NORTHERN INDIANA PASSENGER RAIL CORRIDOR

ROUTE ALTERNATIVES ANALYSIS REPORT

Tolleston (Gary, IN) to Lima, OH

Prepared for the City of Fort Wayne, IN

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HNTB

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1 INTRODUCTION

This Alternatives Screening Report describes the route alternatives and screening analysis used to identify the reasonable route alternative(s) for future passenger rail service between Chicago and Fort Wayne, IN with an extension of service to Lima, OH (the Project). The identified reasonable route alternative(s) will be proposed for additional evaluation in a future environmental study that satisfies the requirements of the National Environmental Policy Act of 1969 (NEPA) by assessing the impacts of the project that may potentially affect the environment. Studying the environmental impacts of passenger rail service between Chicago and Fort Wayne/Lima will enable the project sponsors to pursue federal funding for the construction of the project if the study approves the implementation of the service in a federal decision document.

NEPA regulations also require the inclusion of an "alternative of no-action" along with the evaluation of all reasonable alternatives.[1] The no-action alternative is not included in this screening analysis as it is required to be evaluated in any future environmental study that is intended to satisfy NEPA. Future NEPA analysis will indicate if the no-action alternative satisfies the project's purpose and need of establishing direct and reliable passenger rail service to the communities who have invested in the planning of the Northern Indiana Passenger Rail Corridor. The no-action alternative will also provide a baseline for evaluating the environmental impacts of the proposed reasonable alternative(s).

1.1 Prior Corridor Planning Initiatives

The City of Fort Wayne and the Northern Indiana Passenger Rail Association (NIPRA) propose to establish passenger rail service from Chicago through the cities of Gary, Valparaiso, Plymouth, Warsaw, and Fort Wayne, IN and on to Lima, OH (the Corridor) on existing railroad infrastructure and right of way. Amtrak previously provided service between Chicago, Fort Wayne and Lima along the Chicago, Fort Wayne & Eastern (CFER) Fort Wayne Line as a part of the Broadway Limited and Capitol Limited services that connected Chicago to New York and Washington DC. Amtrak rerouted the services off the Fort Wayne Line in 1990 when the Fort Wayne Line deteriorated under Conrail ownership, who decided to focus their investments in routes that paralleled the Fort Wayne Line. The Broadway Limited was discontinued in 1995, while the Capitol Limited is still operated through South Bend, IN and Toledo, OH on its way to Washington DC.

In 1996, a cooperative, multi-agency effort known as the Midwest Regional Rail Initiative (MWRRI) reintroduced the idea of providing passenger rail service from Chicago to Fort Wayne to extend service to Toledo and Cleveland.[2] The MWRRI originally involved nine Midwestern states, including Indiana and Ohio along with the Federal Railroad Administration (FRA) and Amtrak. Under the proposed MWRRI system shown in Figure 1, Chicago serves as the hub around which the Midwest corridor service is based.

[1] Alternatives including the proposed action, 40 CFR 1502.14.
[2] Midwest State Departments of Transportation. *Midwest Regional Rail Initiative Project Notebook.* June 2004.

Figure 1: Proposed Midwest Regional Rail Initiative System Map



Source: Midwest Regional Rail System Executive Report, September 2004

Since the completion of MWRRI studies in 2004, NIPRA built on the MWRRI's plan to return passenger rail service to Fort Wayne by testing the feasibility of providing service to Columbus, OH instead of Toledo and Cleveland. In 2012, NIPRA commissioned the feasibility study between Chicago and Columbus and found positive financial and economic results that support future investment in the corridor.[3] The Chicago-Fort Wayne-Columbus Corridor continues to be the corridor that is supported by NIPRA and the City of Fort Wayne and is the basis for the identification of the Chicago-Fort Wayne/Lima Rail Corridor studied in this route alternatives analysis.

[3] Northeast Indiana Passenger Rail Association (NIPRA). *Northern Indiana/Ohio Passenger Rail Corridor Feasibility Study and Business Plan.* December 2012.

1.2 Northern Indiana Passenger Rail Corridor Description

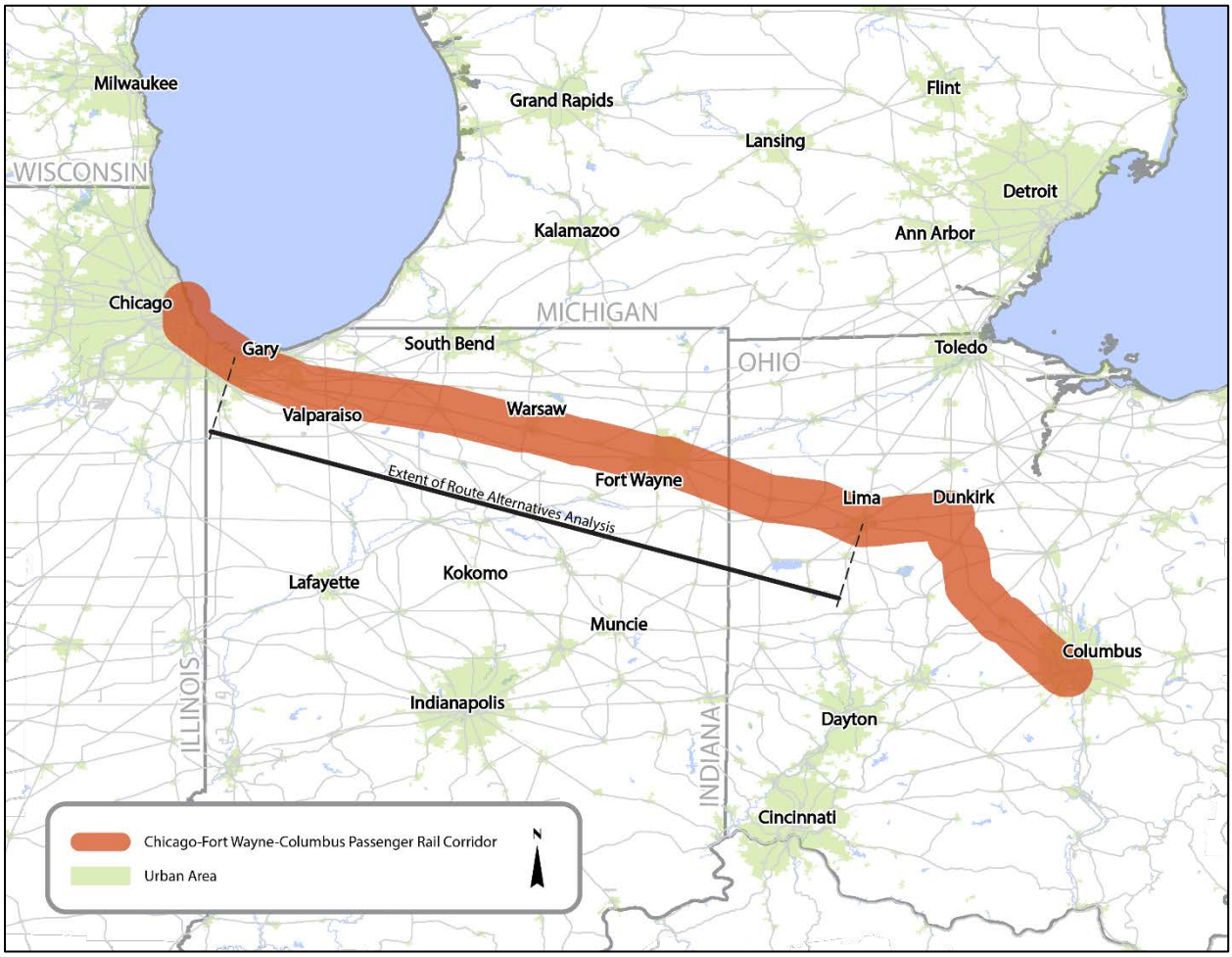
The Corridor spans from Chicago to Fort Wayne, with an extension to Lima, OH and is the first phase in providing future potential service between Chicago. The Corridor lays the foundation for potential future passenger rail connections to Ohio, including connections to Columbus, other metropolitan Ohio communities, and beyond.

This route alternatives analysis will focus on identifying the reasonable route alternatives between Tolleston[4] (Gary, IN) and Lima (See Figure 2). It is anticipated that the Northern Indiana Passenger Rail Corridor would follow the route proposed by the MWRRI between Chicago Union Station and Tolleston. The *Chicago-Detroit/Pontiac Passenger Rail Corridor Program Tier 1 EIS* was commissioned by the Michigan Department of Transportation to identify a preferred route for passenger rail in the "South of the Lake", which includes the segment between Chicago Union Station and Tolleston.[5] The route between Chicago Union Station and Tolleston that is identified by the MWRRI is one of four routes evaluated in the *Chicago-Detroit/Pontiac Passenger Rail Corridor Program Tier 1 Draft EIS* published in September 2014.[6] Publication of the Final EIS is anticipated in Fall 2017.

During the analysis of potential alternatives for the Chicago-Detroit/Pontiac Passenger Rail Corridor Program, substantial research was conducted on all potential routes that could utilize existing or abandoned railroads in the South of the Lake.[7] Regardless of the selection of the preferred route alternative, no South of the Lake route under consideration precludes the opportunity for the Northern Indiana Passenger Rail Corridor to connect to the South of the Lake passenger rail route near Gary, IN. The selection of the South of the Lake route is predicated on the goal of providing access to Chicago Union Station on a double-track passenger railroad that can accommodate all passenger service east of Chicago as planned in the MWRRI. The identified infrastructure improvements to operate passenger rail at increased frequency and speed are expected to be phased over time as funding becomes available.

[5] The "South of the Lake" describes the extensive railroad network that is located south of Lake Michigan between Chicago and Porter, IN, including the section between Chicago Union Station and Tolleston.
[6] It is expected that the FRA will complete and publish the Final EIS and Record of Decision in 2017.
[7] A summary of the South of the Lake route alternatives analysis can be found in the Chicago-Detroit/Pontiac Passenger Rail Corridor Program Tier 1 Draft EIS under Appendix A: Michigan Department of Transportation. *Chicago-Detroit/Pontiac Passenger Rail Corridor Program Tier 1 Draft EIS, Appendix A: Level 1 Alternatives Screening Summaries.* September 2014.

Figure 2: Extent of Route Alternatives Analysis



2 PRELIMINARY ROUTE ALTERNATIVES IDENTIFICATION

The Northern Indiana Passenger Rail Corridor would follow the route identified by the MWRRI between Chicago and Tolleston shown in Figure 3. From Chicago Union Station, the route would utilize two Amtrak main tracks to the 23rd Street crossing where it would connect with the NS Chicago Line. The route follows the NS Chicago Line through Englewood and Grand Crossing to Buffington Harbor in Gary, IN. At Buffington Harbor, the route would transition off the NS Chicago Line, cross through Clarke Junction and transfer to the NS Gary Branch (also known as the "Sugar Track") and travel to Tolleston.

Considering the existing rail network between Tolleston, Fort Wayne, and Lima and the potential ability to meet the Project's purpose and need, three preliminary route alternatives were identified with one route extension to Lima. The Project's purpose and need indicates that the Project provide direct and reliable passenger rail service through the cities of Gary, Valparaiso, Plymouth, Warsaw, Fort Wayne, and Lima so as to support the communities who have invested in the planning of the Northern Indiana Passenger Rail Corridor. The service must also utilize existing rail corridors to minimize investment in new railroad infrastructure.

The three routes, as illustrated in Figure 4 were identified as routes that could potentially provide passenger rail service to the communities identified in the purpose and need and will be evaluated based on their ability to meet the criteria described in Section 3.

Figure 3: MWRRI South of the Lake Route (Chicago – Tolleston)

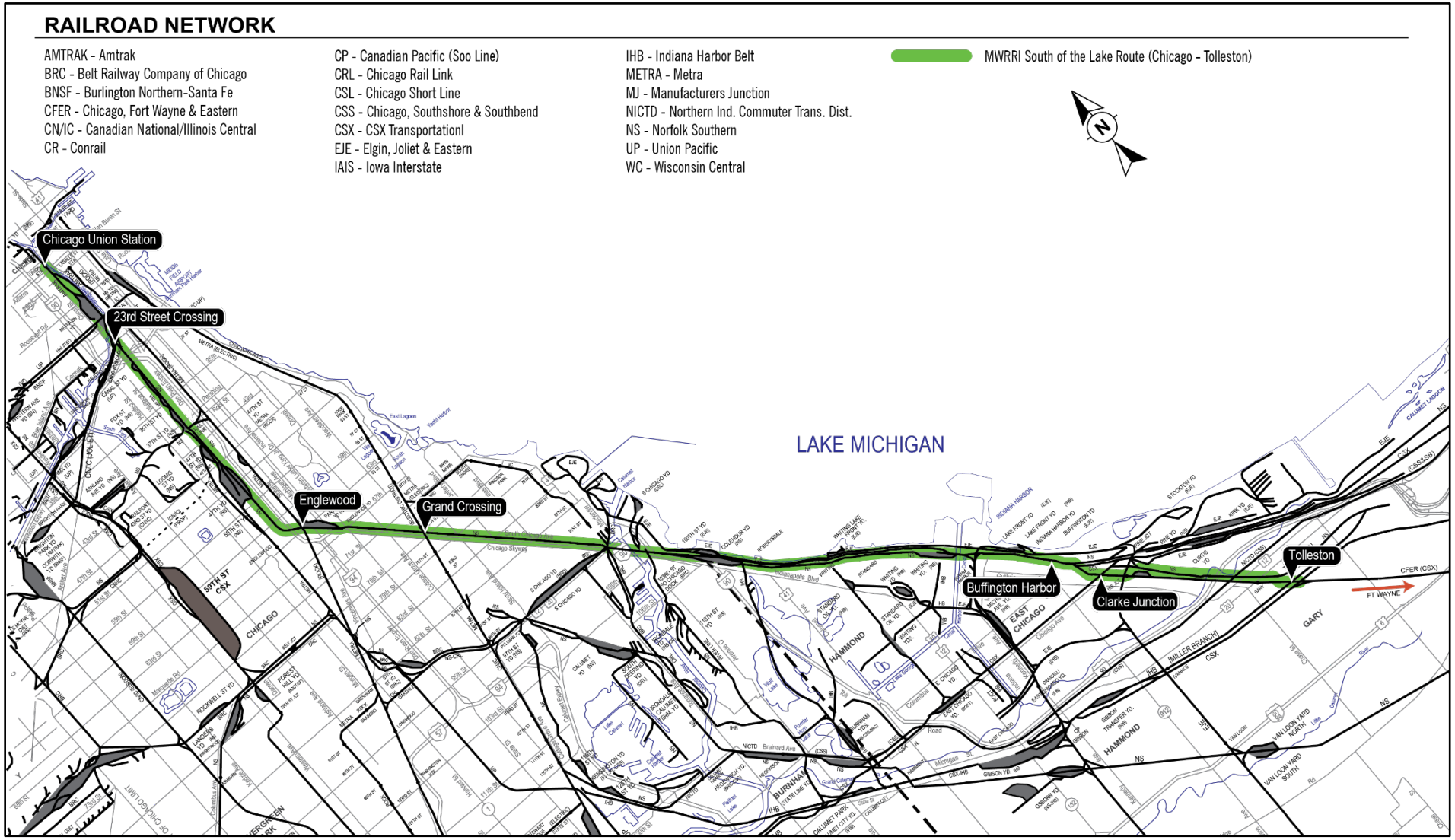
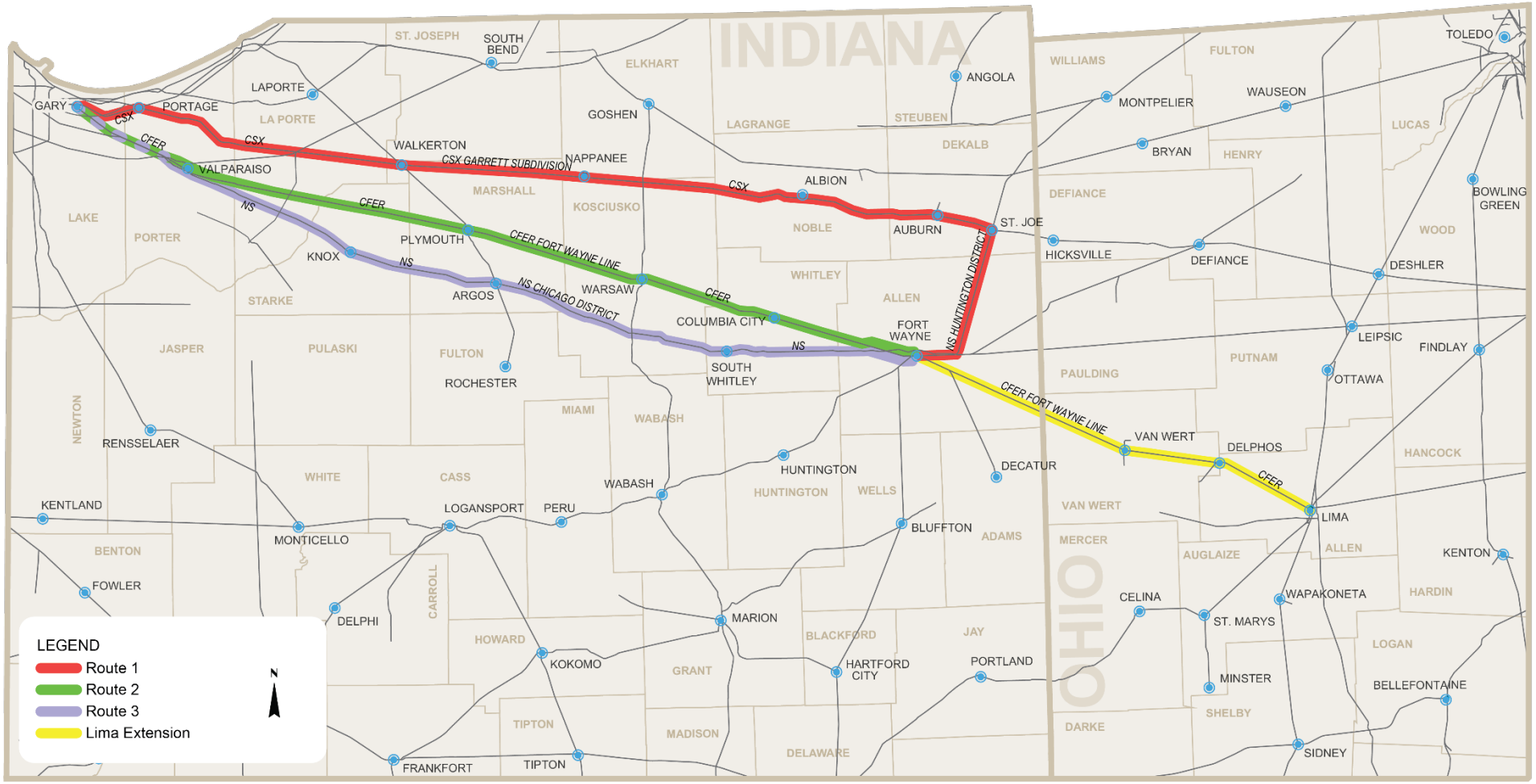


Figure 4: Northern Indiana Passenger Rail Corridor Study Area and Route Alternatives



2.1 Route 1

Route 1 utilizes the single-track CSX Porter Subdivision for 10 miles between Tolleston and a railroad junction known as Willow Creek in Portage, IN. Between Portage and St. Joe, IN the route utilizes the double-track CSX Garrett Subdivision for 119 miles. The route transfers to the single-track NS Huntington District at St. Joe and travels south 23 miles to CP Mike in Fort Wayne. At CP Mike the route utilizes the single-track CFER Fort Wayne Line[8] to reach the Baker Street Station[9] one mile to the west of CP Mike. Route 1 continues on the CFER Fort Wayne Line to pass back through CP Mike and travel on to Lima, OH, located 60 miles to the east.

2.2 Route 2

Route 2 utilizes the single-track CFER Fort Wayne Line from Tolleston to Lima. The route is 182 miles long and navigates through the Indiana cities of Gary, Valparaiso, Plymouth, Warsaw, Fort Wayne, and Lima, OH.

2.3 Route 3

Route 3 utilizes the single-track CFER Fort Wayne Line for 14 miles between Tolleston and Spriggsboro, a junction just west of Valparaiso. From Spriggsboro, the route travels on the single-track NS Chicago District for 105 miles to CP Sand on the west side of Fort Wayne. At CP Sand, the route utilizes the single-track CFER Fort Wayne Line for the remaining 64 miles through Fort Wayne and on to Lima, OH.

3 DESCRIPTION OF SCREENING CRITERIA

The three criteria described in Table 1 were used to evaluate the route alternatives and identify the route(s) that effectively meet the Project's purpose and need of providing direct and reliable passenger rail service between the communities that have invested in the planning of the passenger rail Corridor. The passenger rail service is also meant to provide the Corridor with an alternative to the existing transportation modes.

[8] The Fort Wayne Line is owned by CSX, but has been leased to CFER who is the current operator.
[9] The City of Fort Wayne has indicated that Baker Street Station is their preferred station location in Fort Wayne. Baker Street Station has historically been used as a passenger rail station since 1914, until passenger service was rerouted away from Fort Wayne in 1990.

Table 1: Alternatives Analysis Screening Criteria

Criteria	Description
Communities served	As indicated in the purpose and need, the proposed Project would provide service within the Northern Indiana Passenger Rail Corridor and serve the cities of Gary, Valparaiso, Plymouth, Warsaw, and Fort Wayne, IN and extend to Lima, OH. The evaluation will consider whether the route alternative directly serves each city or would require travel outside of a city to access the proposed passenger rail service.
Route length	The route length will be calculated from aerial imagery and directly relates to the travel time. Longer routes can increase travel time and would be less attractive to travelers, and ultimately not provide a viable alternative mode of travel within the project corridor.
Existing freight traffic and track capacity limitations	Freight traffic constrains the capacity of the existing rail infrastructure and may limit the ability to provide reliable passenger rail service. The proposed passenger rail operation must be reliable for travelers to consider the mode a viable alternative to other travel modes. Freight traffic counts were obtained from the FRA Highway-Rail Crossing Inventory.

4 EVALUATION OF ROUTE ALTERNATIVES

The quantitative and qualitative data used to support the evaluation of the route alternatives was collected based on the screening criteria identified in Table 1. The data is reported and evaluated in this section. All route alternatives are compared and evaluated on their ability to meet the Project's purpose and need.

4.1 Communities Served

To fulfill the purpose of the Project, the route needs to serve the communities of Gary, Valparaiso, Plymouth, Warsaw, Fort Wayne, and Lima as is expected by the communities who have invested in the planning of passenger rail in Corridor. As shown in Figure 4 above, Route 2 is the only route alternative that travels directly through all the cities identified in the purpose and need. Selecting Route 2 would also provide service in the Corridor on a route that was previously served by Amtrak's Broadway Limited and Capitol Limited.

All route alternatives would provide the opportunity to serve stations in Gary, Fort Wayne and Lima, but Route 2 also provides the ability to serve stations in Valparaiso, Plymouth, and Warsaw and their related significant employment centers. Warsaw is known as the "Orthopedic Capital of the World" as it is home to over 30 orthopedic device manufacturers who represent more than 50 percent of the United States market share and 30 percent of the global market and earn $11 billion in annual revenues. The medical equipment device industry has grown at an annual rate of 6.3 percent between 2001 and 2009, one of the fastest growing sectors in the State of Indiana.[10] The communities invested in this Corridor have identified reliable passenger rail service as a key component to providing improved connectivity to major economic centers that will help continue local economic growth.

Route 1 directly serves the cities of Gary, Fort Wayne, and Lima, but not the cities of Valparaiso, Plymouth, or Warsaw. Route 3 is slightly better in that it also serves Valparaiso, but still does not serve Plymouth and Warsaw directly. Stations would have to be developed outside of these cities, in smaller cities along Routes 1 and 3 and therefore would not meet the Project's purpose and need.

[10] OrthoWorx, Inc. Economic Impacts of Midwest High Speed Rail on the Orthopedics Industry of Warsaw, Indiana. October 2010; revised January 2011.

4.2 Route Length

The route length reported in Table 2 is calculated between Tolleston and Lima for each route alternative. Route length provides a good indication of the proposed service's travel time. Longer routes naturally tend to have longer travel times, which tend to be less attractive to travelers. The choice to travel by train becomes less viable for travelers if the travel time between destinations is significantly longer than other travel modes. Therefore, the shortest route alternative best meets the project purpose and need of providing a direct alternative mode of transportation within the Corridor.

Table 2: Route Length between Tolleston and Lima

Criteria	Route 1	Route 2	Route 3
Route Length (Miles)	213	182	183

Route 2 and Route 3 provide the shortest routes at 182 miles and 183 miles, respectively and best meet the Project's purpose and need. However, Route 2 is the shortest route while also serving all the communities that have invested in the planning of passenger rail service in the Corridor.

Route 1 is over 30 miles longer than Routes 2 and 3, and would likely result in a longer travel time. Additionally, Route 1 causes operational challenges at Baker Street Station in Fort Wayne that would further increase travel time. Trains traveling on Route 1 would use Baker Street Station as a stub-end terminal, requiring train crews to utilize the Piqua Wye to turn the train so that it can travel in the correct direction once it departs the station, resulting in additional travel time. Trains traveling on Routes 2 and 3 would arrive at the station and continue in the same direction of travel after departure without having to navigate through the wye.

4.3 Existing Freight Traffic and Track Capacity Limitations

Freight operations along each route can impact the fluidity of passenger rail operations as they can constrain capacity on the existing rail infrastructure creating greater potential for train conflicts that result in poor reliability and increased travel times. Additionally, the introduction of new passenger trains at increased speeds can cause delays and safety concerns for the freight rail industry already operating on a route. Consequently, infrastructure improvements would be needed on all routes to accommodate existing and future freight rail volumes as well as passenger service. The type of infrastructure improvements and associated capital costs would vary by route alternative because of the differences in existing track and signal infrastructure, volume of freight traffic, and type of freight operations.

To evaluate the existing freight traffic within the corridor, the freight traffic along each route was compared to average capacities of typical freight rail corridors where there are multiple train types, including passenger operations (developed by the Association of American Railroads and reported in Table 3) to understand each route's ability to add passenger rail traffic. The routes will also be compared by which route provides the best opportunity to sustain a reliable service, as indicated in the Project's purpose and need.

Table 3: Average Capacities of Typical Freight Rail Corridors (Trains per Day)

Number of Tracks	Signal Control	Trains per Day	
		Practical Maximum if Multiple Train Types Use Corridor*	Practical Maximum if Single Train Type Uses Corridor**
1	N/S or TWC	16	20
1	ABS	18	25
1	CTC or TCS	30	48
2	N/S or TWC	28	35
2	ABS	53	80
2	CTC or TCS	75	100

Key: *N/S-TWC – No Signal/Track Warrant Control*
ABS – Automatic Block Signaling
CTC-TCS – Centralized Traffic Control/Traffic Control System

Notes: ** For example, a mix of merchandise, intermodal, and passenger trains.*
*** For example, all intermodal trains.*

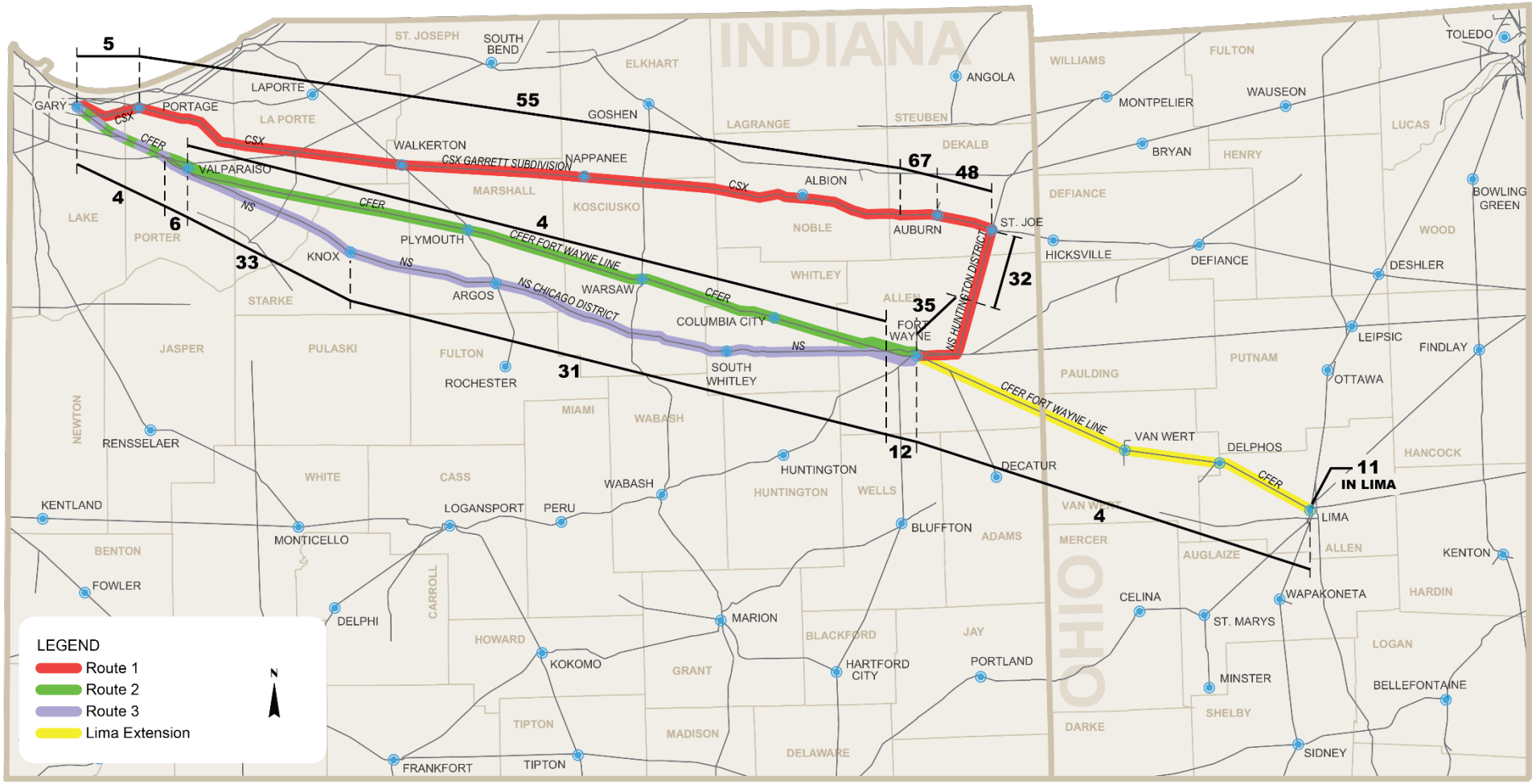
Source: Association of American Railroads (AAR). National Freight Infrastructure Capacity and Investment Study. September 2007.

Figure 5 illustrates the average daily freight train counts along each route alternative. The map indicates that Route 2 carries substantially less freight traffic than Routes 1 and 3.

Along Route 1, CSX operates 48 to 67 freight trains per day on its Garrett Subdivision between Portage and St. Joe. The Garrett Subdivision provides two main tracks with Centralized Traffic Control (CTC) in this area. Based on Table 3, average capacity of a typical freight rail corridor with two main tracks with CTC is 75 trains per day. The existing freight traffic on this route is nearing capacity, especially around Auburn, IN. The NS Huntington District between St. Joe and Fort Wayne is also highly congested as it carries 32 to 35 trains per day on a single-track railroad with CTC. This 142-mile section of Route 1, which accounts for 67 percent of the route is approaching its capacity and increases potential passenger train conflict with freight traffic and may reduce passenger train reliability. Track capacity improvements would be needed to minimize freight conflicts.

Freight traffic between Fort Wayne and Lima along the CFER Fort Wayne Line is far less as it carries four trains per day on a single-track railroad operating under Form D Control System (DCS), a variant of Track Warrant Control (TWC). The section between Fort Wayne and Lima would be substantially less congested, and would also require installing CTC signaling with Positive Train Control (PTC) to meet federal standards for operating passenger trains at speeds of 79 mph or 110 mph. The required track and signal upgrades would increase capacity from 16 to 30 trains per day.

Figure 5: Existing Average Daily Freight Train Counts



Source: Federal Railroad Administration, Office of Safety Analysis

Route 2 carries four trains per day along much of the route. Average daily freight traffic consists of two through trains and two switching trains servicing local industries. Freight traffic slightly increases around Hobart, Fort Wayne, and Lima where train counts can reach 6 to 12 trains per day. Traffic increases in these areas as other railroads converge on the CFER Fort Wayne Line and use it to improve the fluidity of their operation or to access other parts of their system that are connected by the CFER Fort Wayne Line. The construction of a new intermodal facility south of Fort Wayne along the CFER Fort Wayne Line will add trains to the daily freight traffic between Fort Wayne and Tolleston. Based on the capacity of conceptual designs of the intermodal facility, the anticipated one to four added freight trains will not significantly impact the viability of the route.

The CFER Fort Wayne Line is a single-track railroad that mainly runs under TWC or DCS control. TWC is used from Tolleston to Fort Wayne and DCS is used from Fort Wayne to Lima, except between Hobart and Valparaiso and within Fort Wayne where CTC is used. However, CTC signaling with PTC capability would need to be installed along the entirety of Route 2 and the track infrastructure would need to be upgraded to operate passenger service at speeds of 79 or 110 mph. Based on Table 3, adequate capacity would be available for passenger rail implementation if Route 2 was selected and CTC is installed as required. Track capacity improvements may be needed in areas of increased congestion to avoid freight conflicts, but not to the extent of the improvements that would be needed to avoid freight conflicts on Routes 1 and 3.

The NS Chicago District along Route 3 experiences high levels of freight congestion like the CSX Garrett Subdivision and NS Huntington District along Route 1. The NS Chicago District between Valparaiso and Fort Wayne is a single-track railroad with CTC that carries 31 to 33 freight trains per day. This 105-mile section of Route 3, which accounts for 57 percent of the route is approaching its capacity and increases potential passenger train conflicts with freight traffic and may reduce passenger train reliability. Track capacity improvements would be needed to minimize freight conflicts. Sections of Route 3 that would utilize the CFER Fort Wayne Line between Tolleston and Hobart and Fort Wayne and Lima would be substantially less congested as these sections of track carry four trains per day and would be required to upgrade from TWC or DCS to CTC signaling with PTC capability to operate passenger rail, resulting increased capacity.

Route 2 best meets the project purpose and need as it provides a route that would minimize opportunities for freight conflicts, which would result in better reliability. Under current freight traffic conditions, adequate capacity would be available for passenger rail implementation if CTC and PTC are installed and track is upgraded to standards for operating passenger rail as required.

5 RECOMMENDATION

Route 2 is recommended to be carried forward for additional analysis. The recommendation of Route 2 is supported by the analysis conveyed in this Alternatives Analysis Report as it best directly provides service to the cities of Gary, Valparaiso, Plymouth, Warsaw, Fort Wayne, and Lima, is the shortest route between Tolleston and Lima, and is likely to provide the greatest service reliability as it serves the least amount of freight traffic.

It is recommended that Route 1 and Route 3 be excluded from further consideration as neither route directly serves all the communities that are invested in the planning of the Corridor and both routes present considerable operational challenges. Route 1 is the longest of the three routes, suggesting a travel time that would be longer compared to Routes 2 and 3. Route 1 also carries substantially more freight traffic than Route 2 between Tolleston and Fort Wayne, and is nearing the capacity of the existing railroad infrastructure. The

high freight volumes would result in more opportunities for freight conflicts that would either impact passenger rail reliability and/or require much greater capital investment in railroad infrastructure to minimize freight conflicts compared to Route 2.

Route 3 also carries substantially more freight traffic than Route 2 between Tolleston and Fort Wayne, and is nearing the capacity of the existing railroad infrastructure. Like Route 1, high freight volumes on Route 3 would result in more opportunities for freight conflicts that would either impact passenger rail reliability and/or require much greater capital investment in railroad infrastructure to minimize freight conflicts compared to Route 2.

Table 4 provides a summary of the screening evaluation for each route alternative.

Table 4: Summary of Evaluation

Criteria	Route 1	Route 2	Route 3
Communities Served (Provides service on a route through the cities of Gary, Valparaiso, Plymouth, Warsaw, Fort Wayne, and Lima)	No	Yes	No

- Route 2 is the only route alternative that travels through Gary, Valparaiso, Plymouth, Warsaw, Fort Wayne, and Lima. Route 2 provides passenger rail service on a route that was previously served by Amtrak's Broadway Limited and Capitol Limited.

	Route 1	Route 2	Route 3
Route Length (Miles)	213	182	183

- Routes 2 and 3 are the shortest routes and provide the best opportunity to provide a viable transportation alternative with travel times that are competitive with other modes of transportation in the Corridor.
- Route 1 is over 30 miles longer than Route 2 and 3, and would likely result in a longer travel time. Trains traveling on Route 1 would use Baker Street Station as a stub-end terminal, requiring train crews to utilize the Piqua Wye to turn the train so that it can travel in the correct direction once it departs the station, resulting in additional travel time.

	Route 1	Route 2	Route 3
Existing Freight Traffic (Trains per Day)	Tolleston-Portage: 5 Portage-Garrett: 55 Garrett-Auburn: 67 Auburn-St.Joe: 48 St. Joe-Grabill: 32 Grabill-Fort Wayne: 35 Fort Wayne 12 Fort Wayne-Lima: 4 Lima: 11	Tolleston-Hobart: 4 Hobart-Valparaiso: 6 Valparaiso-Fort Wayne: 4 Fort Wayne: 12 Fort Wayne-Lima: 4 Lima: 11	Tolleston-Hobart: 4 Hobart-Valparaiso: 6 Valparaiso-Knox: 33 Knox-Fort Wayne: 31 Fort Wayne: 12 Fort Wayne-Lima: 4 Lima: 11

- Route 2 minimizes potential freight conflicts and would provide adequate capacity for passenger rail once CTC, PTC, and upgraded track are installed as required to operate passenger rail.
- Routes 1 and 3 have limited track capacity, which would result in unreliable passenger service and/or costly railroad infrastructure improvements to minimize conflicts.