1 PURPOSE AND NEED

This chapter describes the purpose and need for the Chicago-Detroit/Pontiac Passenger Rail Corridor Program (Program). CEQ regulations implementing the National Environmental Policy Act (40 CFR 1502.13) (NEPA) require that an environmental impact statement (EIS) specify the underlying purpose and need to which the agency is responding in proposing the Program alternatives. This chapter also provides an overview of the environmental review process required for the Program.

The Departments of Transportation for Michigan, Indiana and Illinois, in association with the Federal Railroad Administration (FRA) (the Program Sponsors) have initiated the Program to evaluate intercity passenger rail for a corridor between Chicago and Detroit/Pontiac, Michigan (the Corridor). The Corridor extends east 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 LaPorte counties in Indiana; and Berrien, Van Buren, Cass, Kalamazoo, Calhoun, Jackson, Washtenaw, Wayne and Oakland counties in Michigan.

As described in the June 17, 2009 High-speed Intercity Passenger Rail (HSIPR) Guidance (74 Fed. Reg. 29900 (June 23, 2009)), FRA is the lead Federal agency for this environmental review and therefore has primary responsibility to assure NEPA compliance while accomplishing the purposes, priorities, and requirements of the HSIPR program. FRA is working closely with the state Departments of Transportation, including the Michigan Department of Transportation (MDOT) who has taken the leadership role in the development of NEPA documentation.

Through the Program, the Program Sponsors are evaluating potential rail service along the Corridor shown in Figure 1-1. This is the current alignment for the Wolverine service provided by Amtrak and includes its existing stations. Chapter 2 presents a discussion of all the alternatives considered. The area between Chicago Union Station and Michigan City, Indiana has a large, complex, array of rail lines and 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.

The Michigan Department of Transportation (MDOT), Indiana Department of Transportation (INDOT) and Illinois Department of Transportation (IDOT) developed the following purpose and need statement in coordination with FRA after considering input from cooperating agencies (listed in Section 4.2.5), the public, and stakeholders. This statement gives some background information and describes the needs that the Program is intended to meet.

1.1 Background Information and Prior Planning Activities

Intercity passenger rail service in the Michigan portion of the Corridor currently includes three daily round trips between Chicago and Detroit/Pontiac, Michigan, (the Amtrak Wolverine Service). In 2011, 503,290 passenger trips were made between Chicago and Detroit using Amtrak's Wolverine line. The maximum train speed on most of this Corridor is 79 mph, with the exception of the 97-mile Amtrak-

owned section between Kalamazoo, Michigan, and Porter, Indiana, where passenger trains operate at speeds up to 110 mph. Wolverine trains take approximately 6 hours 30 minutes to travel the approximately 300 miles between Chicago and Pontiac, Michigan, an average speed of 47 mph.

Figure 1-1: Chicago – Detroit/Pontiac Passenger Rail Corridor

In addition to the Wolverine trains, Amtrak operates a daily round trip between Chicago and Battle Creek, Michigan, (the Blue Water Service, which continues beyond the Corridor to Port Huron, Michigan) and a round trip between Chicago and New Buffalo, Michigan, (the Pere Marquette service, which continues to Grand Rapids, Michigan). Annual ridership for all of these Michigan services in 2010 was 739,398 passengers, an increase of 49.8% from the 493,474 passengers carried in 2000.[1] The 29-mile stretch of Norfolk Southern Railway's Chicago Line between Porter, Indiana, and the Indiana/Illinois state line is the single most delay-prone intercity passenger rail corridor in the country. Fourteen Amtrak passenger trains currently traverse the Corridor daily along with approximately 87 daily freight trains.[2]

[1] Michigan Department of Transportation. *Passenger Rail Statistics Website.* http://mdotwas1.mdot.state.mi.us/public/railstats/. Accessed online June 2012.
[2] Indiana Department of Transportation. *Indiana Gateway and Investment Study Grant Application Form FRA F6180.133 (07-09)*. August 2009.

The Program is being developed to meet goals and objectives consistent with Phase 1 of the Midwest Regional Rail Initiative (MWRRI), a cooperative, multi-agency effort that began in 1996 and originally involved nine Midwestern states (Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin) as well as FRA and Amtrak. 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 mph; and multimodal 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 (the number of round trips between Chicago and Pontiac, Michigan within one day), improved reliability and connections between urban centers and smaller communities. Figure 1-2 shows the MWRRI vision of a comprehensive intercity passenger rail system within the Midwest.

Figure 1-2: Proposed Midwest Regional Rail Initiative Full System Map

The MWRRI established an objective ‘‘to meet current and future regional travel needs through significant improvements to the level and quality of passenger rail service’’[3] within the Chicago-Detroit/Pontiac passenger rail corridor.

1.2 Purpose

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.

The objectives for the Program are:

- Meet current and future demand for travel on the Corridor by increasing passenger transportation capacity, accessibility and mobility for all travelers
- Reduce existing congestion across all travel modes along the Corridor, including major east-west highway corridors and along existing rail lines resulting in reduced travel times and other traveler benefits
- Provide environmental benefits and lessen adverse impacts to the human and natural environment resulting from other modes of travel along the Corridor
- Improve stations and rail service to stations that will accommodate anticipated growth and incorporate localized economic development opportunities that will improve the livability of communities along the Corridor
- Improve the quality of existing intercity passenger rail service in the Corridor by upgrading existing or previous operational rail corridors in order to achieve: increased service reliability, frequency and speed, greater, and improved travel time
- Provide frequent, reliable, and higher-speed passenger train service using modern train equipment with improved passenger comfort, convenience, and amenities
- Provide a competitive mode of travel to other modes of intercity passenger transportation within the Corridor resulting in tourism benefits and travel efficiencies for Illinois, Indiana, and Michigan
- Provide direct connections into Chicago Union Station (CUS) to enhance connectivity with other passenger rail corridors (such as Chicago to St. Louis, Milwaukee and Minneapolis/St. Paul) and seek to maximize use of already committed public infrastructure investments and publically owned rights of way along the Corridor
- Establish a higher-speed double track passenger rail route between CUS and Porter, Indiana that provides opportunities to enhance strategic future connections to other Midwestern rail markets as

[3] *Midwest Regional Rail System: A Transportation Network for the 21st Century. Executive Report.* September 2004.

defined within the MWRRI, including those federally designated Chicago to Detroit, Chicago to Cleveland and Chicago to Indianapolis intercity rail corridors

- Make rail infrastructure improvements to enhance both freight and passenger service and to minimize the conflicts between passenger and freight trains operating within the same corridor resulting in decreased congestion on existing rail lines, which could increase operational efficiencies and avoid congestion related delays for both freight and passenger rail

1.3 Need

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 on the Corridor, resulting 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 the mobility of the resident populations and the potential for economic development near station locations.
- Inadequate rail capacity in the Corridor provides uncompetitive trip times, poor reliability, and low levels of passenger comfort and convenience for travelers
- Lack of competitive advantages for modern intercity passenger service resulting in the inability to attract passenger rail travelers within the Corridor who may be currently choosing other modes of transportation.

a) Limited ability to accommodate current or anticipated travel demand in the Corridor, resulting in the deterioration of transportation service quality as a result of congestion, longer trip times and decline of service reliability

Over the last decade, there is a demonstrated increase in demand for passenger rail within the Corridor. Overall, between 2000 and 2010, ridership increased substantially on each of the three passenger rail lines using the Corridor (the Wolverine, the Blue Water and the Pere Marquette lines) by 49.7%, 45.7% and 57.2% respectively.[4,5] This growth in passenger rail travel will be weakened if existing issues affecting reliability and comfort, as discussed in detail below, are not addressed.

According to the US Census Bureau, between 2000 and 2010 Chicago's metropolitan statistical area (MSA) has grown by approximately four percent. The MSA's three northwestern Indiana counties (Lake, Porter and LaPorte) grew by 4.1%. In the same time period, the population of Illinois, Indiana, and

[4] Michigan Department of Transportation. *Passenger Rail Statistics Website.* http://mdotwas1.mdot.state.mi.us/public/railstats/. Accessed online June 2012.
[5] Midwest Regional Rail Initiative. *MWRRI Project Notebook*. June 2004.

Michigan changed by 3.3%, 6.6% and -0.6% respectively. The combined population in Illinois, Indiana, and Michigan has increased by approximately 2.67% (almost 760,000 people). This population growth is expected to result in increased congestion on area roadways, especially in the metropolitan areas.

Other pertinent demographics are projected to change that are likely to impact future ridership as well. In the near future, the number of people over age 65 will steadily increase as the baby boom generation ages. This population will begin to seek alternatives to driving automobiles as this age group's ability to safely operate motor vehicles decreases. Passenger rail can provide a needed alternative to driving the long distances between Chicago and Detroit/Pontiac, Michigan.

MWRRI studies report that long term (through the year 2040) population, employment and income across the MWRRI states are all projected to grow consistently. This growth is expected to result in a 13 percent increase in intercity travel throughout the Midwest between 2010 and 2020 and a further 28 percent increase by 2040.[6]

The current passenger rail service is not competitive with other modes of travel. In 2011, Michigan's Amtrak corridor had the worst on-time performance of the Amtrak system, being on-time only 33.1% of the time due to infrastructure and facility deficiencies as further discussed below. This is a continued decline in performance from 2010 when this Corridor had the third worst on-time performance at 61.2%.[7]

Improved intercity passenger rail service for the Corridor would provide a reliable alternative travel mode to avoid increasingly congested Midwestern highways and airports and substantial travel delays resulting from existing conditions, including peak hour highway delays, security, and related delays associated with air travel, and adverse weather conditions. The need to reduce highway congestion and delays at airports, and to ease the transportation-related effects of further population growth over the long term, is becoming increasingly imperative within the Corridor.

Interstate I-94 between Chicago and Detroit currently experiences peak-period congestion and capacity issues in the Chicago and Detroit metropolitan areas indicated by volume/service flow ratios[8] greater than 0.95 that result in stop-and-go traffic conditions. By 2040, if no capacity improvements are made, larger sections of the I-94 corridor between Chicago and Benton Harbor, Michigan, Kalamazoo and Battle Creek, Michigan and Ann Arbor and Detroit, Michigan will be experiencing a volume/service flow ratio

[6] Midwest Regional Rail Initiative. *MWRRI Project Notebook.* June 2004.
[7] *Amtrak Monthly Performance Report for September 2011*. June 14, 2012.
[8] The volume/surface flow ratio represents the relationship between actual traffic volumes and the maximum capacity of the roadway. No roadway congestion is present when the volume/surface flow ratio is 0.0. Roadways are considered congested when the volume/surface flow ratio is between 0.75 and 0.95. A roadway with a volume/surface flow ratio of 0.95 to 1.0 has traffic volumes approaching or equal to the surface flow and is considered to be highly congested, and experiences stop-and-go traffic conditions.

greater than 0.95 indicating a highly congested highway with stop-and-go traffic conditions in the peak-period.[9]

Chicago O'Hare International Airport is also the second busiest airport in the nation in aircraft movements. The airport accommodates over 870,000 aircraft movements annually which equates to nearly 2,400 movements per day.[10] Additionally, Chicago O'Hare International Airport is ranked the fourth worst airport among all major U.S. airports based on on-time departure performance, with 76.58 percent of departures on-time in 2012.[11]

b) Limited intercity travel options restrict both the mobility of the resident populations and localities' potential for economic development

The lack of existing capacity and the sharing of track between freight and passenger trains currently create operational problems that restrict both mobility and economic development. These restrictions are demonstrated by the lengthy delays for existing passenger rail service operating within the Area of Analysis, especially between Chicago, Illinois and Porter, Indiana, near Battle Creek, Michigan, and in the Detroit region. In addition, infrastructure improvements have been identified in the MWRRI study as necessary for enhanced passenger rail service within the Corridor. This includes operational improvements at CUS and upgraded track and signaling between Kalamazoo, Michigan, and Detroit/Pontiac, Michigan station facilities along the Corridor are also not ideal for providing easy access to passenger rail. A good indicator of the track condition is demonstrated by the issuance of a number of slow-orders by Norfolk Southern including most recently in March 2012. These slow-orders are issued to decrease the maximum speed on sections of track where there are safety concerns. This in turn affects passenger rail service performance.

Addressing needed infrastructure and facility improvements would bring the ability to allow higher speeds in the Corridor and increase access to passengers. Additional infrastructure investment needed to increase train speed will also allow an increase in the frequency of service. This would make the service more reliable and more likely to succeed in attracting ridership, increasing mobility and enhancing station area development opportunities near proposed stations.

The implementation of passenger rail service can also support economic development near rail stations, spurring investment that serves both existing neighborhoods and areas targeted for a transition from industrial uses to urban infill development. This can occur at a range of scales depending upon the quality

[9] Federal Highway Administration. November 2010. *Freight Facts and Figures 2010*. Retrieved August 27, 2014. http://www.ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/10factsfigures/index.htm.
[10] AirportIQ. *Airport Master Records and Reports*. July 24, 2014. Retrieved August 27, 2014. http://www.gcr1.com/5010web/airport.cfm?Site=ORD&AptSecNum=2
[11] U.S. Department of Transportation Bureau of Transportation Statistics. *Table 6 - Ranking of Major Airport On-Time Departure Performance Year-to-date through December 2012*. Retrieved August 27, 2014. http://www.rita.dot.gov/bts/subject_areas/airline_information/airline_ontime_tables/2012_12/table_06

and frequency of service. For example, dry cleaners, restaurants, newsstands, coffee shops, and daycare centers are common complementary services that would attract daily rail riders. Synergies with transit in downtown locations often produce a much more dynamic mix of commercial and retail uses, including office uses. The introduction of passenger stations in existing or planned commercial settings strengthens business and development opportunities. This station area development provides a potential land use benefit to the cities and communities that have rail stations. The existing and proposed stations in major Michigan cities, such as Ann Arbor, Dearborn and Detroit, and any existing or new stations proposed in Indiana may benefit from enhanced commercial development near the rail stations.[12]

The Program is also an integral part of the complete MWRRI system and would allow rail passengers in the Corridor to connect to all the other destinations within the system (see map in Figure 1-2). The complete system will provide access to over 100 Midwest cities and 80% of the region's 65 million residents.[13] It is for this reason that it is important that the Preferred Alternative identified as part of this Tier 1 EIS provide direct connection into CUS, as this facility is envisioned as the central hub where intercity passenger rail connections can be made to other Midwest cities and regions of the country.

c) Inadequate rail capacity in the Corridor provides uncompetitive trip times, poor reliability, and low levels of passenger comfort and convenience for travelers

In addition to travel time reductions and increases in train frequency, improved service and reliability and modern equipment/technology are needed to attract the attention of travelers and increase the competitiveness of rail travel versus other means of transportation. The intent is to establish the system as a new mode choice for both business and non-business travelers. Current passenger trains are not competitive with other modes of travel in both travel time and convenience. They also lack the modern amenities travelers expect both on the train and at the stations. Amenities that would respond to customer expectations and satisfaction 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.

The increased congestion described in the previous sections along I-94 corridor and at Chicago's O'Hare Airport will result in a loss of efficiency of other mode choices (bus, automobile, and air travel) as well. Since most people select their travel mode based on trip time, cost and convenience, the ability to choose a more efficient passenger rail service within the Corridor could help to offset the overall increasing travel demands on other modes.

In addition, the added competition to air and bus can be expected to help keep overall travel costs affordable to the traveling public. Passenger rail service can also offer convenience and productivity benefits to business travelers who can work and conduct business activities while traveling, something

[12] Michigan Department of Transportation. *Michigan State Rail Plan. Final Report*. September 2011
[13] Midwest Regional Rail Initiative. *MWRRI Project Notebook.* June 2004.

one cannot safely do while driving an automobile. Automobile, bus and air travel are often delayed during inclement weather; whereas rail travel can typically continue without significant delay.

The improved travel mode competitiveness gained through enhanced amenities, access, service, and effective connections to other modes could also support and promote the desired station area development.

d) Lack of competitive advantages for modern intercity passenger service resulting in the inability to attract passenger rail travelers within the Corridor who may be currently choosing other modes of transportation.

Travel modes available to the public along the Corridor include automobile, bus, air, and traditional passenger rail service provided by Amtrak. Different travel modes are generally selected by the public based on a combination of trip time, cost, and convenience. Bus and air service are available between several of the major cities in the Corridor. Interstate I-94, I-80/I-90 and the Chicago Skyway are the dominant highway routes in the Corridor.

Trip Convenience

Amtrak's current passenger rail service along the Corridor is not competitive with other modes in the Area of Analysis in part because of the aforementioned congestion and capacity delays and reliability issues. This in turn impacts the attractiveness of Amtrak's existing arrival and departure schedule along the Corridor making it very difficult for same day passenger travel into either Chicago or Detroit. A 2009 study completed by MDOT asked rail passengers which considerations most influenced their decision to use rail over alternatives such as automobile, airline, or bus. Respondents of the survey stated "the most important consideration was that the train schedule matched the traveler's needs".[14] Addressing the service reliability needs within the Corridor would provide opportunities to expand service and meet existing and future passenger demands.

One convenience advantage that passenger rail has over other modes within the Corridor occurs during inclement weather. On average, counties within the Area of Analysis receive between 31 inches and 66 inches of annual snow fall, predominantly during the winter months of December through March.[15] Often this winter weather comes in the form of "lake effect" snow storms which creates hazardous travel conditions that impact both highway and air travel, creating a need for an alternative mode that is less prone to winter service interruptions. Improvement in passenger rail service reliability would further enhance reliable travel during the winter months.

[14] University of Michigan. *Intercity Bus and Passenger Rail Study*. July 2009.
[15] Purdue University. *Indiana Climate Data*. August 2012.

Cost

Automobile travel is currently the most affordable mode of travel within the Corridor followed closely by passenger rail service and then airline travel. The estimated fuel costs for a one-way automobile trip between Chicago and Detroit is $47.94 (assuming 300 miles at $3.99 a gallon for a vehicle that averages 25 miles per gallon fuel consumption).[16] Other factors which also must be considered, however, when considering the true cost of automobile travel along the Corridor include vehicle maintenance costs, tolls, parking, and user delay costs if highway congestion is encountered on the trip. The cost of Amtrak's shortest direct route ticket for travel on the Wolverine line between Detroit and Chicago is $76.00.[17] Amtrak's most affordable ticket for travel between Detroit and Chicago is $55.00. Airline prices fluctuate drastically given time of travel, class of travel, peak period demands, and fuel prices. Currently an average airline ticket from Detroit to Chicago costs between $175 and $350 when considering all associated fees.[18] When considering all travel costs, passenger rail travel is very comparable in price to other modes currently operating within the Corridor. Improving service frequency and reliability would increase the attractiveness of passenger rail service within the Corridor and likely increase ridership given the current price points.

Trip Time

Assuming no weather related delays, air travel is the fastest mode of transportation between Chicago and Detroit, followed by automobile travel and then travel by passenger rail. Flight time between Chicago's Midway Airport and Detroit Wayne County Metropolitan Airport is approximately 30 minutes. However, when adding required time to clear security, board and deplane, end to end total travel time is more likely in the range of 2 hours to 2 hours and 45 minutes.[19] The estimated travel time of automobile travel between Chicago and Detroit is 4 hours and 38 minutes assuming free-flow travel conditions.[20] Amtrak's shortest existing service between Detroit and Chicago is estimated at 5 hours and 36 minutes.[21] If infrastructure improvements are made to alleviate the congested conditions within the Corridor and conditions were improved to allow train speeds to be increased to 110 miles per hour along the Corridor, end-to-end Chicago-Detroit/Pontiac travel time could be reduced by approximately 2 hours, as preliminary schedules (Appendix C) indicate express travel time between Chicago and Detroit is 3 hours and 46 minutes. This travel time savings would make passenger rail service more reliable and more likely to succeed in attracting ridership, increasing mobility and providing greater environmental benefits within the Corridor.

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[16] Travel Math Website. http://www.travelmath.com. Accessed August 9, 2012.
[17] Amtrak Website. http://tickets.amtrak.com/itd/amtrak. Accessed August 8, 2012.
[18] Travel Math Website. http://www.travelmath.com. Accessed August 9, 2012.
[19] Travel Math Website. http://www.travelmath.com. Accessed August 9, 2012.
[20] Travel Math Website. http://www.travelmath.com. Accessed August 9, 2012.
[21] Travel Math Website. http://www.travelmath.com. Accessed August 9, 2012.

1.4 Program Area of Analysis

The Area of Analysis for the Build Alternatives examined in Chapter 3 (Affected Environment and Environmental Consequences) includes a buffer of 250 feet on either side of the centerline of the various routes for a total corridor width of 500 feet. Chapter 3 describes the Area of Analysis in detail.

1.5 Decisions to Be Made

The National Environmental Policy Act (NEPA) process provides public decision-making officials with an understanding of the environmental consequences of proposed actions and reasonable alternatives and describes actions they can take 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.

This Tier 1 EIS provides the environmental resource and regulatory agencies, the public, and decision makers with an understanding of the environmental impacts of the various Program alternatives. The selection of Program alternatives is described fully in Chapter 2 (Alternatives Considered).

Chapter 3 (Affected Environment and Environmental Consequences) describes and compares the environmental effects of each of the Build Alternatives as well as the alternative of not implementing the program (also called the No Build Alternative). Decisions to be made through the Tier 1 EIS process ultimately include the selection of the Preferred Alternative including the route, the identification of communities served by station stops, frequency of service, and service speeds and travel times. The Tier 1 Final EIS will document the responses to the agencies' and the public's review comments on the Tier 1 Draft EIS. The Tier 1 Final EIS will also document the decision-making process for the Tier 1 Preferred Alternative.

Following completion of the Tier 1 Final EIS, FRA will make a decision on the Program and Route Alternative in the Record of Decision (ROD). The Selected Program Alternative would be further analyzed in Tier 2 NEPA analysis on site-specific projects, prior to implementation of improved and expanded passenger rail service between Chicago and Detroit/Pontiac. This work would be done at a time when more detailed design information is available, allowing for a more quantitative analyses of impacts. Tier 2 documents would be developed for the projects listed in Chapter 5, Next Steps.

1.6 Connected Actions

As discussed above in Section 1.1, this Program is associated with the MWRRI. Other actions connected to this Program are further discussed in Chapter 2 (Alternatives Considered) Section 2.1 (Passenger Rail

Service Alternative), Section 2.2(Route Alternatives), Section 2.3 (Station and Maintenance Facility Opportunities), and Section 2.4 (Alternatives Evaluated in the Tier 1 EIS).