standard Procedure #380 and Federal Railroad Administration (FRA) Track Safety Standards. According to the standards, all connections would be classified and maintained as main track, meaning they would be inspected at a minimum of two times per week as specified by the FRA. Additional inspections would be performed whenever specific conditions warrant. Track inspections would be performed only by qualified personnel who meet the requirements set forth by the FRA in section 213.7 of the Track Safety Standards. NS maintains its track so that it meets or exceeds all FRA safety standards. NS uses scheduled maintenance programs for the continual maintenance of all track segments based on tonnage handled. These programs are supplemented by additional "spot" maintenance activities to correct any deficiencies from the NS maintenance standards should they develop.

As part of NS' track maintenance program, the zone consisting of the rail, ties and the immediately adjacent ballast section is treated with herbicides on a yearly basis. The elimination of vegetation from the track structure and roadbed section is desirable for track maintenance reasons and to provide a safe working environment for NS transportation and maintenance employees.

NS uses only EPA-approved general use herbicides (i.e., herbicides approved by EPA as safe for use by the general public). Application is performed by fully-licensed personnel provided to NS by licensed firms working under multi-year contracts. NS personnel familiar with specific locations accompany these contractors at all times. Application is by spray-bars mounted on rail bound equipment or hy-rail vehicles. The application width is normally 12 feet on either side of the centerline of the track. This width is reduced or eliminated as required by local conditions such as water courses, protected vegetation or structures.

1.2 PURPOSE AND NEED FOR THE PROPOSED CONNECTION

The purpose of this environmental review is to identify, analyze, and disclose the environmental issues and potential impacts associated with the early construction of the rail line connection at Alexandria, Indiana. Based on the Application filed by CSX and NS, this connection would serve to improve the service capabilities and operating efficiencies of each railroad. These efficiencies include enhanced single-line service, reduced travel times, and increased utilization of equipment. NS intends to begin operations on this connection immediately after the approval of the entire acquisition transaction. This EA is being prepared to determine whether the Board should grant approval to construct the connection before there is a decision on the entire transaction. If approved by the Board, this connection would be constructed in anticipation of the Board approval (or disapproval) of the acquisition of Conrail by CSX and NS. If the entire transaction is approved by the Board, this connection would be available for service immediately. If the transaction is not approved, or approved with conditions which preclude the use of this connection, operation on this connection would not be allowed. NS accepts the risk that use of this connection is predicated on Board approval of the entire transaction.

1.3 RELATIONSHIP TO THE PROPOSED TRANSACTION

On April 10, 1997 CSX, NS, and Conrail filed their notice of intent to file an application seeking the Surface Transportation Board's authorization for: (1) acquisition by CSX and NS of control of Conrail, and (2) the division of Conrail's assets. On May 2, 1997, CSX and NS filed petitions seeking a waiver of the Board's regulations that provide that all "directly related applications, e.g., those seeking authority to construct or abandon rail lines..." be filed at the same time (Appendix A 49 CFR 1180.4(c)(2)(vi). The waiver would allow CSX and NS to seek the Board's authority to construct and operate seven rail line connections (four for CSX and three for NS) prior to the Boards' decision on the acquisition and division of Conrail.

The seven constructions are each relatively short connections between two rail carriers and which have a total length under 4 miles. According to the railroads, Much of the construction on these short segments would take place within existing rights-of-way. CSX and NS stated that these seven connections must be in place before the Board's decision on the primary application in order for them to provide efficient service in competition with each other. Without early authorization to construct these connections, CSX and NS contended, each railroad would be severely limited in its ability to serve important customers.

In Decision No. 9 served June 12, 1997, the Board granted CSX's and NS's petitions (Appendix B). The Board stated that it understood the railroads' desire to "be prepared to engage in effective, vigorous competition immediately following consummation of the [acquisition]". In granting the waiver, the Board noted that the railroads were proceeding at their own risk. If the Board were to deny the primary applications, any resources expended by CSX and NS in building the connections would be of little benefit to them.

Both the railroads and the Board recognized that no construction could occur until the Board completed its environmental review of each of the construction projects. Thus, the Board stated that it would consider the environmental aspects of these proposed constructions and the railroads' proposed operations over these lines together in deciding whether to approve the physical

construction of each of these lines. The operational implications of the merger as a whole, including operations over the roughly 4 miles of line embraced by the seven connections projects, will be examined in the Environmental Impact Statement being prepared for the overall merger. That document will be available for a 45-day public comment period in late November 1997.

In order to fully consider the environmental aspects of the seven proposed constructions, the Board required both CSX and NS to file certain information on the environmental effects of the construction and operation of these projects. The railroads complied with this requirement on September 5, 1997 and submitted detailed Preliminary Draft Environmental Assessments (PDEA) for each of the seven projects.

The Board's Section of Environmental Analysis (SEA) has independently verified the information contained in each PDEA, conducted further independent analysis, and developed appropriate environmental mitigation measures. Its findings are set forth in this EA. SEA is now seeking your comments on this EA. Comments must be submitted to the Board by October 27, 1997.

1.4 SEA ENVIRONMENTAL ASSESSMENT PROCESS

This EA is necessary to ensure that the proposed action complies with the statutory requirements under the National Environmental Policy Act (NEPA), the Board's environmental regulations (49 CFR 1105), and other applicable rules and/or regulations. The Board's SEA is responsible for conducting NEPA environmental review.

The Board has adopted the former ICC environmental regulations (49 CFR Part 1105) that govern the environmental review process and outline procedures for preparing environmental documents. Section 1105.6(b) of these regulations establish the criteria which identify the types of actions for which an Environmental Assessment (EA) would be prepared. The construction of rail line connections, like the action proposed here, are classified under the Board's regulations as normally requiring preparation of an EA. SEA reviewed the proposed rail construction and determined that because the connection is not expected to result in significant environmental impacts, an EA should be prepared.

In preparing the EA, SEA identified issues and areas of potential environmental impact, analyzed the potential environmental impacts of the proposed rail line construction project, reviewed public comments, and developed mitigation measures to avoid or reduce anticipated impacts on the environment. To assist it in conducting the NEPA environmental analysis and in preparing the EA, SEA selected and approved HDR Engineering , Inc. to act as the Board's independent third party consultant as provided for in 49 CFR Part 1105.10(d). NS retained the independent third party consultant who worked solely under SEA's direction and supervision and assisted SEA in conducting environmental analyses related to the proposed merger.

SEA analyzed the Environmental Report and Operating Plan that accompanied the transaction application, technical studies conducted by NS environmental consultants, and the Preliminary Draft Environmental Assessment (PDEA) prepared as a part of the waiver application. In addition, SEA conducted its own independent analysis of the proposed construction, which included verifying the projected rail operations; verifying and estimating noise level impacts; estimating air emission increases; performing land use, habitat, surface water, and wetland surveys; conducting ground

water analyses; assessing impacts to biological resources; and performing archaeological and historic resource surveys. In addition, SEA and/or its independent third party consultant conducted consultations with NS and their environmental consultants and made site visits to the proposed rail line construction site to assess the potential impacts on the environment.

CHAPTER 2
Alternative Actions Considered

This chapter outlines the alternatives considered for the proposed connection.

2.1 NO-ACTION ALTERNATIVE

In its environmental review, SEA considered a "no-action" alternative. Under this alternative, current operations would continue to move over existing NS and Conrail rail lines. However, as outlined below, access between the two lines would be limited to existing connections, interchanges, or terminals. If the no-action alternative were implemented, the proposed rail line connection would not be constructed and trains would not be rerouted. None of the potential environmental impacts associated with construction would occur. However, neither would the benefits of the project be realized. According to NS, in the absence of the proposed connection, trains from Chicago to the southeastern United States would have to be routed from Muncie through Anderson, Indiana which is a more circuitous route by 16 miles. The no-build alternative would not provide the full operational, environmental and economic benefits, including added rail capacity and improved service to shippers, expected to be realized as a result of the proposed connection.

2.2 BUILD ALTERNATIVES

SEA identified no feasible alternatives to the proposed rail line construction project. An alternative alignment for the connection, Alternative B, was analyzed, but rejected because of the need to remove 2 to 4 residences (Figure 2.1). Alternative B would also require 2 expanded grade crossings. The proposed rail line would be the most direct connection between the existing rail lines and would minimize the use of new land outside the NS and Conrail rights-of-way. There are no construction, operational, or environmental features that would render another alignment of the proposed rail line connection more reasonable than the proposed location.

Alternative B would diverge from the existing east/west NS track about 300 feet east of Alternative A and about 100 feet east of Black Street. This alternative would extend west across Black Street, creating an expanded grade crossing, and then curve northwest. This alignment would require displacing one residence while passing within 40 feet of other residences. Continuing northwest, this alignment would then cross the east side of the scrap yard before heading north and crossing Berry Street, resulting in yet another expanded grade crossing. It would then connect with the north/south CR line 250 feet north of Berry Street. Alternative B would pass under Indiana & Michigan Electric's transmission lines. Again, the lines are high enough to accommodate trains and would not need to be raised.

Alternative A, the preferred connection, would diverge from the existing east/west NS track approximately 115 feet west of Black Street. Alternative A would head west, passing through a scrap yard where it would curve northwest. It would then cross Berry Street, creating an expanded grade crossing. This alignment, now heading north, would connect with the north/south oriented

CR line approximately 250 feet north of Berry Street. Alternative A would pass under Indiana & Michigan Electric's transmission lines. However, the lines are high enough to accommodate trains and would not need to be raised.

2.3 SELECTION OF THE PROPOSED CONNECTION LOCATION

The purpose of the proposed project is to provide a more efficient route from Chicago to Cincinnati, Atlanta and the southeastern United States; to increase rail capacity; and to improve service to shippers. The project would also reduce rail congestion in Fort Wayne. The "no-build" alternative would not allow these benefits, and it was therefore eliminated from consideration. The "build" alternative is the preferred action.

Under the "build" alternative, two alternative alignments for rail construction were evaluated. Any other alternatives would have required acquiring a greater amount of land, crossing streams, clearing forested areas and directly impacting several residences. Preliminary studies determined that both alternatives were feasible from economic and engineering perspectives. The evaluation also addressed the social and environmental impacts of these alternatives. Both alternatives would affect the same community, i.e. the same census block. Consequently, there would be no difference between the alternatives in the racial or economic composition of the population affected. Table 2-1 summarizes the environmental criteria investigated as part of the environmental evaluation.

The most significant differences between the two alternatives are the number of residences that would have to be removed and the number of grade crossings affected. No residences would have to be removed for Alternative A. Two to four residences would have to be removed for Alternative B. Alternative A would require only one expanded grade crossings, Alternative B would require two expanded grade crossings. As shown in Table 2-1 and Figure 2.1, the two alternatives differ relatively little in many other evaluation categories.

Table 2-1
Comparison of the "Build" Alternatives for Alexandria, Indiana Rail Connection

Feature	Unit	Alternative	
		A	B
Length of Alignment	feet	1,052	1,360
Land Use Crossed:			
Agricultural	feet	0	0
Woodland (including shrub/scrub habitat)	feet	0	0
Residential	feet	0	1,360
Industrial	feet	1,052	0
Private Property Crossed	acres	2.3	4.0

Table 2-1
Comparison of the "Build" Alternatives for Alexandria, Indiana Rail Connection

Feature	Unit	Alternative	
		A	B
Prime Farmland Soil Crossed			
Prime in Native State	feet	0	0
Prime If Drained	feet	0	0
Waterway Crossings	number	0	0
	feet	0	0
Forested Wetland Crossed	feet	0	0
100-year Floodplain Crossed	feet	0	0
Endangered Species Habitat Crossed	feet	0	0
Critical Habitat Crossed	feet	0	0
New Grade Crossings:			
State Highways	number	0	0
County Roads			
two-lane paved roads	number	0	0
unimproved roads	number	0	0
Private Roads	number	0	0
Expanded Grade Crossings	number	1	2
Residences/Businesses			
Within right-of-way			
residences	number	0	2-4
businesses	number	1	1
50-100 feet from centerline			
residences	number	3	5
businesses	number	1	1
100-500 feet from centerline			
residences	number	34	38
businesses	number	5	5
Sensitive Noise Receptors Within the Extended Ldn 65 dBA Contour	number	20	22
Traffic at Road Crossings			
Berry Street	vehicles/day	1,407	1,407
Black Street	vehicles/day	No Impact	No Impact
Loaded School Bus Traffic at Crossings	number/day	4*	4*
Transmissions Corridor Crossings	number	2	2

Table 2-1
Comparison of the "Build" Alternatives for Alexandria, Indiana Rail Connection

Feature	Unit	Alternative	
		A	B
Known Cultural Resource Sites	number	0	0
Nearest Recreational Area	feet	1,700	2,000
Nearest Residence	feet	60	40
Nearest Church	feet	700	800
Nearest School	feet	1,000	1,200
Nearest Hazardous Waste Site	miles	0.3	0.4

*City of Alexandria's Mayor's estimate.

Alternative A was selected as the preferred route for the following reasons:

- Alternative A would not require the relocation of any residences. Alternative B would require the relocation of two to four residences.
- Alternative A would affect fewer residential noise receptors than Alternative B.
- Alternative A is farther away from residences.
- Alternative A creates fewer expanded grade crossing (one for Alternative A, two for Alternative B), thus minimizing potential safety impacts.
- Alternative A crosses less private property (2.3 acres compared to 4.0 acres for Alternative B).

CHAPTER 3
Existing Environment

This chapter provides an overview of the existing environment in the vicinity of the proposed construction.

3.1 LAND USE

3.1.1 Current Land Use and Zoning

The proposed project would be located in the urban area of Alexandria, Indiana. The area around the proposed construction site is dominated by rail, transportation and utility uses to the south and west. Residences are to the north and east of the proposed construction area. A buried AT&T fiber-optic cable is located along the east side of the CR line. A scrap yard, owned by Azimow and Culbertson Scrap Company and used for recycling batteries, scrap and other metals, is on the property which is needed for the proposed right-of-way. Other existing land uses surrounding the proposed site include a mixture of commercial properties, interspersed with low density residential properties. A small undeveloped wooded area is located southeast of the intersection of the existing NS and CR rail lines.

3.1.2 Consistency with Local Plans

There was no response from Alexandria city or Madison county on planning conflicts that would arise with the construction of the preferred alignment.

3.1.3 Prime Farmlands and Coastal Zones

The proposed rail alignment would cross Fox silt loam (2 to 6 percent slopes) and Westland soils. The surface layer of the Fox silt loam is 9 to 12 inches thick with a brown clay loam subsoil 24 inches thick. This soil has a medium available moisture capacity and runoff is slow. The potential of erosion is slight to moderate. The Westland soil surface layer is 14 inches thick with a 35 inch thick underlay of dark-gray silty clay loam. Westland soil is considered a hydric soil and is found in low-lying depressions. The proposed project is in an urbanized area, therefore, the land does not meet criteria for prime farmland. (S.C.S. Madison County, 1967).

The project area is not in a coastal zone.

3.2 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Impacts to the local population will be minimal. No residences will be removed. Minor increases in revenues to local commercial businesses may occur during the short construction period. City services would not be affected and no school bus routes would cross the new connection.

There would be no significant adverse environmental effects as a result of the construction and operation of the proposed connection, eliminating concerns about potentially high adverse environmental impacts to the surrounding population. Moreover, the population in the area of the proposed construction has a lower percentage of minority residents than the City of Alexandria as a whole. Data on economic levels in the area are somewhat mixed. The population of the relevant census block is only slightly less prosperous than that of the city as a whole (census data indicates that median household incomes in the relevant census block are about two percent lower than the city average). A somewhat larger number of people in the census block than the city as a whole live below the Federal poverty level. However, since there would be no potentially significant adverse environmental effects as a result of the construction and operation of the proposed connection, no high and disproportionate impacts on minority or low-income communities would occur.

3.2.1 General County Information

The proposed project would be within the city limits of Alexandria, Indiana an incorporated city with a 1994 population of 6,004. Population data for Alexandria is provided below in Table 3-1. The population remained fairly constant from 1960-1994, increasing only 7.5 percent

Table 3-1
Population of Alexandria, Indiana

	1960	1970	1980	1990	1994
Population	5,582	5,600	6,028	5,715[1]	6,004[1]
[1] = Population Distribution and Population Estimates Branch, US Bureau of the Census					

Population, employment and income trends from 1970 to 1990 for Madison County and the State of Indiana are provided in Table 3-2. The population of Indiana increased 6.7 percent from 1970 to 1990. The population in Madison County decreased 5.6 percent during the same period. The average number of persons in each household in Madison County in 1990 was 3.06 (1990 US Census Data, Summary Level).

The 1994 median household income in Madison County was $18,719 (U.S. Department of Commerce News, November 7, 1996). In 1990, the unemployment rate in Madison County was 6.5 percent, slightly higher than the state unemployment rate of 5.9 percent.

Table 3-2
Population, Employment and Income Trends for
Madison County and the State of Indiana

	Madison County			Indiana		
	1970[1]	**1980[2]**	**1990[3]**	**1970[1]**	**1980[2]**	**1990[4]**
Population	138,451	139,336	130,669	5,193,669	5,490,000	5,544,000
Labor Force	56,297	62,693	63,258	2,113,282	2,620,000	2,798,000[e]
Employed	53,200	54,812	59,046	2,016,365	2,368,000	2,632,000[e]
Unemployed	3,097	7,881	4,212	96,917	253,000	166,000[e]
Unemployment Rate	5.3	12.5	6.5	4.1	9.6	5.9[e]

· [1] = County and City Data Book, 1972; [2] = State and Metropolitan Area Data Book, 1982, [3] = County and City Data Book, 1994; [4] = Statistical Abstract of the United States, 1992; [e] = 1991

Agricultural production is important to the economy of Madison County. About 77 percent of Madison County's total acreage is farmland. The principal crops in Madison County are corn, wheat, oats, soybeans, hay-alfalfa and vegetables. Livestock consists mainly of beef cattle, swine and chickens. Manufacturing and service-oriented trades are also important to the economy of Madison County. Employment in the county by industry, in 1990, is listed below (Table 3-3)

Table 3-3
1990 Employment by Industry for Madison County, Indiana

Industry	Percent Employed
Manufacturing	14
Services	12
Trade	10
Construction	2
Finance, insurance and real estate	2
Transportation	1
Communications and public utilities	< 1
Agriculture, forestry and fisheries	< 1

• 1990 US Census Data, Summary Level

3.2.2 Information on the Area Surrounding the Proposed Connection

As seen in table 3-4 below, the area surrounding the proposed connection, i.e. on average, the relevant census block, has a lower percentage of minority residents than the City of Alexandria does on average. Data on economic levels in the area indicate that the population of the relevant census

block is only slightly less affluent than that of the city as a whole; census data indicates that median household incomes in the relevant census block are about two percent lower than the city average and that there are a larger number of people living below the federal poverty level in the same area.

Table 3-4
1990 Racial and Economic Composition of the City of Alexandria and the Area Surrounding the Proposed Connection

		City of Alexandria	Proposed Connection
Racial data (percentages)	White	99.0	99.2
	Black	0.3	0.1
	Asian	0.3	0.3
	Native American	0	0.4
	Hispanic and other	0.4	0
Economic data	Median Household Income	$21,958	$21,531
	Percent below Federal poverty level	14.8	17.5

3.3 TRANSPORTATION SYSTEMS

3.3.1 Existing Rail Transportation Network

The existing rail transportation network consists of the NS and CR rail lines that intersect in Alexandria. Traffic on the existing CR line north of the NS/CR intersection is five trains per day. Traffic on the existing NS line east of the NS/CR intersection is three trains per day.

Major roads in Alexandria include State Highways 9 and 28 and some local roads. The proposed connection would cross Berry Street, creating an expanded crossing to accommodate a second track.

3.3.2 Grade Crossings

In the proposed project vicinity the CR line crosses Berry Street, north of the CR/NS intersection. The existing east/west NS line crosses Black Street, just east of the CR/NS intersection. Berry and Black Street are both single track crossings protected by cross bucks and stop signs. The Average Daily Traffic (ADT) for Berry Street is 1,407 vehicles per day. The ADT for Black Street was not

available but is expected to be lower than the ADT on Berry Street because Black Street is a dead-end street on the south side of the existing NS rail line.

3.4 SAFETY

3.4.1 Hazardous Waste Sites

A database search by Environmental Data Resources, Inc. (EDR) did not identify any hazardous waste sites (e.g., National Priorities List (NPL); Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Treatment, Storage, or Disposal Sites (TSD); Emergency Response Notification System (ERNS); State Priority List (SPL); State Inventory of Leaking Underground Storage Tanks (LUST); or State Inventory of Solid Waste Facilities (SWF/LF)) or other sites of environmental concern in the vicinity of the proposed rail line construction. The search revealed seven unmappable sites, two within the city limits of Alexandria and five within Madison County. These sites could not be located because of poor address or geocoding information provided to the state and/or federal databases. Based on observations made during the site visit, these sites are not in or adjacent to the proposed right-of-way.

The scrap yard on the proposed construction site was not listed in any of the searched environmental databases. However, the potential for environmental contamination at the site cannot be eliminated. The scrap yard accepts batteries for recycling, in addition to scrap steel and other metals. If contamination is encountered during construction, proper response and remediation would be implemented.

3.4.2 Transportation of Hazardous Materials

System-wide, approximately 5.6 percent of NS traffic is composed of hazardous materials. Train operation always involves a possibility for train accidents or incidents. However, NS' track and equipment inspection and maintenance programs, employee training programs and the low speed of trains over the connection would minimize this potential.

3.4.2.1 Carrier's Safety Practices

Train accidents involving damage as low as $6,300 must be reported to the Federal Railroad Administration (FRA). The number of FRA-reportable train accidents per million train-miles for NS for 1991 through 1995 is listed in Table 3-5.

Table 3-5
Norfolk Southern Train Accident Rates per Million Train Miles

Year	Rate
1991	2.86
1992	2.65
1993	2.23

1994	1.97
1995	1.93

In 1995, NS' train accident rate was 1.93 accidents per million train miles, approximately half the average rate of 3.71 accidents per million miles for all Class I railroads combined. The probability of a train accident on the proposed connection is approximately one in four million.

Safe transportation protects the resources of the customers and communities served as well as the resources of the railroad. NS has independently adopted proactive programs to improve the safety of hazardous materials transportation. This action has resulted in superior safety records for NS compared to industry averages. As part of its efforts to continually improve safety performance in transportation, NS is involved in Responsible Care® Partners. The Responsible Care® program was established by the Chemical Manufacturers Association (CMA) in 1988 as a proactive self-regulating approach to improving health, safety and environmental performance.

The Responsible Care® Partnership program extends Responsible Care® requirements to non-CMA members including transportation companies which apply to join. Partners must align internal management practices to meet or continuously improve toward meeting established codes. The codes include: Community Awareness and Emergency Response; Process Safety; Pollution Prevention; Safe Distribution; Employee Health and Safety; and Product Stewardship.

NS has committed to this proactive effort in connection with its CMA customers to improve the safe transportation of chemicals and hazardous materials. NS would continue to transport all hazardous materials in compliance with the U.S. Department of Transportation Federal Hazardous Materials Regulations (49 CFR Parts 171 to 180 as applicable).

NS' environmental policy requires employees to understand and comply with environmental requirements. To assure that NS employees are aware of individual and corporate responsibilities for protection of the environment, NS implemented environmental awareness training for all employees. NS regularly provides hazardous materials training for all employees with duties related to hazardous materials transportation. NS is also involved with local communities in providing training for fire, police and emergency response departments. In addition, NS is involved in community outreach programs. The railroad has received numerous safety and service awards, including the Harriman Gold Safety Award, the highest safety honor for railroads, for the last eight years.

3.4.2.2 Carrier's Safety Record Regarding Hazardous Materials

Currently, 5.6 percent of NS' System-wide traffic consists of hazardous materials, representing a total of about 255,000 carloads in 1996. During the same year, NS had a company-record low total of 90 reportable incidents (mostly minor in nature) as defined under Department of Transportation (DOT) F 5800.1. Over 99.96 percent of the hazardous materials shipments arrived at their destination without incident. These hazardous material shipments moved primarily on routes designated as key routes. (NS defines these as routes with annual hazardous materials traffic

exceeding 9,000 carloads. This definition is more restrictive than the Inter-Industry Task Force Recommendations). In 1995, NS key routes consisted of 6,423 miles of trackage.

Neither the east/west oriented NS rail line nor the north/south oriented CR rail line through the Alexandria, Indiana is a key route.

3.4.2.3 Emergency Action Plans

NS developed and maintains corporate and divisional Emergency Action Plans based on the principles of Prevention, Preparedness, Response and Remediation. In the event of a hazardous material incident, NS implements its Emergency Action Plans. The proposed connection at Alexandria, Indiana, and both the CR and NS existing rail lines, would be covered by the NS Emergency Action Plans.

Prevention
Prevention of incidents is the primary challenge, with a goal of zero incidents. Prevention efforts include: hazardous materials training of employees; compliance with regulations, operating rules, safety rules and industry recommended operating practices; maintenance of the railroad's infrastructure and equipment; and risk assessment to target and prioritize opportunities to improve performance.

Preparedness
Preparedness to respond includes: distribution and maintenance of the written response plans, instructions, guidelines and contact lists of agencies, personnel and contractors; training employees, fire departments and other public emergency response personnel on how to handle hazardous materials incident responsibilities; conducting emergency response exercises; and conducting hazardous materials audits.

Response
Response efforts are taken to prevent or minimize any detrimental effects to health, safety and the environment. Response efforts include: safe initial assessment of an incident; a structured system for reporting the response to government agencies, the shipper(s) and company personnel; and an established network of qualified emergency response contractors across the NS system which are mobilized as indicated by the location and nature of incidents. Ten full-time NS Environmental Operations Engineers, including one in Louisville, Kentucky, are located strategically throughout the NS system to respond to incidents, supervise the response and remediation efforts of contractors and coordinate with regulatory agencies.

Remediation
Remediation efforts bring the incident to a close and restore the environment in the area. Remediation tasks include assessment of the site, contamination and risks; development of a corrective action plan; corrective action; and confirmation assessment. Remediation of serious incidents is typically performed in cooperation with and under the supervision of regulatory authorities.

3.4.3 Electric Transmission Facilities

There is one electric transmission substation, owned by Indiana & Michigan Electric, 400 feet northwest of the existing NS/CR intersection. This Facility provides electricity to the area. A transmission line passes over the proposed construction site.

3.5 WATER RESOURCES

3.5.1 Wetlands

National Wetland Inventory (NWI) maps did not indicate the presence of wetlands within the proposed construction right-of-way. Two wetlands were indicated within 500 feet south of the proposed construction site and may potentially receive surface water runoff from the site. These wetland areas are in the southeast corner of the existing CR/NS intersection.

3.5.2 Surface Waters

No surface waters are found on the proposed construction site. The nearest surface water, Pipe Creek, is a small intermittent stream which is located approximately 1,000 feet south and slightly downgradient of the proposed construction site.

3.5.3 Floodplain

Federal Emergency Management Agency (FEMA) maps for the area show that the proposed construction site is not within a 100-year floodplain.

3.5.4 Ground Water

Surficial aquifers in north-central Indiana consist of unconsolidated glacial material in the form of Quaternary sand and gravel deposits (USGS, Groundwater Atlas of the U.S., #10, 1995). These surficial aquifer systems are approximately 100 to 200 feet thick and supply more than 50 percent of the fresh ground water withdrawn in north-central Indiana. In the vicinity of the proposed construction site, groundwater moves through the surficial aquifer system from northern upland recharge areas toward southern discharge areas near Pipe Creek, approximately 1,000 feet to the south. In rural areas surrounding Alexandria, a good supply of drinking water is supplied by shallow wells. Five deep wells used by the City of Alexandria had an average depth of 280 feet and yielded 1,180 gallons per minute (SCS, Madison County, 1967).

3.6 BIOLOGICAL RESOURCES

3.6.1 Vegetation

Most of the land in Madison County is in agricultural production. Approximately 77 percent of all land in Madison County is farmland with only about 2.3 percent being woodland (U.S. Bureau of the Census, USA Counties, 1996). Native vegetation has generally been replaced by agricultural crops. Currently, vegetation in Madison County is dominated by corn, wheat, soybeans and other cultivated crops. Uncultivated areas are limited to roadsides, drainage ditches, transportation and utility rights-of-way, fence-rows and windbreaks around residences. Vegetation observed at the site was typical of disturbed urban settings and included a cottonwood tree (*Populus deltoides*), Queen Anne's Lace (*Daucus carota*), Kentucky bluegrass (*Poa pratensis*), Indian grass (*Sorghastrum nutans*), velvet grass (*Holcus lanatus*) and other weedy annuals and grasses.

The area surrounding the proposed construction site is primarily industrial and residential. Land bordering the existing rail rights-of-way is vegetated by deciduous trees, weedy annuals, and grasses. Two strips of vegetation consisting of weedy annuals and grasses border the south and west edges of the site. Because the proposed site is within an area dominated by urban and railroad use, much of the area has previously been disturbed. A small undeveloped woodland is located 200 feet south of the proposed site on the south side of the NS rail line. Vegetation within existing transportation and utility rights-of-way and adjacent areas consists of weedy annuals, grasses, and early successional species. Deciduous trees, grasses, and annual and perennial garden species are planted and maintained on residential properties. This vegetation is not unique or limited to the area.

In summary, the proposed project area and vicinity has limited biological diversity and is similar to disturbed areas throughout the region.

3.6.2 Wildlife

Because most of the proposed construction is in a developed area used as a scrap yard, little wildlife habitat is available. The only existing habitat near the proposed construction site consists of weedy annuals, grasses, deciduous trees, and annual and perennial introduced species in railroad rights-of-way or residential yards. The potential for wildlife use of these areas is low. Wildlife would mainly be limited to the common species of birds and small mammals that have adapted to developed urban areas. Habitat for small mammals and birds is provided by the small (0.1 acre) woodland tract south of the site. Species identified during a site visit include fox squirrel (*Sciurius niger*), northern cardinal (*Cardinalis cardinalis*), blue jay (*Cyanocitta cristata*), American robin (*Turdis migratorius*), European starling (*Sturnus vulgaris*), and field sparrow (*Spizella pusilla*). Other species expected to occur include the deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), eastern cottontail (*Sylvilagus floridanus*), and the American goldfinch (*Carduelis tristis*).

3.6.3 Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS) and the Indiana Department of Natural Resources (DNR) were contacted regarding threatened and endangered species in the area. The USFWS and the Indiana DNR did not identify any threatened or endangered species of concern in the project area. None are anticipated because the area is heavily disturbed.

There are no records of any state or Federally-listed threatened or endangered species in the project area. Nor are there any records of unique or sensitive natural communities in the area. However, Federally-listed species that could potentially be in the project vicinity include the Indiana bat (*Myotis sodalis*), peregrine falcon (*Falco peregrinus*), Karner blue butterfly (*Lycaeides melissa samuelis*), Mitchell's satyr butterfly (*Neonympha mitchellii*), dune thistle (*Cirsium pitcheri*) and the bald eagle (*Haliaeetus lucocephalus*) (US Department of Interior, letter). The proposed right-of-way and adjacent lands consist of disturbed land, most of which contains no vegetation. Therefore, it is highly unlikely that habitat for any of these threatened and endangered species is present in the project area. Additionally, none were observed during a site visit and none are expected to occur in this disturbed urban area.

3.6.4 Parks, Forest Preserves, Refuges and Sanctuaries

No forest, preserves, refuges, or sanctuaries are located within 1,000 feet of the proposed construction site. The nearest park is a city park that is approximately 0.5 miles east of the proposed construction. The park is adjacent to the existing NS rail line.

3.7 AIR QUALITY

According to 40 CFR 81, Madison County is classified as an "attainment area" with regard to the National Ambient Air Quality Standards (NAAQS). Automobiles, trucks and locomotives are the primary sources of emissions in the project area.

In 1996, NS carried fewer than 800 loads system-wide of commodities listed by the Clean Air Act as ozone-depleting. This quantity represents less than 0.017 percent of the total traffic, a negligible amount.

3.8 NOISE

Rail, automobile and truck traffic are also the primary sources of noise in the proposed project area. Noise-sensitive receptors are defined as residences, schools, churches, hospitals, retirement homes and libraries. In the vicinity of the proposed project, 15 residences currently are located within the Ldn 65 dBA noise contour for the existing NS and CR rail lines. The existing Ldn 65 dBA contour for the NS line extends 50 feet perpendicular from the centerline (150 feet at grade crossings). The existing Ldn 65 dBA contour for the NS line extends 115 feet perpendicular from the centerline (270 feet at grade crossings). No retirement homes, schools, churches, libraries or hospitals are

within 500 feet of the site. An elementary school, a secondary school and a church are within 0.5 miles of the site.

3.9 CULTURAL RESOURCES

Records at the Indiana State Historic Preservation Office (SHPO) in Indianapolis were reviewed to determine if previously identified cultural resources are in the project area. No sites listed on the National Register of Historic Places (NRHP) or other archaeological or historical sites have been recorded in the vicinity of the proposed construction. The construction would cross a portion of a scrap yard. The structures associated with the scrap yard do not meet the criteria for inclusion on the NRHP. The STB initiated consultation with the Indiana SHPO in a meeting on July 18, 1997 where all of the pertinent cultural resources issues were discussed. Subsequently a letter dated July 24, 1997 was submitted to the SHPO requesting a finding of no historic properties. In a letter dated September 19, 1997, the Indiana SHPO (Appendix C, Exhibit 21) concurred with the STB's finding that no known properties listed in or eligible for the National Register of Historic Places would be affected by the proposed project. The Indiana SHPO also concluded that the Section 106 review process is complete; however, state law requires that work most be stopped if archaeological artifacts or human remains are uncovered during construction activities.

3.10 ENERGY

There is one electric transmission substation, owned by Indiana & Michigan Electric, 400 feet northwest of the existing NS/CR intersection. This facility provides electricity to the area. A transmission line passes over the proposed construction site.

CHAPTER 4
Potential Environmental Impacts

This chapter provides an overview of the potential environmental impacts from the proposed rail line connection between NS and CR in Alexandria, Indiana. This connection would involve the construction of a new rail line segment in new right-of-way to connect existing tracks to other existing rail lines, sidings, and/or yard facilities. As with any construction of new railroad tracks, the steps required to build a new connection include site preparation and grading, railbed preparation, ballast application, track installation, and systems (e.g., signals, communications) installation. Although the construction zone required will vary depending on site conditions, most work would be completed within 250 feet of the new rail line.

In conducting its analysis, SEA considered the following environmental impact areas in accordance with the Board's environmental rules at 49 CFR Part 1105.7(e) and other applicable regulations:

- Land Use
- Socioeconomics and Environmental Justice
- Transportation Systems
- Safety
- Water Resources
- Biological Resources
- Air Quality
- Noise
- Cultural Resources
- Energy
- Cumulative Impacts

For detailed information on the methods used in determining impacts, refer to Appendix D.

4.1 POTENTIAL ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

4.1.1 Land Use

4.1.1.1 Evaluation Criteria

The following criteria were used to assess the significance of land use impacts:

Land Use Consistency and Compatibility

- The severity of visual, air quality and noise impacts on sensitive land uses.
- Interference with the normal functioning of adjacent land uses.
- Alteration of flood water flow that could increase flooding in adjacent areas.
- Consistency and/or compatibility with local land use plans and policies.

Prime Agricultural Land

- Permanent loss of NRCS-designated prime farmland.

4.1.1.2 Potential Impacts

Current Land Use and Zoning
The proposed connection would result in minimal impacts to land use. Approximately 2.3 acres of industrial land would be obtained for the connection, of which 1.3 acres would be converted to railroad right-of-way. The majority of the required acreage is scrap yard. The buried AT&T fiber-optic cable east of the CR line would potentially have to be relocated prior to construction. No other land use impacts are expected from the construction of the proposed connection.

Consistency with Local Plans
There was no response from the city of Alexandria or Madison County on planning conflicts that would arise with the construction of the preferred alignment.

Prime Farmlands and Coastal Zones
The proposed construction would be compatible with surrounding land uses and the soil at the site is not classified as prime farmland. Finally, the proposed site is not in a coastal zone management area

4.1.2 Socioeconomics and Environmental Justice

4.1.2.1 Evaluation Criteria

The following criteria was used to determine impacts from the proposed project to socioeconomics and environmental justice:

- Reviewed demographic and income data from the 1990 Census to compare the population of the area of the proposed construction with that of the City of Alexandria
- A environmental justice effect is determined to be significant if an adverse effect of the proposed construction falls disproportionately on low-income or minority populations.

4.1.2.2 Potential Impacts

Impacts to the local population will be minimal. No residences will be removed. Minor increases in revenues to local commercial businesses may occur during the short construction period. City services would not be affected and no school bus routes would cross the new connection.

There would be no significant adverse environmental effects as a result of the construction and operation of the proposed connection, eliminating concerns about potentially high adverse environmental impacts to the surrounding population. Moreover, the population in the area of the proposed construction has a lower percentage of minority residents than the City of Alexandria as a whole. Data on economic levels in the area are somewhat mixed. The population of the relevant census block is only slightly less prosperous than that of the city as a whole (census data indicates that median household incomes in the relevant census block are about two percent lower than the city average). A somewhat larger number of people in the census block than the city as a whole live

below the Federal poverty level. However, since there would be no potentially significant adverse environmental effects as a result of the construction and operation of the proposed connection, no high and disproportionate impacts on minority or low-income communities would occur.

U.S. Census data indicate that both the proposed connection site, as well as the alternative alignment considered (since it is in the same census block) contain a lower percentage of minority residents than the City of Alexandria on average.

These data indicate that construction and operation of the proposed connection would not have a high and disproportionate impact on minority groups. This conclusion is further supported by the absence of significant adverse environmental impacts related to the proposed connection.

Data on economic levels in the area indicate that the population of the relevant census block is only slightly less affluent than that of the city as a whole (median household incomes in the same area are only two percent lower than the city average and the percentage of people living below the federal poverty level in the census block is higher than the city average).

These data indicate that construction and operation of the proposed connection would not have a high and disproportionate impact on low income groups. This conclusion is further supported by the absence of significant adverse environmental impacts related to the proposed connection.

4.1.3 Transportation Systems

4.1.3.1 Evaluation Criteria

The evaluation criteria used to determine potential impacts on transportation includes:

- The need for new grade crossings.
- Modifications of existing grade crossings

4.1.3.2 Potential Impacts

Train Operation

Neither the east/west oriented NS rail line nor the north/south oriented CR rail line through the City of Alexandria is a key route. The potential for train-automobile or train-truck accidents on the proposed connection is expected to be minimal because of the low train speed (approximately 10 miles per hour), the low level of rail traffic (7 trains per day) and the minimal number of at-grade crossings (one expanded crossing at Berry Street). The average train is expected to be 5,000 feet long.

Train operation always involves a possibility for train accidents or incidents. However, NS' track and equipment inspection and maintenance programs, employee training programs and the low speed of trains would minimize this potential. The probability of a train accident on the proposed connection is approximately 1 in 4 million.

Grade Crossings

No new grade crossings are associated with the proposed project; however, the crossing at Berry Street would be modified to accommodate double tracks. The modifications would include

upgrading of protective devices to include gates and flashing lights. Some temporary vehicular delays could result from the construction and operation of the proposed connection. The ADT at the Berry Street crossing is 1,407 vehicles per day.

4.1.4 Safety

4.1.4.1 Evaluation Criteria

The following criteria was used to determine the effects of the proposed project on safety issues:

- The likelihood of encountering hazardous waste sites during construction
- The effect of the proposed connection on the transportation of hazardous materials.
- The likelihood of a hazardous material release during construction.

4.1.4.2 Potential Impacts

Hazardous Waste Sites
The database search by Environmental Data Resources, Inc. (EDR) did not identify any hazardous waste sites or other sites of environmental concern in the vicinity of the proposed connection. The database search did reveal seven unmappable sites, two within the city limits of Alexandria and five within Madison County. However, these sites could not be located because of poor address or geocoding information provided to the state and/or Federal databases. No evidence of these sites was observed within or adjacent to the proposed construction area during the site visit.

A portion of a scrap yard is located within the proposed construction site. The scrap yard accepts used batteries, scrap steel and other metals. Observations of the scrap yard could not be made during the site visit because the yard is surrounded by a high fence. The site is not listed on any of the databases searched by EDR. However, the potential for environmental contamination cannot be eliminated. If any contamination is excavated or disturbed during construction activities, such contamination would be properly contained and disposed of in accordance with regulatory requirements.

Transportation of Hazardous Materials
Currently, 5.6 percent of NS' system-wide traffic consists of hazardous materials, representing a total of about 255,000 carloads in 1996. During the same year, NS had a company record low total of 90 reportable incidents (mostly minor in nature) as defined under Department of Transportation (DOT) F 5800.1. Over 99.96 percent of the hazardous materials shipments arrived at their destination without incident. These hazardous material shipments moved primarily on routes designated as key routes (NS defines these as routes with annual hazardous materials traffic exceeding 9,000 carloads. This definition is more restrictive than the Inter-Industry Task Force Recommendations). In 1995, NS key routes consisted of 6,423 miles of trackage. Neither the east/west oriented NS rail line nor the north/south oriented CR rail line through the City of Alexandria is a key route.

With the low probability of a train accident and small percentage of hazardous material shipments, no significant impact is expected.

4.1.5 Water Resources

4.1.5.1 Evaluation Criteria

The following criteria were used to assess the potential impacts to surface water resources and wetlands that could result from the proposed construction project:

- Alteration of creek embankments with rip-rap, concrete, and other bank stabilization measures.
- Temporary or permanent loss of surface water area associated with the incidental deposition of fill.
- Downstream sediment deposition or water turbidity due to fill activities, dredging, and/or soil erosion from upland construction site areas.
- Direct or indirect destruction and/or degradation of aquatic, wetland, and riparian vegetation/habitat.
- Degradation of water quality through sediment loading or chemical/petroleum spills.
- Alteration of water flow that could increase bank erosion or flooding, uproot or destroy vegetation, or affect fish and wildlife habitats.

The extent and duration of impacts to surface water resources and wetlands resulting from the project would depend primarily on the type of work to be completed and the size of the project. The overall effect could be lessened by avoiding important resources and minimizing impacts to the extent practicable, and by implementing the mitigation measures. Prior to initiating construction, regulatory agencies would be consulted regarding the need to obtain permits, such as U.S. Army Corps of Engineers' (COE) Section 404 permits, National Pollution Discharge Elimination System (NPDES) permits, and state-required permits or agreements, as appropriate.

4.1.5.2 Potential Impacts

Wetlands

The National Wetland Inventory (NWI) map of Alexandria, Indiana was used to identify potential wetlands in the project area. According to the NWI map, two wetlands 500 feet south of the proposed construction site could potentially receive surface water runoff from the site. NS does not anticipate impacting these wetland areas because of their relative distance from the construction site and their location in the southeast corner of the existing CR/NS intersection. Westland and Fox silt loam soils are crossed by the proposed construction. The Westland soil is classified as a hydric soil (SCS Crawford County, 1979). While hydric soils indicate the potential for wetlands, no indications of wetlands were noted on the proposed construction site during the site visit.

Surface Water

No surface waters or wetlands would be crossed by the proposed connection. Storm water drainage patterns are not anticipated to be altered by the proposed project. Pipe Creek, a small intermittent stream approximately 1,000 feet south and slightly down gradient from the proposed construction site, is not anticipated to be impacted by runoff and soil erosion. Any surface water runoff will drain to storm inlets in the project vicinity and, therefore, will not affect the wetland area. Potential impacts from soil erosion resulting from cleared vegetation and disturbed soil would be insignificant with Best Management Practices (BMPs) used to control runoff and soil erosion. In addition, NS would restore disturbed areas of soil through reseeding.

Floodplain
Federal Emergency Management Agency (FEMA) maps for the area show that the proposed construction site is not within a 100-year floodplain.

Groundwater
The construction of the proposed rail line would not have any adverse impacts on groundwater resources. Only a small amount of fuels and oils would be present on the site during construction activities. Potential leaks or spills would involve only small amounts and would be cleaned up immediately.

Groundwater quality could only be affected if a sufficient amount of a contaminant from a potential spill were released and if it were able to leach to the aquifer prior to implementation and completion of clean-up procedures. The circumstances under which this could happen would be unusual considering the low speed of the trains, the low level of rail traffic, the depth to groundwater (greater than 250 feet) and NS' transportation safety performance record, emergency action procedures, inspections and maintenance programs. (The probability of a train accident on the proposed connection is approximately one in four million.) Response to a contaminant release is expected to be timely and sufficient to clean up the release. Any spill or contaminant release would be reported and cleaned up in accordance with all Federal and state statutes and regulations.

4.1.6 Biological Resources

4.1.6.1 Evaluation Criteria

The following significance criteria were utilized to assess the potential impacts to biological resources resulting from the proposed projects:

- Loss or degradation of unique or important vegetative communities.
- Harm to or loss of individuals or populations of rare, threatened or endangered plants or animals.
- Disturbance of nesting, breeding or foraging areas of threatened or endangered wildlife.
- Loss or degradation of areas designated as critical habitat.
- Loss or degradation of wildlife sanctuaries, refuges or national, state or local parks/forests.
- Alteration of movement or migration corridors for animals.
- Loss of large numbers of local wildlife or their habitats.

Sensitive animal species with potential to occur in the vicinity of the project may be impacted by construction activities. A determination as to the level of impact will depend on many factors including the availability of suitable habitat, previous surveys, and comments from agencies.

Parks, forest preserves, refuges and sanctuaries were identified within one mile of the proposed construction. Impacts to these areas were determined based on their distance from the proposed construction and the degree to which rail construction, operation and maintenance would disturb or disrupt activities at these areas.

4.1.6.2 Potential Impacts

The following sections discuss potential impacts to wildlife and vegetation within the proposed project area.

Vegetation
Vegetation that would be lost due to construction of the proposed project would include primarily common grasses and weeds. This vegetation is typical of disturbed urban areas and common along the existing rail rights-of-way. The loss of this vegetation is not considered significant because this vegetation is not unique or limited in the area. No cropland would be disturbed during the construction or operation of the proposed line. Following construction, NS would reseed bare soils outside the subgrade slope.

Wildlife
No adverse impacts to wildlife populations are anticipated. The proposed connection site is small and contains only limited wildlife habitat. The limited wildlife within the project area would be subject to sporadic disturbance because of noise and human activity generated during construction activities, subsequent train operations and maintenance activities. The minimal loss of habitat due to this construction would be insignificant.

Outside of NS' property, the construction site would require approximately 2.3 acres. This area is occupied by the scrap yard. These areas contain poor-quality wildlife habitat. Following construction, all cleared areas outside the right-of-way subgrade slope would be reseeded with grasses or other vegetation. Overall, minimal impact to wildlife would result from construction and operation of the proposed connection.

Threatened and Endangered Species
The USFWS and the Indiana DNR did not identify any threatened or endangered species of concern in the project area. There are no records of any state-or Federally-listed threatened or endangered species in the proposed project area. Nor are there any records of unique or sensitive natural communities in the area. No threatened or endangered species or their potential habitat were observed during the site visit. None are anticipated because the area is heavily disturbed.

Parks, Forest, Preserves, Refuges and Sanctuaries
The nearest park is a city park approximately 0.5 mile east of the proposed connection, immediately adjacent to the existing NS rail line. No forest, preserves, refuges or sanctuaries are within 500 feet of the proposed connection. Construction of the proposed connection would not have significant impacts on the park. No significant increase in noise at the city park would result from the additional trains on the proposed connection.

4.1.7 Air Quality

4.1.7.1 Evaluation Criteria

The following criteria were used to assess the potential effects on air quality that could result from the proposed construction project:

- Increase in levels of pollutant emissions (e.g., hydrocarbons, carbon monoxide, sulfur dioxide, nitrogen oxide, and particulate matter) from the operation of construction equipment and vehicles.
- Effects related to train operations over the NS and CR line segments adjoining the connection, to the extent they meet the Board's thresholds for analysis.
- Evaluation of the potential for air quality effects from fugitive dust emissions.
- Air quality effects are considered to be adverse if the proposed construction would lead to long-term increases in pollutant emissions or excessive fugitive dust emissions.

4.1.7.2 Potential Impacts

Madison County is an air quality attainment area. No significant, if any, shipments of ozone-depleting commodities are expected over the proposed connection. Only minor impacts to air quality are expected as a result of construction, operation and maintenance of the proposed project, many of which would be temporary. The operation of heavy equipment would be the primary source of pollutant emissions during construction activities. Such pollutants vary by the source as described below:

- Particulate matter, volatile organic compounds (VOCs), carbon monoxide (CO), and nitrogen oxide (NO) resulting from the combustion of diesel fuel
- Fugitive dust along the right-of-way and unimproved roads resulting from the operation of heavy equipment.

The train traffic on the proposed rail line would not meet or exceed STB thresholds for air quality analysis, and thus air impacts were not required to be quantified. Any air quality impacts are not expected to be significant.

Vehicle Emissions
Because rail traffic over the proposed connection would not meet STB thresholds for air quality, air emissions were not quantified. As previously stated, the proposed connection would shorten the route NS trains would have to travel by approximately 16 miles and save as much as 314,000

gallons of fuel per year. The estimated System-wide decreases in emissions as a result of the proposed connection in Alexandria, Indiana are presented below in Table 4-1.

Fugitive Dust Emissions
During the construction phase, grading, excavation and placement of ballast and subgrade could result in a temporary increase of fugitive dust. However, with appropriate mitigation measures, such effects are expected to be minimal. Mitigation measures would include spraying road surfaces with a water truck or covering truck beds with tarps as necessary. Emissions from construction and maintenance equipment engines would be localized and temporary during the construction period and during maintenance activities. They are not expected to reduce air quality.

Table 4-1
Estimated System-wide Decreases in Emissions as a Result of the Proposed Connection in Alexandria, Indiana (tons per year)

VOC	CO	NOx	SO_2	PM	Pb
3.3	9.9	88.9	5.8	2.2	0.0002

4.1.8 Noise

4.1.8.1 Evaluation Criteria

The following criteria was used to determine potential impacts from the proposed project:

- Identification of noise-sensitive land uses where changes in operation could result in noise exposure increases.
- Identification of noise sensitive receptors (e.g. residences, schools, hospitals, libraries.

4.1.8.2 Potential Impacts

Construction
Noise levels in the project areas are expected to increase temporarily during construction. Temporary noises would be generated by operation of vehicles and heavy machinery used for grading, rail construction, etc. The duration of these impacts would only be short-term, lasting from approximately 7 a.m. to 5 p.m. and occurring only during the three- to six-month construction period. Since construction noise would occur during daylight hours and would be short-term in nature, noise impacts from construction are not expected to be significant.

Operation
Train operation over the proposed connection would not likely cause any significant increase in ambient noise levels. In the vicinity of the line, the potential noise receptors are mainly urban residences. No schools, libraries, hospitals, retirement homes or churches are within 500 feet of the proposed alignment. At a maximum operating speed of 10 miles per hour, increases in noise levels

at any given location should not occur for more than approximately 5.7 minutes while the train passes.

Approximately 7 trains per day are expected to travel over the proposed connection. This increase does not meet or exceed STB thresholds for noise analysis. Available noise data does show, however, that 20 residential noise receptors would be within the post construction Ldn 65 dBA contour, which extends 50 feet perpendicular from the centerline (250 feet at grade crossings). Fifteen of the 20 residential noise receptors are within the existing Ldn 65 dBA contour created by current train operations on the existing NS and CR rail lines. After train operations over the proposed connection begin, the 5 additional residences within the post construction Ldn 65 dBA contour would experience an increase in noise levels of only two dBA, while the 15 residences already within the existing Ldn 65 dBA contour would experience an increase in noise levels of only three dBA. NS would regularly lubricate the 12 degree curve of the proposed connection to minimize the friction which causes both rail wear and wheel squeal.

4.1.9 Cultural Resources

4.1.9.1 Evaluation Criteria

Impacts to historic and archaeological resources would be considered adverse (as defined in 36 CFR 800.9) if any site listed or eligible for listing on the NRHP would experience destruction of the site; alteration of site characteristics or setting; neglect resulting in deterioration or destruction; or transfer, lease, or sale of the property on which the site occurs if adequate restrictions or conditions are not included to ensure preservation of the property's significant historic features.

4.1.9.2 Potential Impacts

The Indiana DNR, Division of Historic Preservation and Archeology (Division), stated that no known historical or architectural sites would be impacted by the proposed construction. In a letter to the Division dated July 24, 1997, the STB requested a finding of no historic properties. In a letter dated September 19, 1997, the Indiana SHPO (Appendix C, Exhibit 21) concurred with the STB's finding that no known properties listed in or eligible for the National Register of Historic Places would be affected by the proposed project. The Indiana SHPO also concluded that the Section 106 review process is complete; however, state law requires that work most be stopped if archaeological artifacts or human remains are uncovered during construction activities.

4.1.10 Energy Resources

4.1.10.1 Evaluation Criteria

The following criteria was used to evaluate the potential impacts of the proposed project on energy resources:

- The effect of the proposed project on energy consumption.
- The effect of the proposed project on the transportation of energy resources and recyclable commodities.
- The effect of the proposed project on diversions of shipments from rail to trucks.

4.1.10.2 Potential Impacts

Construction of the proposed connection would have no impacts to Indiana & Michigan Electric's transmission lines or power substation.

As previously stated, the proposed connection would shorten the route NS trains would have to travel by approximately 16 miles and save as much as 314,000 gallons of fuel per year.

4.1.11 Cumulative Impacts

Cumulative impacts are those impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

As shown above, potential environmental impacts related to the construction and operation of the proposed connection are insignificant or nonexistent. The proposed project is not expected to have any significant adverse impact on land use, water resources, biological resources, or air quality. Nor would the proposed project have significant adverse impacts on safety, electrical transmission facilities or cultural resources. Any noise increases during construction would be limited to normal work hours and would only occur during the construction period. Increases in noise from ongoing operation on the connection would be minor. The proposed expanded grade crossing (at Berry Street) would be protected by flashing lights and gates to mitigate potential safety concerns. There would not be any significant environmental impacts on any group regardless of race or economic status as a result of the proposed project. The community potentially affected has a lower percentage of minority residents than the city average and is only slightly less prosperous than the city as a whole. Consequently, and because of the absence of significant adverse environmental impacts related to the proposed connection; there would not be any high and disproportionate environmental justice impacts as a result of the construction and operation of the proposed connection.

The operation of the proposed connection would result in a reduced fuel consumption of approximately 314,000 gallons per year and associated reductions in air emissions.

Based on a review of the transaction Application and the proposed Operating Plan supplied by CSX, no other rail construction projects are underway of planned in the vicinity of the proposed connection . Therefore, the effects outlined above represent the cumulative effects of the proposed construction project. The cumulative effects of the entire acquisition transaction, which could result

from increased rail segment, rail yard and intermodal facility activity, abandonments, and other construction projects, will be addressed in the EIS.

4.2 POTENTIAL ENVIRONMENTAL IMPACTS OF ALTERNATIVE ACTIONS

4.2.1 No-Action Alternative

If the "no-action" alternative were implemented, the proposed rail line connection would not be constructed or operated. Therefore, the current land use and other existing environmental conditions would remain unchanged. However, if the related transaction is approved, the absence of this rail line connection would result in less efficient rail service. The capacity constraints, delays, and slower operating speeds that would result without the new connection would cause additional fuel consumption and increase pollutant emissions from locomotives.

4.2.2 Build Alternatives

As discussed in Section 2.2, SEA identified no feasible "build" alternatives to the proposed rail line construction project. Potential environmental impacts related to the construction and operation of the proposed connection are insignificant or nonexistent. The proposed project is not expected to have any significant adverse impact on land use, water resources, biological resources, or air quality. Nor would the proposed project have significant adverse impacts on safety, electrical transmission facilities or cultural resources. Any noise increases during construction would be limited to normal work hours and would only occur during the construction period. Increases in noise from ongoing operation on the connection would be minor. The proposed expanded grade crossing (at Berry Street) would be protected by flashing lights and gates to mitigate potential safety concerns. There would not be any significant environmental impacts on any group regardless of race or economic status as a result of the proposed project. The community potentially affected has a lower percentage of minority residents than the city average and is only slightly less prosperous than the city as a whole. Consequently, and because of the absence of significant adverse environmental impacts related to the proposed connection, there would not be any high and disproportionate environmental justice impacts as a result of the construction and operation of the proposed connection.

The operation of the proposed connection would result in a reduced fuel consumption of approximately 314,000 gallons per year and associated reductions in air emissions.

CHAPTER 5
Agency Comments and Mitigation

This chapter summarizes comments received from Federal, State and local agencies or officials about the proposed construction, and outlines SEA's recommended mitigation measures.

5.1 SUMMARY OF AGENCY COMMENTS

Burns & McDonnell sent letters to various Federal, state and local agencies seeking their comments on the construction and operation of the proposed connecting track (See Appendix C, Exhibit 2 for the list of agencies that were contacted and Appendix C, Exhibit 1 for a sample of the letter). The letters were distributed to these agencies in January and February, 1997. The agency responses to the letter are provided in Appendix C, Exhibits 3 through 19. This chapter summarizes comments received from these agencies and the mitigation proposed by NS.

5.1.1 Land Use

Comments: The United States Department of the Interior, Bureau of Indian Affairs (Appendix C, Exhibits 10 and 11) stated that there are no federally-recognized Indian tribes or Indian reservation trust lands in Indiana.

Comments: The United States Department of Agriculture (Appendix C, Exhibit 8) stated that the Alexandria construction would not impact resources within their area of concern.

Comments: The Indiana Department of Natural Resources (Appendix C, Exhibit 16) stated this proposal will require the formal approval of their agency.

5.1.2 Socioeconomic and Environmental Justice.

No comments were received from governmental agencies concerning socioeconomic and or environmental justice issues.

5.1.3 Transportation

Comments: The Mayor of the City of Alexandria (Appendix C, Exhibit 20) commented on his concerns regarding blockage of crossings in the city and regarding the desire for upgraded warning devices at Washington Street, Broadway and Berry Street.

Petitioner's Response: NS is evaluating various options related to operation of the rail crossing to address the Mayor's concerns regarding blockage of grade crossings.

5.1.4 Safety

Comments: The Indiana Department of Environmental Management, Office of Solid and Hazardous Waste Management (Appendix C, Exhibit 17) does not believe the site is or represents an environmental problem, based on information provided.

Comments: The Mayor of the City of Alexandria (Appendix C, Exhibit 20) commented on his concerns regarding blockage of crossings in the city and regarding the desire for upgraded warning devices at Washington Street, Broadway and Berry Street. The Mayor stated that if NS can address these public safety concerns, then he believes that the proposed connection track project would improve the overall operation of city functions and address public safety concerns of its citizens.

Petitioner's Response: NS would upgrade the crossing at Berry Street and is considering signal upgrades at other streets. NS is also evaluating various options related to operation of the rail crossing to address the Mayor's concerns regarding blockage of grade crossings.

5.1.5 Water Resources

Comments: The Louisville Corps of Engineers (Appendix C, Exhibit 5) stated that a Department of The Army permit does not appear to be needed. If any dredged or fill material would be discharged in any waters or wetlands, plans should be submitted for their review.

Comments: The Office of Water Management (Appendix C, Exhibit 17) does not anticipate any unacceptable water quality problems.

Petitioner's Response: No construction in or on waterways is anticipated.

5.1.6 Biological Resources

Comments: The Indiana Department of Natural Resources (Appendix C, Exhibit 16) stated the Natural Heritage Program's data have been checked and, to date, no plant or animal species listed as state or federally threatened, endangered or rare have been reported to occur in the project vicinity.

Comments: No significant direct impacts on fish and wildlife resources are anticipated from the U.S. Fish and Wildlife Service (Appendix C, Exhibit 13).

5.1.7 Air Quality

Comments: The Indiana Department of Environmental Management (Appendix C, Exhibit 17) stated that the project must comply with all Indiana Air Pollution Control Board rules.

Petitioner's Response: NS would comply with all Indiana Air Pollution Control Board rules.

5.1.8 Noise

No comments were received from governmental agencies concerning noise issues.

5.1.9 Cultural Resources

Comments: The Indiana Department of Natural Resources, Division of Historic Preservation and Archeology (Appendix C, Exhibit 14), stated that no known historical or architectural sites would be impacted by the proposed construction.

Comments: In a letter dated September 19, 1997, the Indiana SHPO (Appendix C, Exhibit 21) concurred with the STB's finding that no known properties listed in or eligible for the National Register of Historic Places would be affected by the proposed project. The Indiana SHPO also concluded that the Section 106 review process is complete; however, state law requires that work most be stopped if archaeological artifacts or human remains are uncovered during construction activities.

5.1.10 Energy Resources

No comments were received from governmental agencies concerning energy resources.

Electric Transmission Facilities

No comments were received from governmental agencies concerning Indiana & Michigan Electric's transmission facilities.

5.1.11 Cumulative Impacts

No comments were received from governmental agencies concerning cumulative impacts.

5.2 AGENCY SUGGESTED MITIGATION

The following mitigation measures were suggested for the proposed construction project by the various parties consulted in the process of preparing the EA:

- A list of the agencies consulted during the environmental review process and copies of agency correspondence related to this rail construction are provided in Appendix B.

The Berry Street road crossing, currently protected by cross bucks, would be expanded to a double track crossing as a result of the proposed construction. The protection at this crossing would be upgraded to include flashing lights and gates.

- Petitioner would maintain all rail line and warning devices according to Federal Railroad Administration standards.

- Petitioner would restore any adjacent properties that are disturbed during construction.

- Petitioner would use Best Management Practices (BMP's) to control erosion, runoff and surface instability during construction. After the new rail line is constructed, the petitioner would reseed outside the subgrade slope to provide permanent cover and prevent potential erosion.

- Petitioner would control temporary noise from construction equipment by ensuring all machinery has properly functioning muffler systems and by work hour controls.

- Petitioner would transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR parts 171-174 and 177-179).

- In the case of a spill, the petitioner would follow appropriate emergency response procedures outlined in its emergency response plans.

- Petitioner would restore all roads disturbed during construction to the conditions required by state or local regulations.

- Petitioner would comply with all applicable Federal, state, and local regulations regarding fugitive dust and open burning.

- Petitioner would observe all applicable regulations for handling and disposing of waste materials, including hazardous waste.

5.3 SEA RECOMMENDED MITIGATION

SEA recommends that the Board impose the following mitigation measures in any decision approving the construction waiver for the proposed rail/connection construction in Alexandria, Indiana**.**

5.3.1 General Mitigation Measures

SEA's recommendations include, but are not limited to, the following general mitigation conditions:

Land Use

1. NS shall restore any adjacent properties that are disturbed during construction activities to their pre-construction conditions.

2. Before undertaking any construction activities, NS shall consult with any potentially affected American Indian Tribes adjacent to, or having a potential interest in the right-of-way.

Socioeconomics and Environmental Justice

1. No impacts, no mitigation**.**

Transportation Systems

1. NS shall use appropriate signs and barricades to control traffic disruptions during construction.

2. NS shall restore roads disturbed during construction to conditions as required by state or local jurisdictions.

Safety

1. NS shall observe all applicable Federal, state, and local regulations regarding handling and disposal of any waste materials, including hazardous waste, encountered or generated during construction of the proposed rail line connection.

2. NS shall dispose of all materials that cannot be reused in accordance with state and local solid waste management regulations.

3. NS shall consult with the appropriate Federal, state and local agencies if hazardous waste and/or materials are discovered at the site.

4. NS shall transport all hazardous materials in compliance with U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180). NS shall provide, upon request, local emergency management organizations with copies of all applicable Emergency Response Plans and participate in the training of local emergency staff for coordinated responses to incidents. In the case of a hazardous material incident, NS shall follow appropriate emergency response procedures contained in their Emergency Response Plans.

Water Resources

1. NS shall obtain all necessary Federal, state, and local permits if construction activities require the alteration of wetlands, ponds, lakes, streams, or rivers, or if these activities would cause soil or other materials to wash into these water resources. CSX/NS shall use appropriate techniques to minimize impacts to water bodies and wetlands.

Biological Resources

1. NS shall use Best Management Practices to control erosion, runoff, and surface instability during construction, including seeding, fiber mats, straw mulch, plastic liners, slope drains, and other erosion control devices. Once the track is constructed, NS shall establish vegetation on the embankment slope to provide permanent cover and prevent potential erosion. If erosion develops, NS shall take steps to develop other appropriate erosion control procedures.

2. CSX/NS shall use only EPA-approved herbicides and qualified contractors for application of right-of-way maintenance herbicides, and shall limit such application to the extent necessary for rail operations.

Air Quality

1. NS shall comply with all applicable Federal, state, and local regulations regarding the control of fugitive dust. Fugitive dust emissions created during construction shall be minimized by using such control methods as water spraying, installation of wind barriers, and chemical treatment.

Noise

1. NS shall control temporary noise from construction equipment through the use of work hour controls and maintenance of muffler systems on machinery.

Cultural Resources

1. In those cases where historic resources would be adversely affected, CSX/NS shall not undertake construction activities until the Section 106 of the National Historic Preservation Act (16 U.S.C. 470f., as amended) review process is completed. If previously undiscovered archaeological remains are found during construction, NS shall cease work and immediately contact the SHPO to initiate the appropriate Section 106 process.

Energy

1. No impacts, no mitigation.

5.3.2 Specific Mitigation Measures

SEA does not identify any specific mitigation measures, in addition to the general mitigation measures identified above, that the Board impose for means of approval of the construction waiver for the proposed rail connection construction in Alexandria, Indiana. SEA has no other specific mitigation measure for the Board.

5.4 REQUEST FOR COMMENTS

SEA specifically invites comments on all aspects of this EA including the scope and adequacy of the recommended mitigation. SEA will consider all comments received in response to the EA in making its final recommendations to the Board. Comments (an original and 10 copies should be sent to: Vernon A. Williams, Secretary, Surface Transportation Board, 1925 K Street, NW, Suite 700, Washington, DC 20423. Mark the lower left corner of the envelope: Attention: Dana White, Environmental Comments, Finance Docket No. 33388 (Sub Nos. 1-7). You may also direct questions to MS. White at this address or by telephoning (888)869-1997)

Date made available to the public: October 7, 1997

Comment due date: October 27, 1997

APPENDIX A

RAILROAD'S REQUEST FOR EXPEDITED PROCESS

APPENDIX B

STB DECISION 9
DECISION 9 PRESS RELEASE

APPENDIX C

AGENCIES AND OTHER PARTIES CONSULTED
AGENCY CORRESPONDENCE

APPENDIX D

METHODOLOGIES

The following environmental impact areas were evaluated for the proposed Alexandria connection project: land use, socioeconomics environmental justice, transportation, safety, surface water resources, wetlands, biological resources, air quality, noise, cultural resources,, and energy. The methods utilized in the assessment of impacts for each of these categories, with an explanation of the significance criteria, are provided below.

Environmental scientists visited the site to assess land use, vegetation and other characteristics of the area. Cultural resource specialists also visited the site. During the site visits the scientists and cultural resource specialists took photographs of the proposed construction site and surrounding area. Information was also obtained from published reference materials and from federal, state and local agencies.

LAND USE

Land use information was obtained from site visits, U.S. Geological Survey (USGS) topographic maps and from aerial photographs. Land use within and adjacent to the proposed construction area was determined. Buildings (such as residential and commercial buildings, schools and churches) near the proposed construction site were also noted due to possible sensitivity to noise disturbance or incompatibility with construction. Contacts were made with the county planning agency to obtain information on local planning and zoning requirements to determine if rights-of-way would be consistent with any such requirements. Contacts were made with the U.S. Bureau of Indian Affairs to determine the presence of any officially recognized Native American tribes or reservations near the site.

USGS Topographic Maps

USGS topographic maps were utilized during the site visits for notation of land use, and for preparation of the figures presented. Proper place names of roads, creeks, and water bodies not readily evident during the site visits were developed from information on these maps.

NRCS Maps

The United States Department of Agricultural Natural Resources Conservation Service (NRCS, formerly known as the Soil Conservation Service) has created a national database of prime farmland. The local NRCS office was contacted and requested to provide soil surveys, maps or drawings indicating the location of prime farmland at or in the vicinity of the project. These maps or drawings were reviewed, and the areas of prime farmland adjacent to or within 500 feet of the center line of the railway were inventoried to determine approximate areas or lengths of prime farmland in the area.

Flood Zone Maps

The Federal Emergency Management Agency (FEMA) publishes maps showing areas subject to flooding. These maps were previously published and distributed by the U.S. Department of Housing and Urban Development (USDHUD) and are periodically updated and revised. Maps that cover each proposed project area were obtained and reviewed to determine which portions of the line would be located within the 100-year and 500-year flood plains.

Evaluation Criteria

The following criteria were used to assess the significance of land use impacts:

Land Use Consistency and Compatibility

- The severity of visual, air quality and noise impacts on sensitive land uses.
- Interference with the normal functioning of adjacent land uses.
- Alteration of flood water flow that could increase flooding in adjacent areas.
- Consistency and/or compatibility with local land use plans and policies.

Prime Agricultural Land

- Permanent loss of NRCS-designated prime farmland.

ENVIRONMENTAL JUSTICE

Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations," directs federal agencies to analyze the environmental effects of their actions on minority and low-income communities. Significant and adverse effects which have a high and disproportionate impact on these communities should be identifies and addressed.

In this EA, potential impacts of the proposed construction of a rail line connection in Alexandria, Indiana on minority and low-income communities were considered, along with the potential impacts associated with an alternative alignment. One of the primary goals in selecting between alternative alignments for the proposed project was to minimize impacts on surrounding residents. Information was obtained through site visits and demographic research. While the "no-build" alternative would have no change in potential impacts on the community in the vicinity of the proposed connection, neither would it provide any of the anticipated benefits of the connection described.

In order to study the effects of the proposed construction on the population in the vicinity of the project, information on racial composition and average income level in the area was obtained from the U.S. Census Bureau TIGER/Line files and other statistical sources. From the Census files, the proposed construction was determined to be located in one census block. Using the census block number, Summary Tape Files were utilized to determine and analyze the poverty status, race and income for the relevant block.

The proposed project area and an alternative alignment for the project were studied to determine the number of new residences and other sensitive receptors within the Ldn 65 dBA contour around the connection affected by an increase of two dBA, since noise would be the predominant potential impact on nearby sensitive receptors. The assessment also considered whether any of these sensitive receptors would be subject to additional noise from the proposed connection, and whether they are currently affected by equal or greater noise from existing operations. Safety concerns were also taken into consideration. Potential increases in the number of grade crossings were examined, as were the nature and operation of the proposed grade crossings and the potential traffic they would experience.

TRANSPORTATION AND SAFETY

Potential impacts on local transportation systems are discussed for the proposed project. Railroad safety precautions during construction work are also discussed. Safety impacts are discussed in the following general categories:

- Increased delays at grade crossings;
- Train accidents, derailments, and other incidents;
- Shipments of hazardous commodities; and
- Hazardous waste sites and hazardous material releases.

Public Health and Safety

Railroad operations affect public health and safety when accidents occur. Delays also occur at grade crossings (which could affect the time required to respond to an emergency, or affect the judgment of motorists concerning their ability to cross the tracks safely); and releases of hazardous materials sometimes occur.

Grade Crossings

Delays at grade crossings are a function of the number of trains per day passing over a crossing, the time it takes for a train to pass the crossing, and the type of crossing warning device. Delays at grade crossings will only be quantified if the ADT exceeds 5,000 vehicle.

HAZARDOUS WASTE SITES

Railroad records or information databases were examined to determine if there are known hazardous waste sites or sites where there have been hazardous materials spills at the proposed construction

site. The information searches of federal and state environmental databases were used to identify known sites of environmental concern within 500 feet of the proposed construction. EDR searched the following databases:

- National Priority List (NPL)
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- Resource Conservation and Recovery Information System - Treatment, Storage, or Disposal (RCRA-TSD) sites
- Emergency Response Notification System (ERNS) spill sites
- State Priority List (SPL)
- State Licensed Solid Waste Facilities (SWF/LF)
- State Inventory of Leaking Underground Storage Tanks (LUST)
- State Inventory of reported spills (SPILLS)
- Orphan or unmappable sites list

The reports were reviewed to determine if any of these sites would be impacted by the proposed construction. Site visits noted any obvious indications of potential hazardous waste sites within the construction area.

TRANSPORTATION OF HAZARDOUS MATERIALS

The existing lines were evaluated to determine if they are hazardous material key routes. NS' current train accident ratio (1.93 train accidents per million train miles) was applied to the annual number of trains projected to operate over the connection and the length of the connection to calculate the probability of a train accident on the connection.

WATER RESOURCES

Identification of the types and extent of surface water features occurring within 500 feet of the center line along the proposed Alexandria construction was completed using a variety of information sources.

Surface water resources were primarily identified from site inspection and interpretation of hydrologic features delineated on USGS topos and NWI maps. The other information sources described below were used to confirm and/or refine the locations of these features.

USGS Topographic Maps

USGS topographic maps indicate, among other items, the types and extent of water features on the landscape. These features include permanent and intermittent streams, water bodies, wetlands, tidal channels, mudflats, sewage-treatment ponds, channels, culverts, and ditches. Water resources

located within and immediately adjacent to the railroad right-of-way were assessed for this project. Each crossing of a water resource was counted as required by 33 CFR Section 330.2 (I).

National Wetlands Inventory Maps

NWI maps show various water features with a focus on wetland resources. The inventory was completed by USFWS through a stereoscopic analysis of high altitude aerial photography and delimitation of wetland types on USGS topos. Wetlands are classified by USFWS in accordance with *Classification of Wetlands and Deepwater Habitats of the United States.* A particular wetland is located and classified in detail on NWI maps by a sequence of alphabetical and numerical symbols based on the attributes of the wetland. A comprehensive explanation of the classification system is provided in the map legend. This classification system includes a broad range of the types and extent of wetland resources, as well as other water features. However, for this evaluation, wetlands were identified as rivers, lacustrine (reservoirs, lakes) or palustrine (any vegetated wetland). Palustrine wetlands were further identified as forested, shrub/scrub, or emergent (containing herbaceous vegetation) wetlands. There are often differences between the USFWS definition of a "wetlands" and the definitions of various federal, state, and local regulatory agencies. All NWI wetlands that occur within 500 feet of the proposed construction are depicted on figures.

Soil Survey Maps

Soil surveys have been completed by NRCS for a large number of counties in the United States. Maps have been prepared for each survey that show the types and extent of soil types. A subset of the soils mapped by NRCS is classified as "hydric;" that is, soils subjected to prolonged periods of flooding, ponding or saturation. The occurrence of a hydric soil provides an indication that an area may be a wetland. Information from the soil survey maps was used to cross-reference other sources of information to better understand the soils and hydrologic conditions at select locations.

Site Visits

The proposed construction site was inspected and reviewed in the field by environmental scientists. Information about surface water resources and other areas of interest was collected during the inspections. Field notes and photographs taken during the inspections were retained for later review and utilized to amend and refine information derived from other sources.

Evaluation Criteria

The following criteria were used to assess the potential impacts to surface water resources and wetlands that could result from the proposed construction project:

- Alteration of creek embankments with rip-rap, concrete, and other bank stabilization measures.
- Temporary or permanent loss of surface water area associated with the incidental deposition of fill.

- Downstream sediment deposition or water turbidity due to fill activities, dredging, and/or soil erosion from upland construction site areas.
- Direct or indirect destruction and/or degradation of aquatic, wetland, and riparian vegetation/habitat.
- Degradation of water quality through sediment loading or chemical/petroleum spills.
- Alteration of water flow that could increase bank erosion or flooding, uproot or destroy vegetation, or affect fish and wildlife habitats.

The extent and duration of impacts to surface water resources and wetlands resulting from the project would depend primarily on the type of work to be completed and the size of the project. The overall effect could be lessened by avoiding important resources and minimizing impacts to the extent practicable, and by implementing the mitigation measures. Prior to initiating construction, regulatory agencies would be consulted regarding the need to obtain permits, such as U.S. Army Corps of Engineers' (COE) Section 404 permits, National Pollution Discharge Elimination System (NPDES) permits, and state-required permits or agreements, as appropriate.

BIOLOGICAL RESOURCES

Information regarding biological resources potentially occurring at or in the immediate vicinity of the proposed project (within 500 feet of the center line) was collected from a variety of sources, including USGS topographic maps, NRCS soil survey maps, lists of threatened and endangered species, reference books on regional flora and fauna, and information databases. In addition, federal and state agencies such as the U.S. Fish and Wildlife Service and Indiana Department of Natural Resources were consulted, and specific information concerning the potential occurrence of sensitive plants and animals in the vicinity of the proposed project was solicited.

Site visits were conducted at the project site to evaluate biological resources. These evaluations included determinations as to the occurrence or potential occurrence of sensitive species and habitat for sensitive species, overall value to wildlife, and use of the area as a migration corridor for animals.

Evaluation Criteria

The following evaluation criteria were utilized to assess the potential impacts to biological resources resulting from the proposed projects:

- Loss or degradation of unique or important vegetative communities.
- Harm to or loss of individuals or populations of rare, threatened or endangered plants or animals.
- Disturbance of nesting, breeding or foraging areas of threatened or endangered wildlife.
- Loss or degradation of areas designated as critical habitat.
- Loss or degradation of wildlife sanctuaries, refuges or national, state or local parks/forests.
- Alteration of movement or migration corridors for animals.

- Loss of large numbers of local wildlife or their habitats.

Sensitive animal species with potential to occur in the vicinity of the project may be impacted by construction activities. A determination as to the level of impact will depend on many factors including the availability of suitable habitat, previous surveys, and comments from agencies.

Parks, forest preserves, refuges and sanctuaries were identified within one mile of the proposed construction. Impacts to these areas were determined based on their distance from the proposed constructions and the degree to which rail construction, operation and maintenance would disturb or disrupt activities at these areas.

AIR QUALITY

Emissions from trains have the potential to impact air quality. STB regulations contain thresholds for air quality evaluations related to rail traffic increases. If STB thresholds would be met or exceeded, the effects on air pollutant emissions must be analyzed. The air quality methodologies contained in this section were used to calculate the air pollutant emissions from the proposed construction. Analyses were conducted for areas with activity increases above the following STB thresholds, as specified in 49 CFR 1105.7(e):

Activity	Threshold
Attainment Areas (49 CFR 1105.7(e)(5)(I))	
Rail line segment	Increase of 8 trains/day or 100% as measured in gross tons miles annually

Air Quality Methodology

The increase in emissions for the proposed connection was calculated using the total gross ton increase expected on the connection and the length of the connection. These values, when multiplied together, will provide the gross ton-mile increase for that connection. Next, the increase in total gallons of diesel fuel consumed for the connection will be obtained by dividing the gross ton-mile increase by the fuel efficiency factor 702.9 gross ton-miles per gallon on the NS system. The corresponding annual emission increases will be estimated by multiplying the annual fuel consumption for the connection by emission factors. Criteria pollutant emission factors were obtained from emission rates provided in USEPA's "Emission Standards for Locomotives and

Locomotive Engines; Proposed Rule"[2] dated February 11, 1997. This proposed rule provides emission rates for line haul and switch locomotives which were used by USEPA to determine the emission standards in the proposed rule. The emission rates for line haul locomotives were converted to units of pounds of pollutant per 1000 gallons of diesel fuel consumed, and are provided below:

Hydrocarbons (HC)[1]	21.0
Carbon Monoxide (CO)[1]	62.9
Nitrogen Oxides (NO_x)[1]	566.4
Sulfur Dioxide (SO_2)[2]	36.7
Particulate Matter (PM_{10})[2]	14.3
Lead (Pb)[3]	0.0012

This methodology will be employed for all criteria pollutants on this proposed connection since it will experience an increase in activity equal to or greater than the STB thresholds.

The following sample calculation for a rail line segment illustrates the emission estimation procedure for hydrocarbons:

$$[16.0\ miles\ (segment\ length)]\ x\ \left[\frac{45.17\ x\ 10^6\ gross\ tons\ (increase)}{year}\right]\ x$$

$$\left[\frac{1\ gallon}{702.9\ gross\ ton\ miles}\right] = 1.03\ x\ 10^6\ \frac{gallons\ diesel\ fuel\ consumption\ (increase)}{year}$$

[2]United States Environmental Protection Agency, February 11, 1997. 40 CFR Parts 85, 89 and 92. Emission Standards for Locomotive and Locomotive Engines; Proposed Rule. The emission factors incorporate a fuel efficiency of 0.37 lbs of fuel per HP-hr and a density of 7.05 lbs per gallon.

$$\left[1.03\ x\ 10^{6}\ \frac{gallons}{year}\right] x \left[\frac{21\ lbs\ (HC)}{1000\ gallons}\right] x \left[\frac{1\ ton}{2000\ lb}\right] = 10.80\ \frac{tons(HC)}{year}$$

Emission Calculation Assumptions:

- A fuel efficiency factor of 702.9 gross ton-miles per gallon will be used on the NS system.
- The density of the fuel is 7.05 lbs per gallon.
- The fuel sulfur content is 0.26 percent by weight.
- The fuel heat content is 140,000 Btu per gallon.
- The fuel efficiency factor is 0.37 lbs of fuel per HP-hr.
- Emission factors for HC, CO, $NO_{x,}$ and PM_{10} are based on emission rates provided in USEPA's proposed rule on locomotive emission standards. It is conservatively assumed that all particulate matter emissions represent PM_{10}.
- Lead emissions are based on the AP-42 emission factor of 8.9 lbs of lead per 10^{12} Btu.

Potential impacts to air quality are discussed below.

Construction

During construction, the air quality in the vicinity of the proposed construction could be effected by fugitive dust and vehicle emissions. Increases in fugitive dust could occur due to grading and other earthwork necessary for rail bed preparation or removal activities. Emissions from heavy equipment and construction vehicles would also occur. These effects on air quality would be temporary and limited to the period of construction or abandonment. Additionally, the emissions from the small number of vehicles and equipment would be insignificant compared to the overall train and vehicle emissions in the project areas. Potential impacts would be minimized by good construction practices that would include dust control and vehicle maintenance measures.

Operation

The amount of train traffic operating over the proposed project site meets or exceeds STB thresholds for air quality; therefore pollutant emission were evaluated.

Maintenance

Right-of-way maintenance activities would result in emissions from vehicles and equipment used to perform maintenance activities. Maintenance activities would be confined to the rail line and occur sporadically for short periods throughout the year. Emissions during maintenance activities would be insignificant compared to the existing emissions in the area and would not significantly impact air quality.

NOISE

Construction

The proposed project would consist of construction activities that last for, at most, a few months. Temporary increases in noise level would occur during these operations, but the noise level would be similar to that of normal track maintenance procedures. Thus, the construction activities are not expected to result in significant adverse noise impacts.

NOISE LEVEL THRESHOLDS

The STB regulations specify that noise studies be done for all connections where traffic will increase by at least 100% as measured by annual gross tons miles or at least 8 trains per day.

The noise increase is to be quantified for all sensitive receptors (schools, libraries, residences, retirement communities and nursing homes) that are in the project area where these thresholds will be surpassed.

The Day-Night Sound Level, abbreviated L_{dn} or DNL, represents an energy average of the A-weighted noise levels occurring during a complete 24-hour period. An increase in L_{dn} of 3 dBA could result from a 100 percent increase in rail traffic, a substantial change in operating conditions, changed equipment, or a shift of daytime operations to the nighttime hours. Nighttime noise often dominates L_{dn} because of a weighting factor added to nighttime noise to reflect most people being more sensitive to nighttime noise. In calculating L_{dn}, the nighttime adjustment makes one event, such as a freight train passby, occurring between 10 p.m. and 7 a.m., equivalent to ten of the same events during the daytime hours.

There are some track segments where the STB threshold for a noise study is exceeded, but the total change in noise exposure would be insignificant. The approach taken was to analyze those areas where the projected increase in train volume or change in train mix would be expected to cause: (1) more than a marginal change in noise exposure, and (2) cause a significant increase in the number of noise sensitive receptors within the L_{dn} 65 contour. For this study, any increase in L_{dn} less than 2 dBA was considered insignificant. A 2 dBA threshold was selected because:

1. Near railroad facilities, a plus or minus 2 dBA variation in L_{dn} is common because of the normal variation in factors such as: operating condition, operating procedures, weather, time of day, and equipment maintenance.

2. In most cases, a 2 dBA increase in noise exposure would cause only a small change (approximately 10%) in the number of residences within the L_{dn} 65 contour. This is because noise impacts from train operations tend to be localized to the residences closest to the tracks. The acoustic shielding provided by the first row or two of residences is usually sufficient to keep noise exposure below L_{dn} 65 at residences that are farther away.

3. Although a 2 dBA increase in noise exposure is often considered an insignificant change, it was selected as a conservative screening level for this study and for previous studies.

Approach

The overall goal of the noise study is to identify noise sensitive land uses where the projected change in operations could result in noise exposure increases that meet or exceed the STB thresholds. This assessment provides estimates of the number of noise-sensitive receptors where there will be a significant increase in noise exposure and the STB thresholds will be exceeded.
Following is an outline of the approach that has been used for the assessment of potential noise impacts:

1. Develop noise models: Models for estimating rail line noise have been defined for significant noise sources. For connections, the dominant noise sources are the normal noise from freight and passenger train operations and the audible warning signals at grade crossings. Curves with small enough radii for substantial wheel squeal are normally lubricated to control wear and noise.

2. Identify sensitive receptors and existing noise conditions: Noise sensitive land uses were identified through review of USGS maps, aerial photographs and site visits.

3. Project existing and future noise exposure: Information on distances and propagation paths to sensitive receptors and existing and future operation plans have been used to estimate noise exposure in terms of the L_{dn}. Instead of doing noise projections for each sensitive receptor, L_{dn} 65 contours were drawn on the maps or aerial photographs. For all of the rail segment noise projections, the average train was assumed to be 5000 feet long.

   It was assumed that train horns are sounded starting ¼ mile before all grade crossings and continuing until the locomotive is through the grade crossing.

4. Count noise sensitive receptors: Approximate counts were made of the number of residences, schools, and churches within the L_{dn} 65 contour for both the pre- and post-construction train volumes using site visits. The final result of this analysis is an estimate of the total number of sensitive receptors likely to be affected by increased noise exposure by projected NS operations.

Measurement Data Used for Noise Models

Noise measurements of existing NS equipment were taken to provide a solid basis for the noise projections. The measurements included train noise from line-haul rail lines, and noise near grade crossings to document noise levels due to sounding train horns prior to grade crossings.

Controlled noise tests were conducted on NS using a level stretch of track in China Grove, NC. This single track has high freight traffic and is located next to an open level field. Noise measurements were made over a four-day period while trains were operated at a speed specified for the day, i.e., 20, 35, and 50 mph. Speeds were verified with a radar gun for each train.

Measurements were made at a second location on the fourth day to measure the influence of grade. Engineers were allowed to operate their trains at their normal speed and a radar gun was used to clock the train speed.

All instruments are state-of-the-art. The entire measurement setup was properly field calibrated prior to measurements.

Noise levels of the entire train were measured at four perpendicular distances from the track using an array of microphones at 50, 100, 150, & 200 feet from the track centerline. Microphones were mounted on tripods and their AC outputs were cabled to a nearby trailer where a four-channel Hewlett Packard Dynamic Analyzer was used to measure the L_{eq} of each train. This microphone array was used to determine the wavefront spreading rate [rate of noise reduction versus distance]. This rate was used in conjunction with a reference location to predict the distance from the track to the L_{dn} 65 dBA contour.

This microphone array was supplemented with two precision sound level meters that measured the L_{eq}s and SELs of the locomotives and also of the cars at 150 feet from the track. This was a supplementary measurement that was not used in the model but it was used for cross-checks on the train noise data.

The definition of the SEL is:

$$SEL = L_{eq} + 10Log(t)$$

where:

SEL = Single Event Level, dBA
L_{eq} = Equivalent Energy Level, dBA
t = time, seconds

The L_{eq} represents the average sound pressure level that contains the same equivalent energy as the fluctuating sound level of the event. In simple terms, the high and lows of the fluctuating noise are characterized by a single average number. For example, as a train passes by, the noise will vary as the locomotives and cars go by. This fluctuating noise is characterized by a single sound level that is representative for the entire train. This averaging process is done on a logarithmic basis since decibels are involved.

The SEL represents the total energy contained in the event. For example, a train can be characterized by the L_{eq} and the amount of time that it takes to pass a measurement point. When the SEL is computed, it represents the total energy of the train. For example if two otherwise identical trains passed by, but one was longer than the other, the longer one would have a larger SEL. If one train was twice the length of another train, the SEL would be 3 dBA larger. This

assumes that all locomotives and individual cars produce the same noise level. Again, the logarithmic averaging process is involved, i.e., a doubling produces a 3 dBA change.

The L_{eq} corresponds to the loudness of the event whereas the SEL does not. The effects of speed, loudness, time duration, and fluctuating level are conveniently represented by a single number. The SEL is convenient for the computation of the L_{dn}. Alternately, the L_{eq} and time duration could be used with equal ease and their combination would yield the same L_{dn} result.

Measurements were made by the firm of William R. Thornton, Ph.D., P.E. in association with Earshen & Angevine Acoustical Consultants Inc. All work was done by two noise control engineers who are full members of the Institute of Noise Control Engineers, INCE.

Horn noise was measured at a rail crossing in another part of China Grove at a distance of 150 feet from the track. Measurements were made at the midpoint between the ¼-mile marker and the rail crossing. The SEL and L_{eq} of the horn were measured as the train approached and departed this measurement station. This situation represents the worst case for noise for a person living near a crossing.

Measurements were also made at a nearby section of 0.9 percent grade to determine the effects of grade on noise emissions.

The detailed results of the train passby noise measurements at the four microphone positions are given in Table N-1. Measurement results of the 0.9 percent grade train passbys and the train horn measurements are listed in Tables N-2 and N-3, respectively. Finally, all measured NS noise levels are summarized in Table N-4, energy-averaged and normalized to a distance of 100 feet from track centerline.

The results from the noise survey of NS trains showed that the average attenuation rate was 4.8 dBA per doubling of distance. In other words, the noise level from a train passby 200 feet from the track would be 4.8 dBA less than the noise level 100 feet from the track. This represents the attenuation of noise caused by the dissipating effects of the atmosphere and ground. This is consistent with the attenuation rate that would be expected for train noise propagating over soft ground.

Noise from train horns were found to be relatively consistent for the six trains that were measured. At 150 feet from the track, the average L_{eq} was 93 dBA, the average duration was 15.6 seconds, and the energy average SEL was 108 dBA.

Table N-1
Noise Data for NS Trains

Event Time	Speed (mph)	Duration (seconds)	No. of Loco-motives	No. of Rail Cars	Measured L_{eq} at Distance from Tracks (dBA)			
					50 ft	100 ft	150 ft	200 ft
919	20	60	2	14	79.8	75.7	73.1	70.9

Table N-1

Event Time	Speed (mph)	Duration (seconds)	No. of Loco-motives	No. of Rail Cars	Measured L_{eq} at Distance from Tracks (dBA)			
					50 ft	100 ft	150 ft	200 ft
1023	19	207	2	93	81.2	77.6	75.2	73.9
1053	20	202	??	100	79.8	76.0	73.3	72.0
1214	20	166	3	61	72.8	69.4	66.9	65.7
1243	20	58	2	24	73.1	69.7	67.2	66.4
1353	18	145	2	67	80.3	76.9	73.8	72.1
1624	20	316	2	128	77.9	74.8	72.1	70.9
1731	19	239	2	85	78.4	74.6	72.6	70.4
1752	20	269	3	97	78.9	74.7	72.6	71.0
1802	20	167	2	45	71.5	67.8	65.8	64.3
1913	18	160	2	86	79.7	76.0	73.2	71.9
--	20	240	2	80	79.3	74.2	72.9	70.1
Average:	**20**	**185**	**2**	**73**	**78.6**	**74.8**	**72.3**	**70.7**
1035	25	90	2	38	76.0	71.8	68.8	67.2
1204	33	163	3	127	84.0	79.9	76.5	74.7
1226	32	50	2	36	74.6	70.6	67.3	65.8
1307	30	92	2	37	81.6	77.8	74.8	73.0
1326	34	39	2	39	79.6	75.8	72.6	70.9
1424	34	30	3	69	84.9	81.5	79.2	77.1
1453	33	101	2	97	81.2	76.8	73.3	71.2
1610	34	119	2	91	84.8	80.9	78.3	76.5
1724	35	143	2	124	82.9	78.9	76.4	74.1
1949	35	130	2	76	80.8	77.4	74.9	72.7
2000	35	104	3	57	84.8	80.7	78.2	75.9
2027	33	130	3	97	84.0	79.7	76.3	73.6
Average:	**33**	**99**	**2.3**	**74**	**82.6**	**78.7**	**75.9**	**73.8**
1036	50	54	2	71	84.0	80.5	77.1	75.0
1154	43	122	4	136	87.2	84.0	80.2	77.7
1301	42	102	4	110	88.1	85.2	82.0	79.3
1322	47	23	3	28	85.6	82.4	78.8	76.5
1339	47	38	2	47	86.7	82.8	77.8	74.8

Event Time	Speed (mph)	Duration (seconds)	No. of Loco-motives	No. of Rail Cars	Measured L_{eq} at Distance from Tracks (dBA)			
					50 ft	100 ft	150 ft	200 ft
1347	45	80	4	76	82.4	79.5	76.7	74.7
1447	44	76	5	92	87.3	84.2	81.1	79.4
1503	48	41	2	33	85.3	81.7	78.2	74.9
1523	49	51	1	56	80.7	77.2	73.8	71.6
1535	45	111	4	121	89.5	86.2	82.6	79.7
1910	45	80	2	70	83.2	79.4	76.6	74.1
1921	41	154	2	138	87.1	83.1	80.1	78.1
Average:	**46**	**78**	**2.9**	**87**	**86.2**	**82.9**	**79.4**	**77.0**

Table N-2
Noise Data from NS Trains on a 0.9 Percent Grade

Event Time	Speed (mph)	Duration (sec)	No. of Loco-motives	No. of Rail Cars	Direction of Travel	Measured $_{Leq}$ at Distance from Tracks (dBA)			
						50 ft	100 ft	150 ft	180 ft
1019	30	120	1	95	--	80.2	78.1	76.0	75.8
1226	53	70	3	44	--	76.8	75.5	73.1	73.0
1257	48	50	2	42	--	79.0	78.7	76.0	75.4
1315	27	166	3	59	--	78.3	76.7	74.6	73.9
1406	33	106	2	59	uphill	78.9	77.7	75.9	77.2
1636	31	161	3	87	uphill	81.3	80.3	76.9	77.2
1450	43	72	3	70	downhill	80.0	77.5	75.4	75.5
1722	42	164	2	132	downhill	79.6	77.6	74.9	74.6

Table N-3
Horn Noise Data from NS Trains
(all measurements taken 150 ft from track centerline)

Time	Direction	L_{eq} (dBA)	L_{max} (dBA)	SEL (dBA)	Duration (seconds)
1030	South	93.0	99.0	105.0	16.0

Time	Direction	L_{eq} (dBA)	L_{max} (dBA)	SEL (dBA)	Duration (seconds)
1049	North	91.5	99.5	103.5	15.7
1222	South	92.0	101.0	104.0	16.0
1238	North	94.7	100.9	107.0	17.0
1304	South	91.2	96.6	101.1	9.3
1400	South	95.4	102.3	108.3	19.6

Table N-4
Average Values Calculated from NS Train Noise Data
(all sound levels normalized to 100 ft from track centerline)

Source	# of Trains	Energy Average Sound Level, dBA	
		Noise Metric	Average Level
Train Horns	6	L_{max}	103
		SEL	108
		L_{eq}	96
Train Passby on level track, 20 mph (no horn)	12	L_{eq}	75
Train Passby on level track, 35 mph (no horn)	12	L_{eq}	78
Train Passby on level track, 50 mph (no horn)	12	L_{eq}	82
Train Passby up 0.9% grade, 31 mph (no horn)	2	L_{eq}	79
Train Passby down 0.9% grade, 45 mph (no horn)	2	L_{eq}	78

The NS noise model was based on SEL and L_{dn} levels measured in the field at different speeds, train lengths, numbers of locomotives, different grades, and train horns.

Noise from rail line construction and operation has the potential to impact noise receptors along the rail line. Sensitive noise receptors include residences, schools, churches, libraries and hospitals. Residences within 500 feet and other sensitive noise receptors (schools, churches, hospitals, libraries) within 1,250 feet (0.25 mile) of the proposed project were identified since these would be the most likely affected by noise from construction activities and any subsequent rail operations. For construction projects expected to exceed STB noise thresholds, the number of noise receptors experiencing average daily noise levels (Ldn) of 65 decibels or greater was determined.

CULTURAL RESOURCES

In order to evaluate the potential impacts to historic and cultural resources, the Indiana State Historic Preservation Officer (SHPO) was sent a letter requesting information on known historic properties or archaeological sites potentially affected by the project. The SHPO was asked to indicate whether further actions are needed to identify historic properties. Documentation of historic

and cultural resources in the project area was requested and a determination of the potential impacts of the project on any NRHP eligible structures was requested.

In accordance with 49 CFR 1105.8, the proposed construction is shown on USGS topographic maps on which urban or rural characteristics of the surrounding areas are depicted, as well as the location, if available, of documented historic properties.

Evaluation Criteria

Impacts to historic and archaeological resources would be considered adverse (as defined in 36 CFR 800.9) if any site listed or eligible for listing on the NRHP would experience destruction of the site; alteration of site characteristics or setting; neglect resulting in deterioration or destruction; or transfer, lease, or sale of the property on which the site occurs if adequate restrictions or conditions are not included to ensure preservation of the property's significant historic features.

ENERGY

The proposed project would allow NS to use shorter rail routes between destinations, increasing the efficiency of their systems. Shorter, more direct routes would reduce the overall fuel consumption of locomotives. The tonnage expected to operate over the connection was estimated assuming 5400 trailing tons per train. This was multiplied by the reduction in route length that would be realized from the connection to determine the reduction in ton miles. Multiplying ton miles by the fuel consumption per ton-mile provides the number of gallons of fuel saved. The proposed project would have an overall positive impact on energy use and encourage diversion of truck traffic to more fuel efficient rail transport.

APPENDIX E
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