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Chicago – Detroit / Pontiac Passenger Rail Corridor Program

# Tier 1 DRAFT Environmental Impact Statement

SEPTEMBER 2014

U.S. Department of Transportation
Federal Railroad Administration

MDOT
Michigan Department of Transportation

Indiana Department of Transportation

Illinois Department of Transportation

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# Chicago – Detroit / Pontiac High Speed Rail Corridor Program
# Tier 1 Draft Environmental Impact Statement

Prepared by:
U.S. Department of Transportation
Federal Railroad Administration
and
Michigan Department of Transportation
In partnership with
Illinois Department of Transportation
and
Indiana Department of Transportation
In cooperation with the:
Federal Aviation Administration, Federal Highway Administration, Federal Transit Administration, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Coast Guard, U.S. National Park Service

Pursuant to:
National Environmental Policy Act (42 USC §4332 et seq.), and implementing regulations (40 CFR Parts 1500-1508), 64 FR 28545, 23 CFR §771, 49 USC §303 (formerly Department of Transportation Act of 1996, Section 4(f); National Historic Preservation Act (16 USC §470); Clean Air Act as amended (42 USC §7401 et seq, and 40 40 CFR Parts 51 and 93); the Endangered Species Act of 1973 (16 USC §1531-1544); the Clean Water Act (33 USC §1251-1387); and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC §4601).

FRA will issue a single document that consists of the Final Environmental Impact Statement and Record of Decision pursuant to Pub. L. 112-141, 126 Stat. 405, Section 1319(b) unless FRA determines that statutory criteria or practicability considerations preclude issuance of such a combined document.

| | |
|---|---|
| 55701Date of Approval<br>9/3/14 | FRA Administrator |
| Date of Approval<br>9/5/2014 | for Michigan DOT |
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| Date of Approval | for Illinois DOT |

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This Tier 1 Environmental Impact Statement (EIS) evaluates intercity passenger rail service improvements in the 300-mile Chicago, Illinois to Detroit/Pontiac, Michigan corridor through Cook county in Illinois; Lake, Porter and LaPorte counties in Indiana; and Berrien, Van Buren, Cass, Kalamazoo, Calhoun, Jackson, Washtenaw, Wayne and Oakland counties in Michigan. Both a No Build and Build Alternatives for passenger rail improvements are evaluated. The No Build Alternative includes independently planned improvements for passenger rail service between Kalamazoo and Dearborn, Michigan as part of the current Amtrak Wolverine service. The Build Alternatives consist of improvements to tracks currently owned and operated predominantly by Michigan DOT, Amtrak, Canadian National, Norfolk Southern, CSX Transportation, Northern Indiana Commuter Transportation District, Indiana Harbor Belt, and Conrail. The Build Alternatives would create a competitive transportation alternative between Chicago and Detroit/Pontiac by reducing passenger rail travel times, improving service reliability, increasing frequency of trips, providing an efficient transportation option, improving passenger ride quality and comfort, and providing environmental benefits, including reduction of air pollutant emissions.

Comments on this Draft EIS should be received by December 19, 2014, and should be sent to Mr. Mohammed Alghurabi at the above address. The Draft EIS can be accessed by visiting www.GreatLakesRail.org.

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# ES EXECUTIVE SUMMARY

The Departments of Transportation for Michigan, Indiana and Illinois (the Program Sponsors), in association with the Federal Railroad Administration (FRA) have initiated the Chicago-Detroit/Pontiac Passenger Rail Corridor Program (Program) to evaluate intercity passenger rail for a corridor between Chicago and Detroit/Pontiac, Michigan (the Corridor). The Corridor extends eastward approximately 300 miles from Union Station in downtown Chicago to a station terminal in Pontiac, Michigan.

Through the Program, the Program Sponsors are evaluating potential rail service along the Corridor. This is the current alignment for the Wolverine service provided by Amtrak and includes its existing stations. A number of alternatives are under consideration as described in Section ES.5. The area between Chicago Union Station and Michigan City, Indiana has a large, complex, array of rail lines and therefore there are a large number of route options within that corridor section. Between Michigan City, Indiana and Pontiac, Michigan the route follows the existing Amtrak route.

## ES.1 Background Information and Prior Planning Activities

The Program Sponsors are developing the Program to be consistent with the Midwest Regional Rail Initiative (MWRRI), a cooperative, multi-agency effort that began in 1996 and originally involved nine Midwest states (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin), as well as FRA and Amtrak.

The MWRRI elements include: use of 3,000 miles of existing rail right of way to connect rural and urban areas; operation of a Chicago hub and spoke passenger rail system; introduction of modern, high-speed trains operating at speeds up to 110 miles per hour (mph); and multi-modal connections to improve system access. The MWRRI envisions developing a passenger rail system that offers business and leisure travelers shorter travel times, additional train frequencies, improved reliability and connections between urban centers and smaller communities. This Tier 1 EIS evaluates alternatives for the Corridor considering the MWRRI objective ‘‘to meet current and future regional travel needs through significant improvements to the level and quality of passenger rail service.’’[1]

## ES.2 Purpose and Need

The partnering states developed the following purpose and need statement in coordination with FRA after considering input from cooperating agencies, the public, and stakeholders.

The purpose of the Program is to enhance intercity mobility along the Corridor from Chicago to Detroit/Pontiac, Michigan by providing an improved passenger rail service that would be a competitive transportation alternative to automobile, bus and air service.

[1] MWRRI Executive Report, September 2004

The need for the Program arises from the inadequacies of existing passenger rail service and other modes of transportation to meet current and future mobility needs within the corridor including:

- Limited ability to accommodate current or anticipated travel demand in the Corridor results in the deterioration of transportation service quality as a result of congestion, longer trip times and decline of service reliability
- Limited intercity travel options restrict both the mobility of the resident populations and localities' potential for economic development
- Inadequate capacity in the Corridor provides uncompetitive trip times, poor reliability, and low levels of passenger comfort and convenience for travelers
- Increase the attractiveness of passenger rail travel within the Corridor to capture potential passenger rail travelers who may be currently choosing other modes of transportation.

## ES.3 Area of Analysis

The Corridor extends eastward approximately 300 miles from Union Station in downtown Chicago to a station terminal in Pontiac, Michigan. The Area of Analysis includes portions of Cook County in Illinois; Lake, Porter and La Porte counties in Indiana; and Berrien, Van Buren, Cass, Kalamazoo, Calhoun, Jackson, Washtenaw, Wayne and Oakland counties in Michigan, see Figure ES- 1.

**Figure ES- 1: Area of Analysis**


The Program is to evaluate potential rail service on the route shown in Figure ES- 1. This is the current alignment for the Wolverine service provided by Amtrak and includes its existing stations. Section ES.5 briefly describes the alternatives considered.

The Area of Analysis is generally a 500-foot wide corridor centered on the existing track. Because of this, it contains much more land than will be required for implementation of the Program. This allows for future flexibility in design and allows designers every opportunity to avoid potential direct impacts by moving into adjacent areas without having to reassess the existing conditions and potential impacts.

## ES.4 Decisions to Be Made

The National Environmental Policy Act (NEPA) process provides public decision-making officials and the public with an understanding of the environmental consequences of proposed actions and describes actions that can be taken to protect, restore, and enhance the environment. The NEPA implementing regulations may be found at 40 CFR Part 1500.

FRA's guidance on the tiered NEPA approach (FRA, August 14, 2009) allows for a tiered NEPA process to satisfy environmental review requirements. The guidance allows for a "Tier 1 EIS" to be prepared that evaluates alternatives and their associated impacts on a broad-scale with focus on more qualitative than quantitative impacts. A "Tier 1" EIS analyzes the potential impacts along a more general corridor but does not identify the exact location of where Program-related actions (such as construction) would occur.

Following completion of the Tier 1 EIS, the area studied will be broken into subareas and Tier 2 environmental analyses will be conducted that identify the exact locations of where Program-related actions will take place. These Tier 2 documents will proceed as Program elements are designed and ready for phased implementation. Each Tier 2 action will support the purpose and need of the Program, see Section ES.2.

## ES.5 Description of Alternatives Considered

### ES.5.1 Summary of the Passenger Rail Service Alternative

The Program Sponsors evaluated a range of service level speeds within the corridor. A speed of 110 mph was selected based on estimated costs of implementing the service, the need to provide competitive travel times, and to be consistent with existing 110 mph capabilities and service provided in some sections of the corridor.

To meet the Program's purpose of providing frequent, reliable, and competitive service by the year 2035, additional frequencies must be added to the existing service from Chicago to Detroit and on to Pontiac, Michigan. To identify the appropriate level of service needed to meet the purpose and need and accommodate the anticipated future growth within the corridor, ridership forecasts were developed for three service scenarios to analyze the projected ridership and capacity of each service scenario. The three service scenarios that were considered include three, six, or ten Daily Round Trips (DRTs) at speeds up to 110 mph.

Ridership analysis supports the implementation of ten daily round trips (DRTs) between Chicago and Detroit with seven DRTs continuing to Pontiac, Michigan at speeds up to 110 mph as the most reasonable alternative to achieve the Program's purpose and need. As such, Scenario 3, as described in greater detail in the Draft EIS, was carried forward as the Full Build-out Service Alternative for full implementation in 2035 to be analyzed in this Tier 1 EIS.

The ridership analysis also indicates that six DRTs between Chicago and Pontiac, Michigan can support projected ridership in 2025. It is anticipated that any Build improvements would be incrementally funded and that construction and operations would be implemented in a phased manner. Implementing the Program in phases is not only supported by the ridership forecasts, but is also based on numerous factors including preliminary cost estimates, anticipated available funding for implementation, and the Program Sponsor's past experience on other passenger rail projects. Therefore, a phasing strategy would be implemented as described in Table ES-1. The Program Sponsors would construct the infrastructure needed to accommodate six DRTs between Chicago and Pontiac, Michigan at varying speeds by the year 2025 and then construct the remaining infrastructure to complete full build-out of the Program by the year 2035 to support ten DRTs between Chicago and Detroit and seven DRTs between Detroit and Pontiac, Michigan at speeds up to 110 mph.

**Table ES-1: Proposed Phasing – Daily Round Trips**

| Existing Amtrak Service | | Service in 2025 | | Service in 2035 | |
|---|---|---|---|---|---|
| Chicago-Detroit | Detroit-Pontiac | Chicago-Detroit | Detroit-Pontiac | Chicago-Detroit | Detroit-Pontiac |
| 3 | 3 | 6 | 6 | 10 | 7 |

### *ES.5.1.1 Travel Time*

Currently, the passenger rail travel time between Chicago and Detroit is 5 hours and 38 minutes, with approximately one additional hour of travel time from Detroit to Pontiac, Michigan. A preliminary full build-out schedule (Appendix C) was developed based on work that had been previously done in the MWRRS Plan and updated for the Program based on the selected Service Alternative. By increasing the train speeds, travel time by rail is anticipated to be reduced by nearly two hours between Chicago and Detroit. The preliminary schedule indicates that express travel time between Chicago and Detroit would be 3 hours and 46 minutes. Travel time between Detroit and Pontiac, Michigan would be as low as 40 minutes.

### *ES.5.1.2 Equipment*

In order to meet the Program's service goal to increase frequency, reliability, and decrease travel times in the Chicago-Detroit/Pontiac Corridor, new equipment will be required. Equipment will be consistent with the specifications developed by the Next Generation Corridor Equipment Committee (NGEC), created by Section 305 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) to establish a fleet of standardized rail corridor equipment. The equipment will be capable of operating at speeds as high as 125 mph. The passenger cars will come in three configurations to match the full needs and functionality of existing and proposed services and expectations of users: coach car, café / lounge car (known also as café / business class car), and coach / cab-car. Amenities include food and beverage service, open seating and airline-type business class seating, large flexible compartments, power outlets for computers, wireless internet access, and audio-visual monitors at seats for news, entertainment, and informational programs.

#### *ES.5.1.3 Amenities*

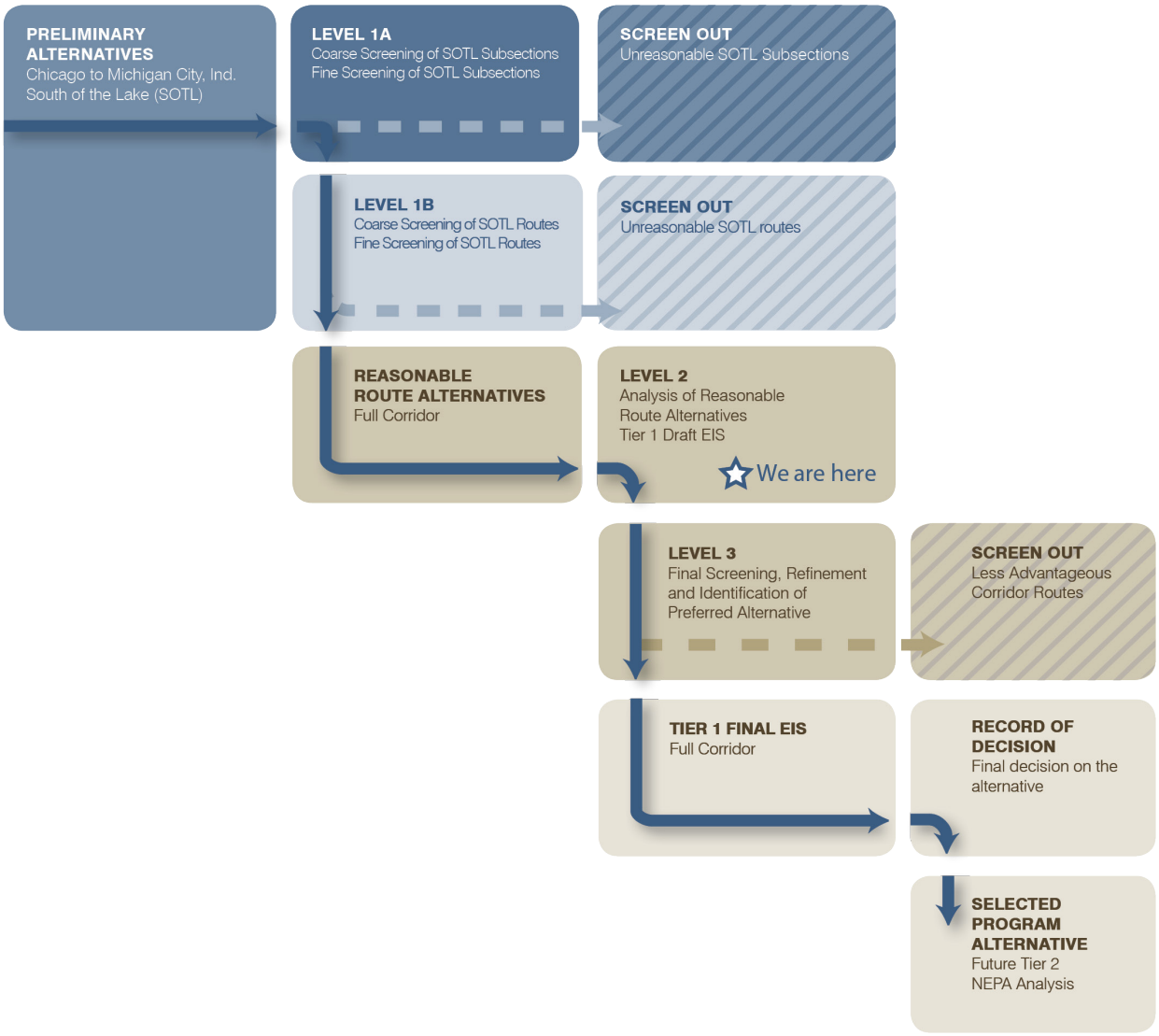
Amenities on future trains are also being evaluated by the Program Sponsors. Such amenities could include food and beverage service, open seating and airline-type business class seating, large flexible compartments, power outlets for computers, wireless internet access, and audio-visual monitors at seats for news, entertainment, and informational programs.

### ES.5.2 Summary of Route Alternatives

#### *ES.5.2.1 Route Alternative Screening*

Due to the complexity of engineering and environmental issues that exist within the Corridor (primarily in the South of the Lake (SOTL) area), three levels of screening were used. Figure ES- 2 illustrates the screening and evaluation process.

**Figure ES- 2: Alternatives Screening and Evaluation Process**




Level 1 screening focused on the complex SOTL area and was used to develop a list of Reasonable Route Alternatives. These were carried forward and analyzed under the Level 2 Screening that was more detailed and covered the entire Corridor from Chicago Union Station to Pontiac, Michigan. This Level 2 Screening is the analysis of alternatives in the Tier 1 Draft EIS. The Level 3 Screening will be used to narrow the alternatives studied in the Tier 1 Draft EIS resulting in the Preferred Alternative which is the alternative disclosed in the Tier 1 Final EIS. Finally, the FRA will make a decision on the Selected Program Alternative in the Record of Decision (ROD). This alternative will be carried forward to the Tier 2 NEPA analyses.

### *ES.5.2.2 Level 1A Coarse and Fine Screenings*

The Level 1 screening process consisted of developing and applying screening criteria to find the best combination of tracks in the existing, complex rail network. There were two iterations, Level 1A and

Level 1B, that considered the opportunities and constraints. Alternatives that did not meet the purpose and need of the project were eliminated. Other reasons for eliminating certain routes were because they had major engineering or operations challenges, or the anticipated effect on the environment was too great and these challenges and impacts could be avoided by choosing a comparable alternate route.

Screening criteria employed at the Level 1A Coarse Subsection Screening included physical constraints, operational conflicts, termini, orphan subsections, and environmental impacts.

Of 68 subsections a total of 51 passed on to the next level. The 17 failing subsections were determined to be unreasonable based on the screening criteria and therefore eliminated from further analysis.

Screening criteria employed at the next level of screening, the Level 1A Fine Subsection Screening, included whether subsections met the need to connect to Chicago Union Station and whether they minimized conflicts between passenger and freight trains. Physical characteristics such as right of way width, number of tracks, number of at-grade crossings and other items were criteria used. Other criteria such as operational feasibility and environmental constraints were also included as screening criteria at this stage.

Of the 51 subsections screened at this level, a total of 38 were carried forward to the next step. Thirteen subsections were determined to be unreasonable based on the criteria and were therefore eliminated from further analysis.

**Figure ES- 3: Results of Level 1A Coarse and Fine Subsection Screening**

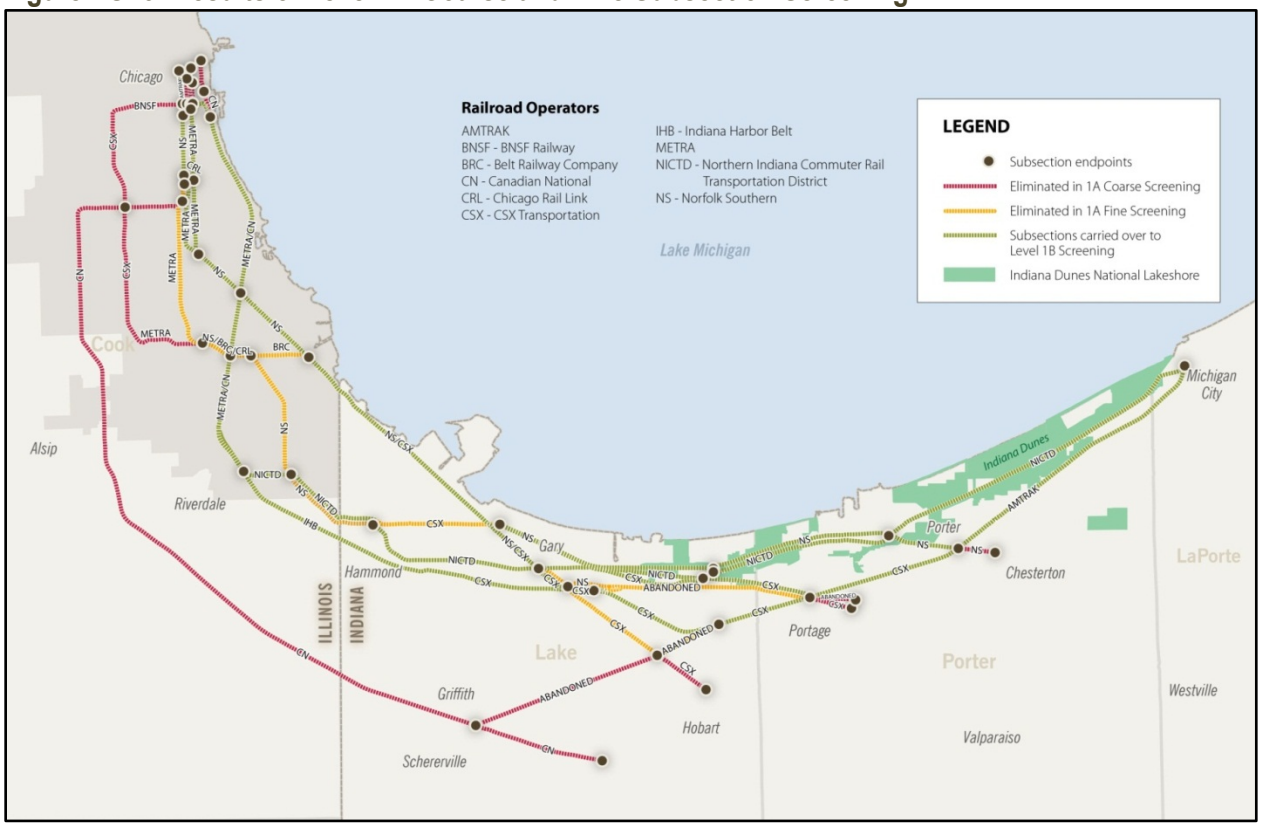



Figure ES- 3 illustrates the results of the Level 1A Coarse and Fine Subsection Screenings and indicates the rail lines to be analyzed in the next level of screening.

### *ES.5.2.3 Level 1B Coarse and Fine Screenings*

The alternative screening process continued on to the Level 1B coarse and fine screenings. Level 1 B applied a finer level of screening in greater quantitative and qualitative detail than the Level 1A screening. The purpose of this level of screening was to identify the "Reasonable Route Alternatives" that are further analyzed in the Tier 1 Draft EIS.

The Level 1B coarse screening analyzed the Preliminary Route Alternatives and examined new connections that do not currently exist and other locations that resulted from combining subsections into routes. The Level 1B Coarse Route Screening evaluated the Preliminary Route Alternatives at specific locations based on the criteria of purpose and need, physical characteristics, operational feasibility, and environmental constraints. Of the 85 Preliminary Route Alternatives, 75 were dismissed from further consideration. Ten of the Preliminary Route Alternatives were selected as reasonable routes to be carried forward to the Level 1B Fine Route Screening.

Of the ten Preliminary Route Alternatives considered in the Level 1B Fine Screening, four were eliminated from further consideration while the remaining six were carried forward for analysis in the

DEIS and explained in ES.5.2.4. The Preliminary Route Alternatives eliminated from further consideration included the following:

**Route 1 –** This route follows the current Amtrak route from Chicago Union Station to Burns Harbor, Indiana where it connects to the Northern Indiana Commuter Transportation District (NICTD) right of way and travels north to Michigan City, Indiana. Route 1 did not meet the Program's purpose and need because the implementation of dedicated double track passenger service would increase conflicts with existing freight and commuter service, and restrict speeds to less than 110 mph for a substantial distance in the SOTL. The speed restrictions decrease the ability to provide a trip time savings that would be competitive with other modes of travel. Additionally, Route 1 is very similar to Route 2 but has substantially greater potential for impacts to the natural environment in comparison to Route 2 and those other Preliminary Route Alternatives that were retained for further analysis in this Tier 1 EIS. Implementation of this route would require acquisition of right of way through a large portion of the Indiana Dunes National Lakeshore. Therefore, Route 1 was dismissed from further consideration.

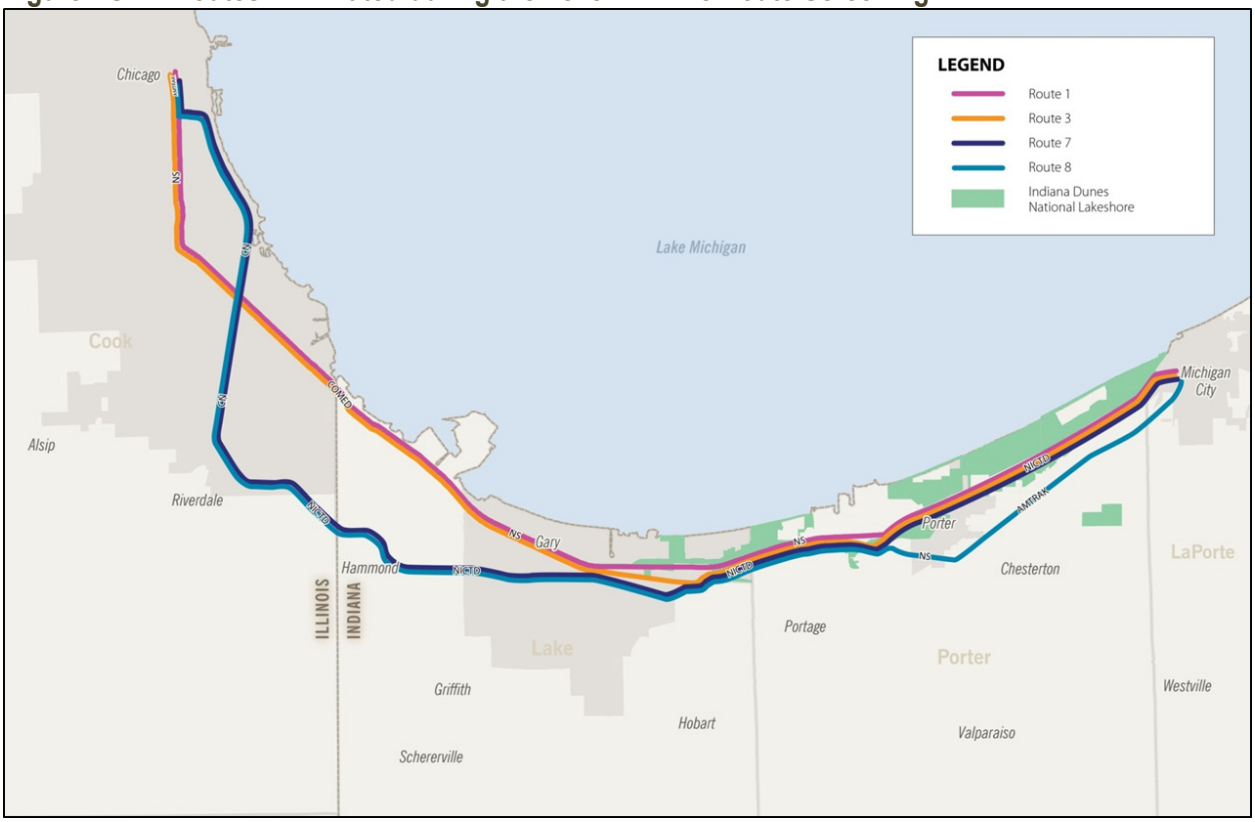
**Route 3 –** This route follows the current Amtrak route between Chicago Union Station and Gary, Indiana. In Gary, Indiana the route transitions from NS Chicago Line right of way to CSX Barr Subdivision right of way and then connects to NICTD right of way and travels through Burns Harbor, Indiana and on to Michigan City, Indiana. Route 3 did not meet the purpose and need for the Program because the implementation of dedicated double track passenger service would increase conflicts with existing freight and commuter service restricting speeds to less than 110 mph for a substantial distance in the SOTL. The speed restrictions decrease the ability to provide a trip time savings that would be competitive with other modes of travel. Additionally, Route 3 is very similar to Route 4 but has substantially greater potential for impacts to the natural environment in comparison to Route 4 and those other Preliminary Route Alternatives that were retained for further analysis in this Tier 1 EIS. Implementation of this route would require acquisition of right of way through a large portion of the Indiana Dunes National Lakeshore. Therefore, Route 3 was dismissed from further consideration.

**Route 7** – This route generally follows the current alignment of the NICTD commuter rail service, with connectivity to Chicago Union Station provided by the St. Charles Air Line bridge across the South Branch of the Chicago River in Chicago. The route leaves Chicago Union Station on Amtrak owned right of way and then connects to Canadian National (CN) owned right of way and travels parallel to the NICTD route. In southern Chicago the route connects to NICTD right of way and travels to Michigan City, Indiana. Route 7 did not meet the purpose and need because adding intercity passenger service along this route would increase conflicts with existing freight and commuter service and restrict speeds to less than 110 mph for a substantial distance in the SOTL. Unconstrained travel time estimates also indicate that the travel time between Chicago and Michigan City, Indiana would be unacceptable and perform significantly worse than other Preliminary Route Alternatives when modeled with existing train traffic. The poor unconstrained travel time and speed restrictions indicate that the ability to provide a trip time savings that would be competitive with other modes of travel would be unlikely. Additionally, this route has a substantially greater potential for impacts to the natural environment compared to those Preliminary Route Alternatives that were retained for further analysis in this Tier 1 EIS. Implementation of this route

would require acquisition of right of way through a large portion of the Indiana Dunes National Lakeshore. Therefore, Route 7 was dismissed from further consideration.

**Route 8** – This route generally follows the same route as Route 7, however in Burns Harbor, Indiana the route transitions from NICTD right of way to NS Chicago Line right of way and the current Amtrak route. At Porter, Indiana the route continues on Amtrak trackage to Michigan City, Indiana. Route 8 did not meet the purpose and need because adding intercity passenger service along this route would increase conflicts with existing freight and commuter service and restrict speeds to less than 110 mph for a substantial distance in the SOTL. Unconstrained travel time estimates also indicate that the travel time between Chicago and Michigan City, Indiana would be unacceptable and perform significantly worse than other Preliminary Route Alternatives when modeled with existing train traffic. The poor unconstrained travel time and speed restrictions indicate that the ability to provide a trip time savings that would be competitive with other modes of travel would be unlikely. Additionally, this route has a substantially greater potential for impacts to the natural environment compared to those Preliminary Route Alternatives that were retained for further analysis in this Tier 1 EIS. Implementation of this route would require acquisition of right of way through a large portion of the Indiana Dunes National Lakeshore. Therefore, Route 8 was dismissed from further consideration.

**Figure ES- 4: Routes Eliminated during the Level 1B Fine Route Screening**



### *ES.5.2.4 Summary of the Build Alternatives*

As explained in Section ES.5.2.3, six Preliminary Route Alternatives were carried forward to be analyzed in detail in the Tier 1 EIS. Some of the routes have been combined due to their similarity, resulting in four Build Alternatives. They include Route 2, Route 4, Route 5 (Option 1 and Option 2) and Route 9 (Option 1 and Option 2). Among these four Build Alternatives, the only differences between the route alternatives are within the SOTL area between Chicago and Michigan City, Indiana. Between Porter, Indiana and Pontiac, Michigan all four alignments are in common and congruent with the existing Amtrak alignment. Between Porter, Indiana and Kalamazoo, Michigan, the route runs on Amtrak owned trackage that can already accommodate passenger trains operating at speeds up to 110 mph. Between Kalamazoo and Dearborn, Michigan, the trackage is owned by the State of Michigan. Between Dearborn and Detroit, the route utilizes two main tracks on the CSAO Michigan Line and the North Yard Branch and transitions to the CN Shoreline Subdivision to Milwaukee Junction in Detroit. At Milwaukee Junction, the route heads north to Pontiac, Michigan on two CN Holly Subdivision main tracks.

The routes within the SOTL are explained below:

**Route 2 –** This route follows the current Amtrak route between Chicago Union Station and Michigan City, Indiana.

**Route 4** – This route follows the current Amtrak route between Chicago Union Station and Gary, Indiana. In Gary, Indiana the route transitions from NS Chicago Line right of way to CSX Barr Subdivision right of way and then connects to NICTD right of way. In Burns Harbor, Indiana the route transitions from NICTD right of way to NS Chicago Line right of way and the current Amtrak route. At Porter, Indiana the route continues on Amtrak owned trackage to Michigan City, Indiana.

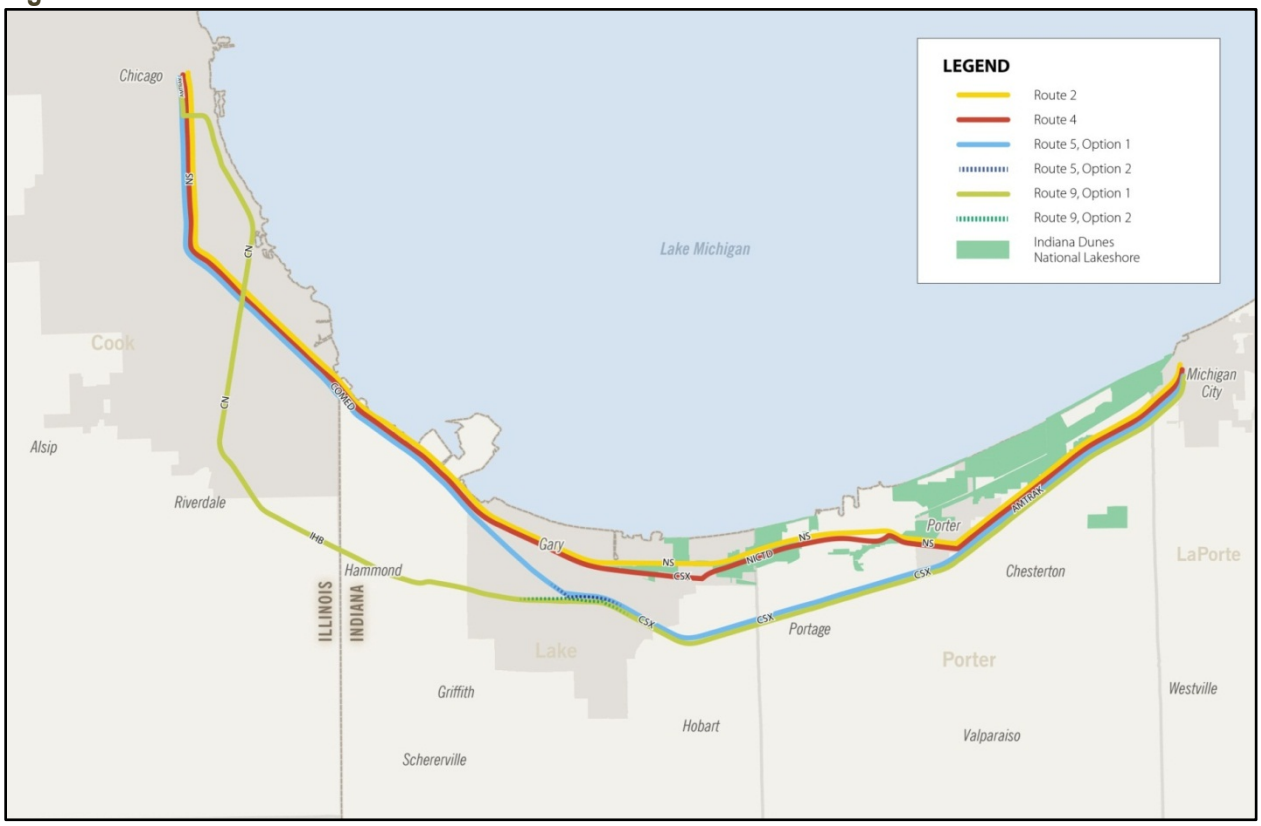
**Route 5 Option 1** – This route follows the current Amtrak route between Chicago Union Station and Gary, Indiana. In Gary, Indiana the route transitions from NS Chicago Line right of way to the NS Sugar Track. From the NS Sugar Track, the route continues east via the abandoned Indiana Harbor Belt Railroad's (IHB) Dune Branch before connecting to the CSX Porter Subdivision right of way. The route continues on the CSX Porter Subdivision right of way to Porter, Indiana where the route connects to Amtrak owned trackage to Michigan City, Indiana.

**Route 5 Option 2** – This route generally follows the same route as Route 5; however, in Gary, Indiana the route makes a direct connection to the CSX Porter Subdivision right of way and does not utilize the abandoned IHB Dune Branch.

**Route 9 Option 1** – This route leaves Chicago Union Station on Amtrak owned right of way and then connects to CN owned right of way via the St. Charles Air Line. The route continues on CN right of way until it connects to IHB right of way on the south side of Chicago. The route continues on IHB right of way to Gary, Indiana where it connects to the abandoned IHB Dune Branch and then to CSX Porter Subdivision right of way. Once on CSX Porter Subdivision right of way, the route continues to Porter, Indiana where the route connects to Amtrak owned trackage to Michigan City, Indiana.

**Route 9 Option 2** – This route generally follows the same route as Route 9; however, in Gary, Indiana the route makes a direct connection to CSX Porter Subdivision right of way and does not utilize the abandoned IHB Dune Branch.

**Figure ES- 5: Selected Reasonable Route Alternatives**




## ES.5.3 Summary of Station and Maintenance Facility Opportunities

### *ES.5.3.1 Station Opportunities*

The proposed service will utilize 16 stations along the Chicago-Detroit/Pontiac Corridor, of which 15 stations currently exist. One new station location is envisioned to be located in northwest Indiana.

A number of improvements would be needed at the various stations as shown in Table ES-2 and may also include access and circulation improvements. Construction of these improvements is subject to additional needs analysis and available funding. Final site selection for the new station and detailed impact analysis will occur in future Tier 2 NEPA analyses.

Future planning work to be recorded in both the Tier 1 Final EIS and Service Development Plan will provide additional detail on stations and station access including refined cost estimates. Anticipated completion of the Service Development Plan will take place after publication of the Record of Decision on the Tier 1 EIS. A description of the components of a Service Development Plan and how it relates to the Tier 1 EIS process is included in Section ES.10.3.

**Table ES-2: Proposed Station Improvements Needed for Full Build-out**

| Station Stop | Proposed Improvement |
|---|---|
| **Illinois** | |
| Chicago Union Station | • Improvements to be identified under the Chicago Union Station Master Plan and funded under a separate project. |
| **Indiana** | |
| Suburban station in northwest Indiana | • New station building<br>• Two standard platforms<br>• Overhead access between platforms<br>• Parking facilities |
| Michigan City | • Second standard platform<br>• Overhead access between platforms |
| **Michigan** | |
| New Buffalo | • New station building<br>• One standard platform<br>• Overhead access between platforms |
| Niles | • Overhead access between existing platforms |
| Dowagiac | • Overhead access between existing platforms |
| Kalamazoo | • Overhead access between existing platforms<br>• Replacement of one existing platform with a moveable platform<br>• Expanded parking facilities |
| Battle Creek | • Replacement of existing platforms with one standard platform and one moveable platform<br>• Overhead access between two new platforms |
| Albion | • Replacement of existing platforms with one standard platform and one moveable platform<br>• Overhead access between two new platforms |
| Jackson | • Rehabilitation of existing station building<br>• Replacement of one existing standard platform with a moveable platform<br>• Overhead access between platforms<br>• Expanded parking facilities |
| Ann Arbor | • New station building<br>• One standard platform and one moveable platform<br>• Overhead access between platforms<br>• Parking facilities |
| Dearborn | • New parking structure |

| Station Stop | Proposed Improvement |
|---|---|
| Detroit New Center | • New station building<br>• Two standard platforms<br>• Overhead access between platforms<br>• Parking structure<br>• Layover tracks |
| Royal Oak | • New station building<br>• Extension of existing platform<br>• One new standard platform<br>• Overhead access between platforms<br>• Expanded parking facilities |
| Troy/Birmingham | • One standard platform<br>• Expanded parking facilities |
| Pontiac | • One standard platform<br>• Overhead access between platforms<br>• Expanded parking facilities |

#### *ES.5.3.2 Maintenance Facility Opportunities*

A maintenance facility is used to service train equipment and handle heavy maintenance items. The Program Sponsors have identified a need for an additional maintenance facility at the east-end of the corridor because the facility must be located where – according to the schedule – equipment naturally needs to lie overnight. The service development planning work to be completed after the Tier 1 Final EIS is published will suggest a site or sites for this maintenance facility. A detailed impact analysis will occur in future Tier 2 NEPA analyses for the identified location. Layover tracks that include turnaround facilities will also need to be constructed at or near the Detroit New Center Station to store trains that do not travel on to Pontiac, Michigan.

### ES.5.4 Summary of Alternatives Evaluated in the Tier 1 EIS

#### *ES.5.4.1 No Build Alternative*

Under the No Build Alternative, the actions required to implement higher-speed passenger rail service in the Corridor would not take place. The No Build Alternative consists of the existing physical rail systems (tracks, bridges, signals, stations, maintenance, and layover facilities) as well as the existing passenger rail service between Chicago and Detroit/Pontiac. It also includes committed improvements to the existing intercity passenger rail system and existing and programmed improvements to the intercity highway, passenger rail, and aviation services indicated in each State's transportation plan that serve or will serve the same pool of travelers.

The No Build Alternative was retained for detailed analysis to allow equal comparison to the Build Alternatives carried forward and to help decision makers and the public understand the consequences of not implementing a Build Alternative.

### ES.5.4.2 Build Alternatives

The purpose and need of the Chicago-Detroit/Pontiac Passenger Rail Corridor Program is to provide a dedicated passenger corridor that would accommodate two continuous main tracks between Chicago Union Station and Porter, Indiana. Beyond Porter, Indiana, existing infrastructure would be upgraded where necessary to accommodate higher-speed passenger rail service.

The Build Alternatives generally include construction of new main track, sidings, and connection tracks with upgrades to existing track, at-grade roadway crossings, and equipment to enable faster passenger train speeds and the desired passenger train service reliability as described in the Program's purpose and need statement in Chapter 1. Implementing higher-speed passenger rail service also requires the installation of wayside signaling systems[2] to enable Centralized Traffic Control (CTC)[3] as the method of operation throughout the route, and Positive Train Control (PTC)[4] where not already implemented.

The Program Sponsors would construct the infrastructure needed to accommodate the interim phase of six DRTs by the year 2025 and then construct the remaining infrastructure to complete full build-out of the Program by the year 2035.

### ES.5.4.3 Estimated Costs for the 2035 Build Alternatives

***Capital Costs for the 2035 Build Alternatives***

The capital costs for the proposed Program vary between Build Alternatives due to the variation between routes in the SOTL. Initial planning-level capital costs for each of the Build Alternatives are provided in Table ES-3. It is assumed that the capital costs applicable to the stations and track and signal infrastructure between Porter, Indiana and Detroit/Pontiac, Michigan are the same among all Build Alternatives. The capital cost estimates for each Build Alternative include the cost to construct infrastructure improvements along the route, including track and station improvements, as well as the cost to procure train equipment.

[2] A wayside signaling system is a system adjacent to the railroad tracks that helps provide for control of train movements with visual indications through lights, mast arms, or electronic signals.

[3] CTC is a method of train traffic control in which a dispatcher remotely controls signals and switches. Trains must observe the controlled signals (Bryan, May 1, 2006).

[4] PTC is defined by FRA as "communication-based/processor-based train control technology that provides a system capable of reliably and functionally preventing train-to-train collisions, overspeed derailments, incursions into established work zone limits, and the movement of a train through a main line switch in the improper position" (FRA, June 7, 2012).

**Table ES-3: Capital Costs ($2013)**

| | Route 2 | Route 4 | Route 5 Option1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|
| Total (Billions) | $2.45 | $2.65 | $2.37 | $2.40 | $2.98 | $2.94 |

***Operating and Maintenance Costs***

Annual operating and maintenance costs have been estimated for the first full year of service implementation, which is assumed to occur in 2035. Cost categories include maintenance of right of way, maintenance of equipment, operations – transportation, fuel, sales and marketing, stations, general and administrative, and police, security and environmental safety. Total estimated annual operating and maintenance expenses for the Corridor are $159,290,000.

***Revenues***

The demand analysis conducted for the Build Alternative service between Chicago and Detroit/Pontiac estimated a total annual ridership in 2035 of 2.83 million passengers. Based on this level of future ridership, the total projected annual revenue for the rail service at full build-out is $162,030,000 as compared to $40,010,000 for the No Build Alternative.

## ES.6 Affected Environment and Environmental Consequences

This section summarizes the potential impacts of the No Build Alternative and implementation of the Build Alternatives based on the analysis of the social, economic, and environmental resources documented in Chapter 3 of the Tier 1 EIS. The No Build Alternative does not meet the Program's purpose and need, but was retained for detailed analysis to allow equal comparison to the Build Alternatives. The potential impacts associated with each resource are listed in Table ES-4.

The potential impacts reported are based on Program implementation activities within the Area of Analysis along the Program Corridor. The Area of Analysis contains more lands than will be required to allow for future flexibility in design. This allows designers to avoid some potential impacts by moving into adjacent areas; but, it also results in an exaggeration of the reported potential impacts. For example, a large number of wetlands are present within the whole Area of Analysis, but most of them would not be disturbed because the majority of the Area of Analysis will not be subject to disturbance. Specific impacts and avoidance measures would be determined during Tier 2 NEPA analyses.

## Table ES-4: Summary of Effects

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Transportation** | | | | | | | |
| Corridor end-to-end | Trips would not be diverted from other modes of travel.<br>Congestion and its associated impacts would not be relieved.<br>Freight and Passenger rail traffic would not benefit from Program improvements.<br>Ridership on existing Amtrak service would grow at a slower rate. | For all Build Alternatives:<br>Development of the Program would provide an improved and competitive mode of travel.<br>Railroad crossings would be improved and construction could potentially result in temporary impacts including changes in travel patterns, auto traffic congestion, delay, detours, disrupted access to properties and neighborhood.<br>Impact to local traffic patterns at station locations as traffic volumes and parking demand increase at the station.<br>There may be delays to commercial shipping on navigable waterways during construction (south Branch of Chicago River and Trail Creek). | | | | | |
| Illinois | Same as above. | For Routes 2, 4, and both Route 5 Options:<br>Construction of new dedicated passenger track will benefit NS Chicago Line operations. | | | | For both Route 9 Options:<br>SCAL bridge will increase operating efficiency by decreasing congestion.<br>Construction of new dedicated passenger track will limit future freight growth. | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Indiana | Same as above. | New dedicated track will benefit NS Chicago Line operations.<br>New track within the NS Chicago Line right of way will limit future freight growth.<br>There may be delays to commercial shipping on the Indiana Harbor Canal during construction. | Same as Route 2, except new track will be constructed within the CSX Barr Subdivision and NICTD rights of way between Buffington Harbor and Burns Harbor, Indiana instead of the NS Chicago Line right of way.<br>New track will limit future freight growth on the CSX Barr Subdivision.<br>Passenger trains may suffer scheduling conflicts, requiring high level of coordination between passenger services and freight operations. | Same as Route 2, except new track will be constructed within the NS Sugar Track and CSX Porter Subdivision rights of way between Buffington Harbor and Porter, Indiana instead of the NS Chicago Line right of way.<br>New track will limit future freight growth on the NS Sugar Track and CSX Porter Subdivision.<br>A new flyover at Willow Creek benefits freight operations on the CSX Barr and Porter Subdivisions. | Same as Route 5 Option 1, except Option 2 wouldn't use the abandoned IHB Dune Branch. Rather, a direct connection to the active CSX Porter Subdivision would be made in Gary resulting in seven additional grade crossings. | New dedicated passenger track within the IHB Main Line and CSX Porter Subdivision rights of way will limit future freight growth.<br>New flyovers at Hammond Diamonds, Ivanhoe, and Willow Creek would provide benefits to crossing freight operations.<br>New dedicated passenger track will reduce passenger rail traffic on the NS Chicago Line, benefiting NS freight operations. | Same as Route 9 Option 1, except Option 2 wouldn't use the abandoned IHB Dune Branch. Rather, a direct connection to the active CSX Porter Subdivision would be made in Gary, resulting in 10 additional grade crossings. |
| Michigan | Same as above. | For all Build Alternatives in Michigan: There may be additional conflicts between passenger and freight rail service. | | | | | |
| **Land Use** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>Direct land use changes are expected only in areas where right of way is acquired. Land would be acquired in strips adjacent to existing railroad. Land use changes and development related to station areas may occur. | | | | | |
| Illinois | Same as above. | For all Build Alternatives: No substantial land use changes are expected. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Indiana | Same as above. | For Routes 2 and 4, change is expected in areas of right of way acquisition in National Lakeshore, from parkland to transportation. | | For Route 5, Options 1 and 2, new railroad facilities, but still in a railroad corridor. | | For Route 9, Options 1 and 2, no substantial changes in land use. | |
| Michigan | Same as above. | For all Build Alternatives: No substantial changes in land use. | | | | | |
| **Agriculture** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives and for all states: Minimal impacts to agriculture. | | | | | |
| **Socio-economic Resources** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. But, does not meet purpose and need. | For all Build Alternatives and all states:<br>Generates construction jobs, new employment opportunities, reduced air and noise pollution, and improved train speeds. Temporary impacts to businesses and community facilities due to vehicle impedance during construction at crossings. Potential displacement of residents and business within areas of right of way acquisitions. | | | | | |
| **Title VI and Environmental Justice** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. Long-term socio-economic benefits would not be realized for EJ populations | For All Build Alternatives and all states:<br>Potential displacement of residents and businesses within areas of right of way acquisitions. Temporary impacts by increased traffic in neighborhoods due to detours at crossings during construction. Noise and vibration during construction. Frequency of passenger rail operations will increase in low income and minority areas with addition of passenger rail service. MDOT will continue to work with low income and minority communities to mitigate impacts. Introduces incremental increases of noise (including potentially moderate impacts) and vibration (including potentially a significant increase in events) on existing tracks and where right of way is acquired. Further outreach would help to identify and verify Program impacts and whether they may disproportionately affect environmental justice populations.<br>During Tier 2 NEPA analysis, affected populations would be further identified in impacted areas and specific approaches will be implemented to provide access to services and for additional public involvement.<br>The Program is expected to provide economic and quality of life benefits through improved mobility and access to alternative modes in areas near station stops. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Public Health and Safety** | | | | | | | |
| Corridor end-to-end | No Program-related impacts.<br>No Program benefit of improvements to grade crossing safety. | For all Build Alternatives and all states:<br>Safety improvements will be made to at-grade crossings and signals.<br>Conflicts could increase due to increased train frequency. | | | | | |
| **Noise** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>Noise level changes range from no change in some areas to a 4-decibel increase along one nine-mile section of track in Gary, Indiana.<br>Sources of noise impacts would be from the train equipment and their movement along the track as well as horn noise at crossings.<br>Areas that the model identified with "moderate" or "severe" noise impacts or vibration impacts will be further evaluated during the Tier 2 NEPA analysis. | | | | | |
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options:<br>Moderate impacts between Chicago Union Station and the 21st Street Bridge and from South Branch of Chicago River to 43rd St. | | | | For both Route 9 Options:<br>Moderate impacts between Chicago Union Station to the 21st St. Bridge and from Clark St. to East Cermak Rd. | |
| Indiana | Same as above. | Moderate impacts between Buffington Harbor Drive and the Ind./Mich. Border | Moderate impacts between Buffington Harbor Dr. and Broadway St. and from East Dunes Hwy. to Ind./Mich. Border | For both Options of Routes 5 and 9:<br>Same as Route 4, plus severe impacts between Buffington Harbor Drive and West 9th Avenue in Gary. Moderate impacts to residential area between 9th Ave. and the junction of Routes 2 and 4. | | | |
| Michigan | Same as above. | Moderate noise impacts from Ind. /Mich. border to Kalamazoo, along a section from east of Albion to west of Dexter, and from the northwest side of Ann Arbor, to Detroit. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Vibration** | | | | | | | |
| Corridor end-to-end | No Program-related Impacts. | For all Build Alternatives:<br>Vibration levels would range from 70 to 91 VdB. The vibration levels would decrease into the 64 to 85 VdB range at 100 feet away from the track. Proposed passenger rail speeds would create a 1 to 2 VdB increase over the majority of the existing freight lines. Ground-borne noise levels will be in the same ranges. Significant increases in events would occur in Michigan from the Ind. /Mich. border to North 48th Street, west of Springfield, MI and from Main Street in Battle Creek to Central Street in Detroit. | | | | | |
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options: No significant increase in vibration events. | | | | For both Route 9 Options:<br>Significant increase in events from West 116th Street to the Ill. /Ind. border. | |
| Indiana | Same as above. | Significant increases in events between Buffington Harbor Dr. to Broadway St. in Gary and from Porter to Ind./Mich. border | Significant increases in events between Buffington Harbor Dr. to Broadway St. in Gary and from the East Dunes Hwy to Ind./Mich. border | For both Route 5 Options:<br>Significant increases in events from Buffington Harbor Dr. to the Ind. /Mich. border. | | For both Route 9 Options:<br>Significant increases in events from Ill. /Ind. border to the railroad junction southeast of the Gary/Chicago Airport where Route 9 merges with Route 5. Route 9 is the same as Route 5 from the junction east to the Ind. /Mich. border. | |
| **Air Quality** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. Increase in pollutant emissions over time due to potential increases in vehicle congestion. | For all Build Alternatives and for all states:<br>There will be a reduction in all types of emissions with the exception of NOx emissions, which would increase slightly due to additional diesel fuel burned by increased passenger train traffic. Additional regional analysis may be conducted as part of Tier 2 NEPA analysis or as part of the Regional Transportation Planning process. Construction-related emissions will be addressed during Tier 2 NEPA analysis. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Hazardous Waste and Waste Disposal** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives and for all states:<br>A number of hazardous materials have been located within the study corridor, such as would be associated with existing rail operations, or nearby facilities such as manufacturing or gas stations, etc.<br>Specific site limits, contamination boundaries and impacts would be performed as part of the Tier 2 NEPA analyses. Impacts would most likely occur only in areas of additional right of way acquisition or where any demolition of existing structures or buildings may be required to construct Program improvements. | | | | | |
| **Cultural Resources and Section 106** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives and for all states:<br>A number of recorded historic structures, archaeological sites and districts are located within the study corridors. Impacts to cultural resources would most likely occur only where new right of way and construction occur. This will be investigated further during Tier 2 studies to determine specific impacts to cultural resources. | | | | | |
| **Section 4(f) Resources** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | Most of the potentially affected Section 4(f) resources are adjacent to the tracks and could reasonably be expected to be impacted in places where additional right of way will be acquired for the Program. | Within the Area of Analysis of Route 4 there are 82 park and recreation areas, 14 wildlife refuges and 54 historic sites that may potentially be affected. | Within the Area of Analysis of Route 5 Option 1 and 2 there are 87 park and recreation areas, 16 wildlife refuges and 54 historic sites that may potentially be affected. | | Within the Area of Analysis of Route 9 Option 1 and 2 there are 89 park and recreation areas, 19 wildlife refuges and 65 historic sites that may potentially be affected. | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Illinois | Same as above. | There are 8 park and recreation areas, no wildlife and waterfowl refuges and 12 historic sites that may potentially be affected. | There are 8 park and recreation areas, no wildlife refuges, and 24 historic sites that may potentially be affected. | There are 9 park and recreation areas, no wildlife refuges, and 24 historic sites that may potentially be affected. | | There are 17 park and recreation areas, 4 wildlife refuges and 33 historic sites that may potentially be affected. | |
| Indiana | Same as above. | There are 12 park and recreation areas, 5 wildlife and waterfowl refuges and 5 historic sites that may potentially be affected. | There are 13 park and recreation areas, 5wildlife refuges and 5 historic sites that may potentially be affected.<br>Route 4 has the greatest impact on the Indiana Dunes National Lakeshore | For both Route 5 Options, there are 17 park and recreation areas, 7 wildlife refuges and 5 historic sites that may potentially be affected. | | For both Route 9 Options, there are 11 park and recreation areas, 6 wildlife refuges and 7 historic sites that may potentially be affected.<br>Option 9 is the only alternative that avoids the need to acquire lands from the Indiana Dunes National Lakeshore. | |
| Michigan | Same as above. | All alternatives are the same in Michigan where there are 81 park and recreation areas, 14 wildlife and waterfowl refuges and 54 historic properties that may potentially be affected. | | | | | |
| **Section 6(f) Properties** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>The analysis identified 7 LWCF funded parks in the Area of Analysis. | | | | | |
| Illinois | Same as above. | There are no Section 6(f) properties identified in Illinois within the Area of Analysis. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Indiana | Same as above. | This route cuts through five miles of Indiana Dunes National Lakeshore property. Additionally, it directly abuts about 3.5 miles of National Lakeshore lands.<br>Any right of way acquisition from the National Lakeshore would constitute a Section 6(f) impact and require the necessary approvals and mitigation. | This route cuts through about 3.75 miles of Indiana Dunes National Lakeshore property. Additionally, it abuts about another 3.75 miles.<br>Any right of way acquisition from the National Lakeshore would constitute a Section 6(f) impact and require the necessary approvals and mitigation. | For both Route 5 Options and both Route 9 Options:<br>The Indiana Dunes National Lakeshore lies just north of the Route 5 and 9 options for about two miles. The National Lakeshore property is within the 500-foot corridor, but not directly adjacent to the tracks. In addition, a buffer is created by US 20, a two lane US Highway that runs parallel to and between the tracks and the Indiana Dunes' property line. It is expected that no right of way acquisition from the National Lakeshore would be required.<br>The wooded southeast corner of Woodland Park in Porter County, Indiana touches the route tracks at the Willow Creek Road crossing. Any necessary crossing improvements at this location could possibly require acquisition of right of way. This would need to be further analyzed in final design. | | | |
| Michigan | Same as above. | For all Build Alternatives:<br>Parks funded with LWCF funds include River Oaks County Park, Fort Custer State Park, Parker Mill County Park, Frog Island Park and the Border to Border Trail/Gallup Park Pathway including Gallup Park, Parker Mill County Park, and Mitchell Field.<br>It is anticipated that the Program would not require acquisition of right of way in these locations, however if right of way would be required, additional coordination would be necessary to determine the impacts and mitigation measures. | | | | | |
| **Visual and Aesthetic Quality** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>In general, new tracks and train traffic will be adjacent to or within existing track corridors and would not create a noticeable visual change except in areas with new structures, such as flyovers or any new buildings associated with station areas and a maintenance facility. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options:<br>The proposed reconstruction of the bridge at the Calumet River may create various visual changes depending on design. | | | | For both Route 9 Options:<br>There will be some passenger train traffic where currently there is none.<br>There will be a new structure at Kensington Junction that would alter views. | |
| Indiana | Same as above. | For Routes 2 and 4:<br>Views to and from the train in this area will not change, with the addition of new track in some places and a minor increase in frequency of passenger train traffic.<br>A new suburban station will be constructed in northwest Indiana. It is expected that the building would be consistent with surrounding urban landscape.<br>The addition of flyover or bridge structures will create a visual change.<br>This route goes through the National Lakeshore property. | | For both Route 5 Options:<br>Impacts will be similar to Route 2. It does not go through the Indiana Dunes National Lakeshore property, but instead travels by 3 nature preserves. This route travels through more residential areas. | | For both Route 9 Options:<br>Impacts will be similar to Route 2, with the construction of new track and structures. | |
| Michigan | Same as above. | For all Build Alternatives: The majority of the work that could include visual changes is anticipated to be in the Dearborn to Pontiac section of the Corridor and possibly minor changes at the proposed station locations. It is expected that most of this work will be within the existing right of way and along current train routes, thus little to no visual changes would be seen along this section. The view from the train along the Corridor in Michigan will follow the existing route and therefore views from the train will be the same as they are currently.<br>The views of the railroad facilities will be similar to existing because most work is anticipated to be within the existing right of way. | | | | | |
| **Water Body Crossings and Floodplains** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>Waterways may be impacted by construction activities including placement of fill material for additional track and siding, culvert replacement or extensions, and bridge replacement or additions. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options:<br>Crossings include the South Branch of the Chicago River and the Calumet River.<br>There are 8.3 acres of 100-year floodplain within the Area of Analysis. | | | | For both Route 9 Options:<br>Crossings include South Branch of the Chicago River and the Little Calumet River.<br>There are 3.2 acres of lakes and ponds and 9.70 acres of floodplain within the Area of Analysis. | |
| Indiana | Same as above. | Crossings include Grand Calumet River, Indiana Harbor Canal, Portage Burns Waterway, East Fork of the Little Calumet River, and Trail Creek. There are a total of 15.16 acres of lakes and ponds and 99.9 acres of 100-year floodplains within Area of Analysis | Crossings include Grand Calumet River, Indiana Harbor Canal, Portage Burns Waterway, East Fork of the Little Calumet River, and Trail Creek. There are a total of 10.18 acres of lakes and ponds and 99.7 acres of 100-year floodplains within Area of Analysis | For both Route 5 Options: Crossings include Grand Calumet River, Indiana Harbor Canal, Portage-Burns Waterway, Salt Creek and Willow Creek, East Fork of the Little Calumet River, and Trail Creek. There are a total of 18.61 acres of lakes and ponds 167.7 acres of 100-year floodplains within Area of Analysis. | | Crossings include Portage Burns Waterway, Salt Creek, Willow Creek, East Fork of the Little Calumet River, and Trail Creek. There are a total of 7.99 acres of lakes and ponds and 146.2 acres of 100-year floodplains within the Area of Analysis. | Same as Route 9 Option 1 except there are a total of 8.95 acres of lakes and ponds within the Area of Analysis. |
| Michigan | Same as above. | For all Build Alternatives:<br>Proposed improvements are not anticipated to impact streams, rivers, or wetlands beyond the temporary impacts during construction. The proposed work is not anticipated to result in an impact to natural and beneficial floodplain values, specifically, flood attenuation and storage, water quality, groundwater recharge, biological productivity of fish and wildlife, and agricultural and forestry resources. The Program would not increase the risk of flooding and would not result in impacts to human safety, health, and welfare. | | | | | | |
| **Water Quality Resources** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>Impacts may be seen from soil erosion from stormwater runoff; fill material placed in water resources; and construction of bridges and culverts or culvert extensions at locations noted below for each state and alternative. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options:<br>South Branch of the Chicago River and the Calumet River | | | | For both Route 9 Options:<br>South Branch of the Chicago River and the Little Calumet River | |
| Indiana | Same as above. | For Routes 2 and 4:<br>Grand Calumet River, Indiana Harbor Canal, Portage Burns Waterway, East Fork of the Little Calumet River, and Trail Creek | | For both Route 5 Options:<br>Grand Calumet River, Indiana Harbor Canal, Portage Burns Waterway, East Fork of the Little Calumet River, and Trail Creek, Salt Creek and Willow Creek | | For both Route 9 Options:<br>Portage Burns Waterway, Salt Creek, Willow Creek, East Fork of the Little Calumet River, and Trail Creek | |
| Michigan | Same as above. | For all Build Alternatives:<br>Proposed improvements are anticipated to impact any streams, rivers, or wetlands that may be altered during construction. These effects are expected to be minimal. | | | | | |
| **Wetlands** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>Wetland impacts may occur during construction as a result of soil disturbance and potential pollutant loading of stormwater runoff from construction sites. Impacts may occur from any placement of fill material for additional track and siding, culvert replacement or extensions and bridge replacements in additions in wetland areas. This will most likely occur only where additional right of way is acquired. | | | | | |
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options:<br>There are 7.1 acres of two wetlands associated with the South Branch of the Chicago River and the Calumet River | | | | For both Route 9 Options:<br>There are a total of 62.4 acres of wetlands, mostly associated with the Little Calumet River and the Beaubien Woods Forest Preserve. | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Indiana | Same as above. | This alternative contains more wetlands than the other alternatives with 224 acres. There are extensive wetland areas in the Indiana Dunes National Lakeshore where additional right of way is expected to be required. | There are a total of 200 acres of wetlands. Route 4 also travels through the wetlands of Indiana Dunes National Lakeshore where additional right of way is anticipated to be required. | For both Route 5 Options:<br>There are a total of 164 acres of wetlands. However, it is not anticipated that right of way acquisition will occur in these areas. Areas where the Route would most likely impact wetlands is between Buffington Harbor and the Tolleston connection where there are a number of wetlands located in the Clark & Pine Nature Preserve, Clark Junction West Site, the Clark and Pine General Refractories Site, and the Pine Station Nature Preserve. | | For both Route 9 Options:<br>There are a total of 109 acres of wetlands. However it is not anticipated that right of way acquisition will occur in these areas.<br>Wetland impacts would be adjacent to the Gibson Woods Nature Preserve and within the Tolleston Ridge Nature Preserves and/or the Ivanhoe South natural area between Gibson Junction and Ivanhoe. | |
| Michigan | Same as above. | For all Build Alternatives:<br>No wetland impacts from Program improvements are expected in Michigan. | | | | | |
| **Coastal Zone Management Areas** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>Coastal zones could be impacted by construction activities including tree and brush clearing, placement of fill material for additional track and siding, culvert replacement or extensions, and bridge replacement or additions. Such impacts may be expected in locations where right of way will be needed to perform the work. Areas within Coastal Zones are described below by state and alternative. | | | | | |
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options:<br>There are 207 acres of coastal zone within the Area of Analysis. | | | | For both Route 9 Options:<br>There are 472 acres of coastal zone within the Area of Analysis | |
| Indiana | Same as above. | For all Build Alternatives:<br>The entire Area of Analysis in Indiana is within a Coastal Zone. | | | | | |
| Michigan | Same as above. | For all Build Alternatives:<br>In Michigan, the Corridor passes through the coastal zone management area along the Lake Michigan shoreline from the Indiana Border into New Buffalo, Michigan. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Natural Habitat and Wildlife** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives:<br>Construction activities, including tree and brush clearing, placement of fill material for additional track and sidings, stream relocations, culvert replacement or extensions, and bridge replacement or additions could have the potential to impact terrestrial and aquatic natural habitats of wildlife species present in the Area of Analysis.<br>Since proposed areas where additional right of way would be acquired abut existing right of way, impacts would be relatively minimal and linear, and would not further fragment remaining large parcels of natural habitat areas.<br>Species that are present along the rail corridor have historically been continually exposed to train traffic in varying degrees and changes would be marginal.<br>An increase in train frequency and speed may increase the potential for collisions with mobile animal species.<br>Impacts to habitat, such as waterways, wetlands, and woodlands may impact species. | | | | | |
| Illinois | Same as above. | For Routes 2, 4 and both Route 5 Options:<br>80 acres of the Area of Analysis is within Englewood Conservation Area including stream habitat, and 7 acres of wetland habitat. | | | | For both Route 9 Options:<br>Natural habitats include Burnham Prairie Nature Preserve, Beaubien Woods Forest Preserve, with a total of 59 acres within the Area of Analysis. Area includes stream habitat, 62 acres of wetland less than an acre of lakes and 3 acres of swamps/marshes within the Area of Analysis. | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| Indiana | Same as above. | 416 acres are within the Area of Analysis. 38 acres are within natural areas of the Indiana Dunes National Lakeshore where some right of way may be acquired The Clarke Junction West Site may also be impacted. | There are 327 acres with 47 acres within the National Lakeshore. The Clark and Pine Nature Preserve and Clarke Junction West Site may also be impacted. | For both Route 5 Options:<br>Does not travel through the National Lakeshore's natural areas. The Clark and Pine Nature Preserve, Clarke Junction West Site and Clarke and Pine General Refractories Addition Site for a total of 29 acres that may be impacted. | | 54 acres are within the Area of Analysis. None of the route travels through the high-quality natural areas of the National Lakeshore. The Tolleston Nature Preserve and the Brunswick Center Savanna Site cover 20 acres within the Area of Analysis. | Same as Route 9 Option 1, except Route 9 Option 2 has only 1 acre of the Brunswick Center Savanna Site within the Area of Analysis. |
| Michigan | Same as above. | For all Build Alternatives:<br>The Corridor passes through some ecologically sensitive areas in Michigan. Any improvements in these areas could potentially impact habitat during construction. Program improvements are expected to keep within the existing right of way in Michigan. | | | | | |
| **Threatened and Endangered Species** | | | | | | | |
| Corridor end-to-end | Impacts would not occur beyond those that could occur due to other projects and maintenance activities. | For all Build Alternatives:<br>The construction activities of the Build Alternatives including tree and brush clearing, placement of fill material for additional track and sidings, stream relocations, culvert replacement or extensions, and bridge replacement or additions—could have the potential to impact terrestrial and aquatic natural habitats of state and/or federally listed threatened or endangered species, if present in the Area of Analysis. There are potential effects on wildlife and federally-listed species that may be present in the Area of Analysis from the increase in noise and vibration. The presence of listed species would be determined during Tier 2 NEPA analysis. | | | | | |
| Illinois | Same as above. | Same as above. | | | | | |
| Indiana | Same as above. | Same as above. | | | | | |
| Michigan | Same as above. | For all Build Alternatives:<br>It is not anticipated that any federally listed animal species will be impacted by the Program improvements if avoidance strategies are implemented where species exist adjacent to the railway. The proposed work in Michigan is anticipated to stay within the existing right of way, where currently there is not suitable habitat for the species listed. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Energy Use and Climate Change** | | | | | | | |
| Corridor end-to-end | No Program-related impacts.<br>Passenger train service would not be as readily available, resulting in the continued reliance on automobiles, buses, and planes. | For all Build Alternatives and all states:<br>Energy use under each of the Build Alternatives would be essentially identical as there is only a two percent difference in length between the shortest route (Route 2 at 305 miles) and the longest route (Route 9 at 310 miles).<br>The Build Alternatives would provide a competitive transportation alternative compared to automobiles, planes, and buses.<br>Energy would be consumed during construction of the Build Alternatives, but reduced energy consumption for transportation would be realized over the long-term. Based on a preliminary passenger rail forecast and an analysis of energy efficiency by mode, the Build Alternatives would provide a net reduction in energy consumption through diverted trips from automobiles, buses, and planes to new passenger rail service.<br>In spite of increased fuel consumption in locomotives (approximately 12.7 million gallons/year), the Build Alternatives are expected to result in reduced fuel consumption of approximately 16.4 million gallons for an annual reduction in fuel use within the Corridor of approximately 3.7 million gallons. | | | | | |
| **Irreversible and Irretrievable Commitments of Resources** | | | | | | | |
| Corridor end-to-end | New commitments of resources would not occur beyond those that could occur related to other projects in the Corridor.<br>Energy resources would continue to be consumed by automobile travelers at a slightly higher rate than with the Build Alternatives. | For all Build Alternatives and for all states:<br>Construction of the Build Alternatives would result in the irreversible and irretrievable commitment of land where additional right of way is needed.<br>Construction materials would be largely irretrievable when used.<br>Several energy resources would be committed to the Program, including petroleum, natural gas, electrical, and manpower expenditures for construction, operation, and maintenance.<br>Federal and state financial resources would be irreversibly and irretrievably committed to the Program for planning and public review, development of Tier 2 documentation, design, construction, operation, and maintenance. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Short-term Use vs. Long-term Productivity of the Environment** | | | | | | | |
| Corridor end-to-end | No Program-related impacts.<br>Traffic congestion could increase, and energy resources may continue to be consumed by other modes of transportation between Chicago and Detroit/Pontiac, at a slightly higher rate than with the Build Alternatives. This, in turn, could result in increased pollutant emissions and decreased air quality. | For all Build Alternatives and all states:<br>There will be short-term construction impacts. Short-term employment and use of materials during construction would contribute to short-term increase in local economy.<br>Long-term effect is expected to be minimal, but could see a reduction in farmland, increases in noise and vibration impacts.<br>Implementation of the Build Alternatives would result in the short-term impacts and use of resources while increasing the long-term benefits and productivity of passenger rail transportation, land use, and economic systems. | | | | | |
| **Indirect and Cumulative Effects** | | | | | | | |
| Corridor end-to-end | No new direct, indirect impacts or cumulative effects beyond those that could occur due to other projects and maintenance.<br>There would not be the improved level and quality of passenger rail service between Chicago and Detroit/Pontiac.<br>A negative contribution to cumulative effects of continuing preference of personal automobiles on highways. | For all Build Alternatives and all states:<br>Direct impacts of noise, vibration, visual effects, and air emissions would potentially result in indirect impacts on wildlife and reduced use of nearby parks, recreation areas, and natural areas. Induced passenger rail ridership may indirectly impact the viability of air and bus service in the future. Traffic flow at modified grade crossings could change resulting in additional traffic routed through residential neighborhoods. Land use and economic development could result indirectly from the construction and use of the suburban station in northwest Indiana as well as other potential improvements to existing stations. Passenger rail infrastructure improvements including crossing and signal improvements, track upgrades and construction of a dedicated double track railroad in the SOTL may indirectly benefit existing freight service. | | | | | |

| Resource | No Build | Route 2 | Route 4 | Route 5 Option 1 | Route 5 Option 2 | Route 9 Option 1 | Route 9 Option 2 |
|---|---|---|---|---|---|---|---|
| **Construction Impacts** | | | | | | | |
| Corridor end-to-end | No Program-related impacts. | For all Build Alternatives and all states:<br>Heavy construction equipment may generate noise.<br>Short-term air emissions from on-site heavy equipment as well as fugitive dust and particle debris from demolition and excavation activities.<br>Waste material may be generated from any construction and demolition activities.<br>Construction debris and potential spills may occur that would have the potential to impact water quality from stormwater runoff from the construction site.<br>During construction, access to adjacent properties may be impacted on a temporary basis.<br>Construction activities for corridor improvements would affect rail traffic by reducing operating train speeds through the construction zones, adding to rail travel time and, in turn, cost. | | | | | |

## ES.7 Permits Required

Construction of the Build Alternatives would likely require the following federal, state, and local permits and approvals:

- Section 404 Permit – USACE (Waters of the U.S. impacts)
- Section 401 Water Quality Certification – Illinois EPA and DNR, Indiana IDEM, Michigan DEQ
- Section 9 Bridge Permit – USCG
- Section 7 Endangered Species Permit (if applicable) – USFWS
- Section 10 Rivers and Harbors Act Permit – USACE
- Floodplain encroachment permits for construction in floodplains – Illinois DNR/OWR, Indiana DNR/DOW, Michigan DEQ/USACE
- Section 402 NPDES Permit – Illinois EPA, Indiana DEM, Michigan DEQ
- Air Pollution Control Permits – Illinois EPA, Indiana DEM, Michigan DEQ

## ES.8 Summary of Potential Mitigation

Table ES-5 lists the potential mitigation measures that were identified to address impacts to resources that may result from implementation of the Program. Specific mitigation measures, to the extent required, will be identified and discussed in Tier 2 NEPA analyses after design details are known. They will be recorded in Tier 2 NEPA analysis documents and will be implemented prior to related construction activities.

**Table ES-5: Summary of Potential Mitigation Measures**

| Topic | Potential Mitigation Measures |
|---|---|
| Transportation | 1. Construct flyovers and other grade crossing improvements to improve safety for rail and roadway users and to improve freight and passenger operations.<br>2. Make signal upgrades and infrastructure improvements to decrease passenger and freight conflicts.<br>3. Prepare and implement a construction stage traffic control and safety plan.<br>4. Coordinate with freight and passenger rail operators.<br>5. Perform construction activities at off-peak times.<br>6. Obtain appropriate permits from USACE and USCG for construction in wetlands and waterways. |
| Land Use | 1. Review future design plans to determine whether direct and indirect changes in land use are compatible with locally adopted comprehensive plans and zoning policies.<br>2. Minimize the footprint of the selected Preferred Alternative's improvements to existing right of way, maintenance facility, and station areas.<br>3. When the acquisition of adjacent land cannot be avoided and/or the need for relocations proves to be unavoidable, follow the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended to ensure fairness in the acquisition and relocation process. |
| Agriculture | 1. Coordinate with NRCS to avoid or minimize adjacent farmland impacts and complete the Farmland Conversion Impact Rating process for each affected County.<br>2. Abide by the requirements of the Illinois Farmland Preservation Act (IFPA) in Illinois, the requirements of the Indiana Coastal Zone Management Plan in Indiana, and the requirements of the Michigan a Public Act 116 (PA 116) in Michigan.<br>3. Identify urban agricultural operations and community gardens and avoid or minimize direct impacts. |

| Topic | Potential Mitigation Measures |
|---|---|
| Socioeconomic Impacts | 1. Specific infrastructure features and locations will be further defined and delineated in Tier 2 NEPA analysis, and potential impacts on socioeconomic conditions will be identified along with strategies to avoid or mitigate these impacts.<br>2. Public involvement and agency coordination activities may result in identification of potential mitigation needs at a local level. Specific mitigation measures, to the extent required, will be identified and discussed during Tier 2 NEPA analysis after design details are known, recorded in NEPA documents as specific impacts are identified, and implemented.<br>3. When the acquisition of adjacent land cannot be avoided, the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Civil Rights Act of 1964 will be followed.<br>4. Grade-crossing upgrades will require working very closely with each community to ensure impacts are minimized when the work is being done.<br>5. Access to properties will be maintained to the extent possible. Working with the local communities and stakeholders, the duration of grade-crossing upgrades could be minimized using accelerated work force crews, and scheduled at non-peak time to minimize rail, motorized vehicle, pedestrian, and bicycle movement conflicts.<br>6. The following mitigation measures could be implemented to address temporary construction stage impacts:<br>• minimizing disruption of traffic in the construction area by coordinating with local agencies and the community<br>• placing signs in all of the construction areas notifying motorists and pedestrians<br>• require construction equipment to have mufflers in good working order and portable compressors that meet federal noise-level standards for equipment<br>• require that contractors will be responsible for applying adequate dust-control measures during construction |
| Title VI and Environmental Justice | 1. Specific mitigation measures, to the extent required, would be identified and discussed during Tier 2 NEPA analysis after design details of the selected Preferred Alternative are known and recorded in NEPA documents as specific impacts are identified, and implemented.<br>2. Further outreach to environmental justice populations will be completed during Tier 2 studies to identify specific needs of affected populations and to work with neighborhoods and individuals to avoid or minimize impacts or relocations.<br>3. When the acquisition of adjacent land cannot be avoided, the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Civil Rights Act of 1964 would be followed. |

| Topic | Potential Mitigation Measures |
|---|---|
| Public Health and Safety | 1. Install sophisticated traffic control/warning devices at crossings, meeting at a minimum FRA safety standards set forth under the Code of Federal Regulations (49 CFR 236).<br>2. During design, consider the construction of additional grade separations, road closures, and railroad crossing upgrades to further minimize the potential for collisions.<br>3. Consolidate public and private grade crossings where practical. Eliminate redundant and/or unsafe crossings.<br>4. For private crossings that serve industrial developments and cannot be closed, consider providing a locking device for when the crossing is not in use.<br>5. Maintain existing Centralized Traffic Control (CTC) and install Incremental Train Control System (ITCS) infrastructure throughout the Corridor.<br>6. Install active warning systems for pedestrians where rail lines cross existing sidewalks, trails, and bikeways. |
| Noise and Vibration | 1. Consistent with FRA criteria, develop and apply noise mitigation for areas exposed to a moderate or severe impact.<br>2. Apply vibration mitigation to minimize adverse effects that the ground-borne vibration may have on sensitive land uses.<br>3. As recommended in the FRA manual, measure existing rail operations throughout the Preferred Alternative route to refine existing vibration levels, which might also lead to a refinement in the projections and impact determination in the vibration assessment. |
| Air Quality | 1. General air quality conformity analysis modeling may be required during Tier 2 NEPA analysis to verify that the Program would not have an adverse impact on air quality. Investigate and consider mitigation to reduce $NO_X$ emissions. |
| Hazardous Waste | 1. Establish requirements for safety procedures and protection of human health and the environment to help ensure no further contamination of adjacent sites and to provide a safe working environment during construction.<br>2. Recycle or properly dispose of solid waste materials generated during construction in accordance with the provisions of each state's solid waste management statutes and regulations, and local regulations.<br>3. Handle, collect, and dispose of hazardous waste materials according to federal, state, and local regulations.<br>4. Take recyclable construction materials to recycling facilities that are in compliance with federal, state, and local regulations.<br>5. Dispose of construction debris that cannot be recycled in permitted landfills following proper disposal procedures and in compliance with federal, state, and local regulations.<br>6. Apply appropriate permanent best management practices (BMPs) to avoid or minimize impacts to water quality for potential hazardous material incident during refueling, maintenance operations, or from a spill during operation of the trains.<br>7. Handle, collect, and dispose of waste materials found in existing structures or buildings to be demolished according to federal, state, and local regulations, including any waste materials generated by maintenance and layover facilities. |

| Topic | Potential Mitigation Measures |
|---|---|
| Cultural Resources | 1. Consult with the SHPOs, THPOs and local agencies to identify any additional parties who meet the regulatory criteria of being consulting parties pursuant 36CFR800.2.<br>2. If necessary, develop mitigation measures in accordance with the terms of a programmatic agreement (PA) between FRA and consulting parties including the ACHP and SHPOs and/or THPOs<br>3. For all ground-disturbing construction activity, follow an inadvertent discoveries plan developed in consultation with the Illinois, Indiana, and Michigan SHPOs to ensure proper treatment of archaeological materials encountered during construction. |
| Section 4(f) | 1. Where the use of Section 4(f) property cannot be avoided, conduct all possible planning to minimize harm. Ways to minimize use of Section 4(f) properties include designing improvements in a way to avoid the acquisition of right of way from Section 4(f) properties. Minimization of harm could also include design that lessens the impact or agreeing on ways to compensate for impacts.<br>2. Identify specific mitigation measures in consultation with the officials with jurisdiction over the resources. Implement mitigation measures prior to construction. |
| Section 6(f) | 1. Coordinate with the Section 6(f) property agencies to verify if potentially impacted lands were improved using LWCF funding.<br>2. Avoid Section 6(f) lands to the extent practicable. For LWCF lands that cannot be avoided, provide replacement property that is of at least equal fair market value and of reasonably equivalent usefulness for recreation purposes as the land proposed to be taken. |
| Visual and Aesthetic Impacts | 1. Continue public involvement to identify residents' concerns about the potential views of the railroad facilities.<br>2. Consider potential measures such as appropriate re-vegetation of disturbed areas of the scenic resources, visual screening of railroad facilities from adjacent residential areas, and appropriate design of structures with aesthetic features and landscaping that would complement and blend with the context of the surrounding visual environment. |

| Topic | Potential Mitigation Measures |
|---|---|
| Water Body Crossings and Floodplain | 1. Determine where it is possible and practical to avoid or minimize impacts and identify specific mitigation measures, to the extent required. Mitigation measures could include actions such as mitigation banking, in-lieu fees, and on-site or off-site Section 404 permittee responsible mitigation.<br>2. During the design process, coordinate with the USACE and the appropriate state resource agencies to develop avoidance and mitigation strategies to be implemented prior to construction.<br>3. Assess impacts on the 100-year floodplains and regulatory floodways of the Preferred Alternative. Include avoidance and minimization measures for impacts on the natural and beneficial floodplain values, substantial changes in flooding risks or damage, and the potential for incompatible floodplain development.<br>4. Coordinate with the state emergency management agencies, the DNRs of each state, and local floodplain administrators to discuss floodplain development permitting and potential mitigation measures if floodplains cannot be avoided. Mitigation could include restoring natural and beneficial floodplain values by seeding with native vegetation, and proper design of bridges and culverts so as to not restrict flood flows.<br>5. Implement specific floodplain mitigation measures prior to construction. |
| Water Quality | 1. Address potential water quality impacts that may occur during construction activities. Measures typically include the development and implementation of Stormwater Pollution Prevention Plans (SWPPPs) and the use of temporary and permanent stormwater BMPs to avoid or minimize sediment pollution and water quality impacts through reductions in stormwater runoff from the site. BMPs that could be used during construction to control water pollution include the use of temporary measures such as berms, slope drains, sediment basins, straw bales, silt fences, seeding, and mulching. In addition, disturbance to stream banks and riparian zones could be minimized and limited to only that which is necessary to construct the Program improvements.<br>2. Avoid or minimize disturbance to stream banks and riparian zones.<br>3. Identify specific mitigation measures for the selected Preferred Alternative. The Tier 2 documents would further address mitigation measures and control of pollutants and sediments in regard to the National Pollutant Discharge Elimination System (NPDES) permitting, SWPPPs, and BMPs. In addition, obtain each state's required Section 401 Water Quality Certifications.<br>4. Identify the need for mitigation of impacts on mapped or unmapped water wells, including proper abandonment of the wells (such as plugging and sealing) to prevent groundwater pollution from construction and from future operations and maintenance. Implement specific mitigation measures prior to construction. |

| Topic | Potential Mitigation Measures |
|---|---|
| Wetlands | 1. Determine where it is possible and practical to avoid or minimize impacts to wetlands.<br>2. Develop detailed mitigation options for unavoidable impacts to jurisdictional wetlands during the Tier 2 NEPA analysis and in conjunction with a Section 404 Permit. Typical mitigation measures include mitigation banking, in-lieu fees, and on-site or off-site permittee-responsible mitigation. Mitigation strategies identified and ultimately selected would take into account that not all mitigation options are available to all states and USACE Districts.<br>3. During the design process, coordinate with the appropriate USACE Districts and appropriate resource agencies to develop appropriate mitigation strategies for the location of impacts.<br>4. Implement mitigation measures prior to construction. |
| Coastal Zone Management | 1. Develop and implement Stormwater Pollution Prevention Plans (SWPPPs) and use temporary and permanent BMPs to avoid, minimize, or mitigate sediment pollution could<br>2. During construction control water pollution through the use of temporary measures, such as berms, slope drains, sediment basins, straw bales, silt fences, seeding, and mulching. |
| Natural Habitat and Wildlife | 1. Obtain data specific to the selected Preferred Alternative through coordination with USFWS, Illinois DNR, Indiana DNR, and Michigan DNR.<br>2. Conduct field surveys of the impacted areas of the Preferred Alternative to determine the existence of high quality natural communities and migratory bird habitat.<br>3. Assess ways to avoid and minimize impacts to habitat in coordination with the USFWS and the state resource agencies. If habitat cannot be avoided, develop and apply mitigation measures to protect species and offset impacts. These measures typically include restrictions on construction activities in specific areas during the breeding/nesting seasons and application of best management practices to minimize run-off and erosion from construction sites. |

| Topic | Potential Mitigation Measures |
|---|---|
| Threatened and Endangered Species | 1. Conduct necessary Section 7 consultation with USFWS to determine potential impacts to the federal listed species and its habitat. If it is determined that the Preferred Alternative could have the potential to affect a federally listed species, prepare a biological assessment to determine the Preferred Alternative's potential effect on one or more species, pursuant to Section 7 of the ESA. If a potential impact to a federally listed species is identified, formal consultation is required with USFWS, and USFWS would prepare a biological opinion on whether the proposed activity would adversely affect (jeopardize the continued existence of) a listed species. Modifications to avoid or minimize impacts, or mitigation measures for unavoidable adverse impacts would be determined as part of the formal consultation.<br>2. Coordinate with the Illinois DNR, Indiana DNR, and Michigan DNR, as appropriate to identify potential impacts on state-listed threatened and endangered species.<br>3. Use database information regarding species locations and habitat requirements as a basis for conducting field surveys to determine existence of state-listed species in the Area of Analysis. Assess avoidance or minimization of impacts, and to determine potential mitigation measures to be implemented prior to construction. Typical mitigation measures include restoration or management of existing special communities adjacent to the railway section.<br>4. Show areas requiring protection on design and construction plans with instructions for the installation of protective fencing. This fencing would prohibit all work within these areas to avoid impacts to the species. If work restrictions cannot be used effectively during the design process to eliminate impacts to a species, then employ minimization strategies to reduce impacts to the species and their habitats. This may require design changes or different construction techniques that minimize the overall impact to the species. |
| Energy Use and Climate Change | 1. Mitigation is not expected to be required for energy use and climate change due to the expected reductions in fuel use and CO2 emissions resulting from diverted trips from other modes of transportation within the Corridor. |
| Short-term Use vs. Long-term Productivity | 1. Mitigation measures are discussed in the previous section for each respective resource. |
| Indirect and Cumulative Impacts | 1. After design details are prepared for the Preferred Alternative, and required construction activities are known, specific indirect impacts and cumulative effects can be identified. Specific mitigation measures, to the extent required, will be identified and discussed in Tier 2 NEPA analysis documents. |
| Permits | 1. Specific mitigation measures would be implemented as appropriate per each individual permit and approval. For example, Section 404 Permits may require mitigation measures for both temporary and permanent impacts to wetlands, streams, rivers, and other waters of the United States. Specific mitigation measures, to the extent required, would be identified and discussed during Tier 2 analyses after design details are known, recorded in NEPA documents as specific impacts are identified, and implemented. |

| Topic | Potential Mitigation Measures |
|---|---|
| Construction Impacts | *Coordination with Existing Rail Operations*<br>1. Coordinate with railroad owners to gain permission to work within railroad right of way<br>2. Adjust schedules for operations and limited temporary shutdowns<br>3. Stage construction in a way that limits conflicts<br>*Noise and Vibration*<br>4. Equip and maintain muffling equipment for trucks and other construction machinery to minimize noise emissions<br>5. Limit times and duration of construction activities adjacent to sensitive land uses<br>6. Employ limits and controls on drilling and blasting activities<br>*Air Quality*<br>7. Adhere to construction permit conditions and all state and local regulations in regard to emissions and exhaust, fugitive dust, and burning of debris<br>*Waste Disposal*<br>8. Recycle construction debris, if possible, at facilities that are incompliance with federal, state, and local regulations<br>9. Test hazardous waste that may be encountered<br>10. Handle, collect, and dispose of waste materials in accordance with federal, state, and local regulations<br>*Water Quality*<br>11. Manage stormwater runoff through NPDES and all other federal, state, and local permitting processes<br>12. Implement BMPs for control of soil erosion and other pollutants<br>13. Properly store hazardous materials away from water bodies and wetlands in a self-contained upland location<br>*Access*<br>14. Develop a construction traffic mitigation plan to maintain reasonable access to properties, including special provisions to accommodate emergency vehicles, as well as adjacent populations of elderly and disabled persons.<br>*Traffic and Safety*<br>15. Coordinate with IDOT, INDOT, and MDOT as well as local jurisdictions to develop and implement a traffic control and safety plan. |

## ES.9 Agency and Public Coordination

The development of this Tier 1 EIS included coordination with agencies, tribes and the general public. A public involvement plan guided the Program's outreach efforts throughout the duration of the Program. The plan sought to combine traditional outreach activities such as public information meetings with Web-based applications to reach the greatest number of interested persons and agencies.

### ES.9.1 Public Involvement Opportunities

The Program is focused on providing information and obtaining feedback from the public, stakeholders and agencies at Program milestones. The key outreach strategies are summarized in Table ES-6. Public outreach activities were provided at each Program "milestone" including during the development of the purpose and need statement, alternatives to be analyzed, and recommendations for route alternatives to be studied further. Three public comment periods held during these milestones provided opportunities for agencies, tribes and Native American groups, stakeholders and the general public to review the Program and give feedback and comments. The comments were reviewed and used to prepare and issue this Tier 1 Draft EIS.

Public meetings were held during the Tier 1 EIS scoping process and during the alternative analysis. Public hearings will be held after the Tier 1 Draft EIS is released for public review and comment. Meeting locations were selected for their proximity to the proposed route alternatives being evaluated. All facilities were readily accessible to individuals with disabilities. Interpreters were provided and chosen based on area demographics and the need for interpreters at previous MDOT meetings in the particular community.

To announce online and in-person meetings, press releases were issued to various media outlets statewide in Illinois, Indiana and Michigan. In addition, emails were sent to the Program contact list made up of agencies, stakeholders and members of the general public.

**Table ES-6: Key Outreach Strategies**

| Topic | Summary of strategy |
|---|---|
| Website | The Program's website www.GreatLakesRail.org is a convenient location to learn about the Program, submit comments, review documents and tour self-guided online public meetings |
| Communications | An email distribution list is used to send Program updates and meeting notices. People can sign up on the website. A toll free number is also available (877-351-0853). |
| Information materials | Newsletters and factsheets that explain the Program are posted on the website |
| Meetings and hearings | Public meetings were held during the Tier 1 Environmental Impact Statement scoping process and during the alternative analysis. Public hearings will be held after the Tier 1 Draft EIS is released for public review and comment. Self-guided online meetings are also available on the website.<br>Attendance options included meeting in-person or, for stakeholder meetings, by dialing in on a telephone conference line and viewing the presentation over the internet. |
| Comments and questions | Comments and questions can be submitted via the website or by calling the toll free number. Comment periods are also open during each project milestone (scoping, alternatives analysis and Tier 1 Draft EIS publication) |
| Special accommodations | With an advance notice of 7 days, MDOT makes accommodations for persons with disabilities and/or limited English-speaking ability, and persons needing auxiliary aids or services of interpreters, signers, readers, or large print. |

### ES.9.2 Cooperating Agency Coordination

On January 10, 2013, FRA invited 14 federal agencies to become "cooperating agencies". According to CEQ Regulations Section 1508.5, a "cooperating agency" means any Federal agency other than the lead agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in the Program, or in the Build Alternatives. States and Native American Tribes may also become cooperating agencies.

Cooperating agencies are able to help develop information and do analyses for the Tier 1 EIS concerning items under their special expertise. A cooperating agency may also adopt this Tier 1 EIS without recirculating it.

Agencies that have agreed to become cooperating agencies for the Chicago-Detroit/Pontiac Passenger Rail Corridor Tier 1 EIS include the following:

- Federal Aviation Administration
- Federal Highways Administration

- Federal Transit Administration
- US Army Corps of Engineers
- US Environmental Protection Agency
- US Fish & Wildlife Service
- US Coast Guard
- National Park Service

The Tier 1 Draft EIS has been issued to all resource and cooperating agencies as well as stakeholders and the general public. Comments received from cooperating agencies will be responded to and considered during the preparation of the Tier 1 Final EIS.

### ES.9.3 Outreach to Native American Tribes

The Michigan DOT worked together with the FRA and the Illinois and Indiana DOTs to compile a list of tribes and Native American groups whose tribal ranges include portions of Illinois, Indiana and Michigan. A scoping packet was mailed to representatives of each of 42 tribes and Native American groups on January 14, 2013.

### ES.9.4 General Public Outreach

A series of public outreach events were held in Illinois, Indiana, and Michigan and through online media at project milestones to inform the public of the project's progress. Four public scoping meetings were held in Fall 2012. In total, 277 people signed in at the meetings. Meeting materials and a self-guided presentation were also made available on the Program website and 705 public comments were received in total.

Following the Level 1A alternatives analysis, an online self-guided presentation was created and posted on the Program website in Spring 2013. A total of 666 comments were received during the public comment period. Four public information meetings were held following the Level 1B alternatives analysis in Fall 2013. Meeting materials, including a narrated version of the presentation, were posted to the Program website. In total, 164 people signed in at the meetings and 691 comments received during the public comment period.

### ES.9.5 Stakeholder Outreach

The Program identified two stakeholder groups. The first, referred to as third-party communicators, were organizations identified in each state that could help spread the word about the Program's outreach opportunities. Third party communicators were personally contacted and asked to distribute Program updates and meeting notices to their already established membership lists and networks. Third party communicators posted Program information on their social media sites (Facebook and Twitter), in

newsletters, on their websites and blogs, and in other electronic communications to direct the public to the Program website.

The second group, referred to as the Key Stakeholders, brought railroads, railroad advocacy membership organizations, and environmental groups together for the purpose of presenting public materials and obtaining feedback on the issues unique to these groups. Meetings took place during the scoping process milestone in Fall 2012 and during the alternatives analysis milestone in Spring and Fall 2013. A record of those groups that attended can be found in Chapter 4.

### ES.9.6 Comments Received

Participants were able to comment at the in-person scoping meetings at the initiation of the Program, and both on-line and at in-person meetings during the evaluation of route alternatives. The public was also able to provide feedback at all times by submitting an online comment form at www.GreatLakesRail.org, calling the Program's toll free number at 877-351-0853, mailing a letter to the MDOT Public Involvement & Hearings Officer, or contacting the MDOT project manager directly.

The majority of comments expressed supported for the Program and cited a variety of reasons including the need to improve travel times and provide more reliable service. Others felt that the Program would improve the environment by reducing automobile use and others felt that improved transportation connections would provide economic benefits for the region. Some comments stated concerns regarding potential impacts on the natural and physical environment centered on the Indiana Dunes National Lakeshore. There were a vast majority that utilized a standard comment requesting speeds up to 220 mph and electrification be considered.

A few people submitted comments that were not in favor of the Program. Some felt that rail investment was not a good use of public funding and that the money would be better spent on improving highways. Also, some people said they did not support the Program because they were concerned about potential neighborhood impacts from trains traveling at 110 miles per hour. Railroad owners expressed concern about the impact of increased passenger service to freight operations within shared corridors.

There is a 45-day public comment period for the Tier 1 Draft EIS. Thirty days following the release of the Tier 1 Draft EIS, public hearings will be held in all three Program states. Formal notification of the release, comment period and public hearings were made by way of legal ads and press releases sent through various media outlets. Electronic notices were also sent directly to all contacts in the Program's contact list.

### ES.9.7 Future Opportunities to Comment

Federal, state, and local agencies, tribes, stakeholders and the general public are encouraged to comment on the Tier 1 Draft EIS. Comments received during the 45 day public comment period and public hearings will be collected, reviewed and responded to.

Summary reports for public involvement activities held during the scoping and alternatives analysis phases of this Tier 1 Draft EIS can be found in Appendix K of the Tier 1 Draft EIS. Reports include a general summary of comments received. Detailed lists of all comments received are available on the Program's website at http://greatlakesrail.org/~grtlakes/index.php/site/documents-and-resources. After the public comment period closes, a detailed list of the public comments on the Tier 1 Draft EIS and the responses to them will be added to the Program's website.

The public will be notified when the Tier 1 Final EIS is available and when the Record of Decision is published. Formal notices will be made by way of legal ads and press releases sent through various media outlets. Electronic notices will also be sent directly to all contacts in the Program contact list. Following the public hearings, a summary report of the public comments will be added to the Tier 1 Final EIS.

## ES.10 Next Steps

### ES.10.1 Tier 1 EIS Actions

After the public hearing phase of the Tier 1 Draft EIS is complete, the Program Sponsors will proceed with preparing a Tier 1 Final EIS, which will identify a Preferred Alternative. If appropriate, the Federal Railroad Administration will issue Record of Decision (ROD) on the Selected Program Alternative and associated programmatic-level mitigation. Additional service development planning details will be included in the Tier 1 Final EIS for the Preferred Alternative and in the ROD for the Selected Alternative. The Project Sponsors will also prepare a Service Development Plan (SDP) (see Section ES.10.3) for the Selected Program Alternative. It is anticipated that once a ROD has been issued, the Program Sponsors will identify future sections of the Corridor that have independent utility.

### ES.10.2 Tier 2 Actions

A high-level discussion will be included in the ROD that will identify Tier 2 actions on a state-by-state basis for the Selected Program Alternative. At the conclusion of the Tier 2 Program, the partnering state DOTs and the FRA will have several Tier 2 NEPA clearance documents that include an analysis of environmental impacts, an analysis of independent utility for each Tier 2 action, alternatives, 30 percent preliminary designs (PE) and refined cost estimates for major infrastructure improvements such as bridges and other structures, substantial track and signal improvements outside of the existing right of way, as well as stations and maintenance facilities for the Selected Program Alternative.

### ES.10.3 Service Development Plan (SDP)

The SDP is a critical document, prepared independent from the Tier 1 EIS, which provides a complete and concise transportation service plan addressing the economic, operating, and engineering elements of the Program. The SDP is the business plan that will enable the FRA and the Program Sponsors to advance the Program toward implementation of enhanced Chicago-Detroit/Pontiac higher-speed rail service. The SDP will be prepared for the Selected Program Alternative and will provide the details of the passenger transportation service including the following items:

- Station stops
- Operating plan and schedule
- Conceptual engineering and costs associated with required infrastructure improvements
- Train equipment
- Ridership and revenue forecasts
- Operating and maintenance activities and costs
- Station and maintenance facility improvements and costs
- Benefit-cost analysis

- Financial plan with a pro-forma statement of revenues and operating costs
- Multi-year capital program and implementation plan
- Phasing plan, which details incremental improvements in service reliability, operating speeds, travel times, and service frequencies.

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACHP: | Advisory Council on Historic Preservation |
| ACS: | American Community Survey |
| ADA: | American's with Disabilities Act |
| APE: | Area of Potential Effects |
| BDE: | Bureau of Design and Environment (Illinois) |
| BGEPA: | Bald and Golden Eagle Protection Act of 1940 |
| BMP: | Best Management Practices |
| BNSF: | Burlington Northern-Santa Fe |
| BRC: | Belt Railway Company of Chicago |
| BTU: | British Thermal Unit |
| CAA: | Clean Air Act |
| CEC: | Commission for Environmental Cooperation |
| CEQ: | Council on Environmental Quality |
| CERCLA: | Comprehensive Environmental Response Compensation and Liability Act of 1980 |
| CERCLIS: | Comprehensive Environmental Response, Compensation and Liability Information System |
| CFR: | Code of Federal Regulations |
| CN/IC: | Canadian National/Illinois Central |
| CN: | Canadian National |
| CO: | Carbon Monoxide |
| COG: | Council of Governments |
| ComEd: | Commonwealth Edison |
| CP: | Canadian Pacific |
| CP: | Control Point |
| CR: | Conrail |
| CREATE: | Chicago Region Environmental and Transportation Efficiency Program |
| CRL: | Chicago Rail Link |
| CSAO: | Conrail Shared Assets Organization |
| CSL: | Chicago Short Line |
| CSS: | Chicago, South Shore & South Bend |
| CTA: | Chicago Transit Authority |
| CTC: | Centralized Traffic Control |
| CUS: | Chicago Union Station |
| CZMA: | Coastal Zone Management Act |
| dB: | Decibel |
| DEM: | Department of Environmental Management (Indiana) |
| DEQ: | Department of Environmental Quality (Michigan) |
| DIFT: | Detroit Intermodal Freight Terminal |

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|---|---|
| DNR: | Department of Natural Resources (Illinois, Indiana, Michigan) |
| DOW: | Division of Water (Indiana) |
| DRTs | Daily Round Trips |
| DTW: | Detroit Metropolitan Airport |
| EIS: | Environmental Impact Statement |
| EJ: | Environmental Justice |
| EJE: | Elgin, Joliet & Eastern |
| EO: | Executive Order |
| EPCRA: | Emergency Planning and Community Right-to-Know Act |
| ESA: | Endangered Species Act of 1973 (United States) |
| ESRI: | Environmental Systems Research Institute |
| FAA: | Federal Aviation Administration |
| FEIS: | Final Environmental Impact Statement |
| FEMA: | Federal Emergency Management Agency |
| FONSI: | Finding of No Significant Impact |
| FPPA: | Farmland Protection Policy Act |
| FRA: | Federal Rail Administration |
| FRSA: | Federal Railroad Safety Act |
| FTA: | Federal Transit Administration |
| FWCA: | Fish and Wildlife Coordination Act of 1934 (United States) |
| GIS: | Geographic Information Systems |
| HC: | Hydrocarbon |
| HSIPR: | High-Speed Intercity Rail Program |
| HSR: | High Speed Rail |
| HUD: | Department of Housing and Urban Development (United States) |
| ICMP: | Illinois Coastal Management Program |
| IDOT: | Illinois Department of Transportation |
| IFPA: | Illinois Farmland Preservation Act |
| IHB: | Indiana Harbor Belt |
| INAI: | Illinois Natural Areas Inventory |
| INDOT: | Indiana Department of Transportation |
| INPC: | Illinois Nature Preserves Commission |
| INRGDC: | Illinois Natural Resource Geospatial Data Clearinghouse |
| ISGS: | Illinois State Geological Survey |
| ITCS: | Incremental Train Control System |
| LWCF: | Land and Water Conservation Fund |
| LEP: | Limited English Proficiency |
| LESA: | Land Evaluation and Site Assessment |
| LMCP: | Lake Michigan Coastal Programs |

| | |
|---|---|
| LUST: | Leaking Underground Storage Tank |
| MBTA: | Migratory Bird Treaty Act of 1918 |
| MDOT: | Michigan Department of Transportation |
| MEP: | Maximum Extent Practicable |
| MJ: | Manufacturers Junction |
| MPO: | Metropolitan Planning Organization |
| MSA: | Metropolitan Statistical Area |
| MSAT: | Mobile Source Air Toxics |
| MWRRI: | Midwest Regional Rail Initiative |
| MWRRS: | Midwest Regional Rail System |
| NAAQS: | National Ambient Air Quality Standards |
| NEPA: | National Environmental Policy Act |
| NHD: | National Hydrography Dataset |
| NHPA: | National Historic Preservation Act |
| NICTD: | Northern Indiana Commuter Rail Transportation District |
| NO2: | Nitrogen Dioxide |
| NOAA: | National Oceanic and Atmospheric Administration |
| NOI: | Notice of Intent |
| NPDES: | National Pollutant Discharge Elimination System |
| NPL: | National Priorities List |
| NPS: | National Park Service |
| NRCS: | National Resource Conservation Service |
| NRHP: | National Register of Historic Places |
| NRI: | National Rivers Inventory |
| NS: | Norfolk Southern |
| NWI: | National Wetlands Inventory |
| O&M: | Operations and Maintenance |
| O3: | Ozone |
| OCRM: | Ocean of Coastal Resource Management |
| OGL: | Office of Great Lakes |
| OHWM: | Ordinary High Water Mark |
| OWR: | Office of Water Resources |
| PA: | Programmatic Agreement |
| Pb: | Lead |
| PM: | Particulate Matter |
| PTC: | Positive Train Control |
| PWEDA: | Public Works and Economic Development Act of 1965 |
| RCRA: | Resource Conservation and Recovery Act |
| ROD: | Record of Decision |

| | |
|---|---|
| RTC: | Rail Traffic Controller |
| SARA: | Superfund Amendments and Reauthorization Act |
| SCAL: | St. Charles Air Line |
| SDP: | Service Development Plan |
| SESC: | Soil Erosion and Sedimentation Control |
| SEE: | Social, Economic and Environmental |
| SEMA: | State Emergency Management Agencies |
| SEMCOG: | Southeastern Michigan Council of Governments |
| SHAARD: | State Historic Architectural and Archaeological Research Database |
| SHPO: | State Historic Preservation Office |
| SIP: | State Implementation Plan |
| SO2: | Sulfur Dioxide |
| SOTL: | South of the Lake |
| SWPPP: | Storm Water Pollution Prevention Plan |
| TCP: | Tribal Cultural Properties |
| THPO: | Tribal Historic Preservation Office |
| TPC: | Train Performance Calculator |
| TSCA: | Toxic Substances Control Act |
| UP: | Union Pacific |
| USACE: | United States Army Corps of Engineers |
| USCG: | United States Coast Guard |
| USDA: | United States Department of Agriculture |
| USDOT: | United States Department of Transportation |
| USEPA: | United States Environmental Protection Agency |
| USFWS: | United States Department of Fish and Wildlife Service |
| USGS: | United States Geological Survey |
| VMT: | Vehicle Miles Traveled |
| WA: | Wilderness Act |
| WALLY: | Washtenaw and Livingston Line |
| WC: | Wisconsin Central |