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Regional Passenger Rail System Planning Study

Tier 1 Service Level

FINAL

Environmental Impact Statement

May 2013

Iowa Department of Transportation

Illinois Department of Transportation

U. S. Department of Transportation
Federal Railroad Administration

FEDERAL RAILROAD ADMINISTRATION

Chicago to Council Bluffs-Omaha Regional Passenger Rail System Planning Study
Tier 1 Service Level Final Environmental Impact Statement

Prepared by
U.S. Department of Transportation, Federal Railroad Administration
and
Iowa Department of Transportation
and
Illinois Department of Transportation

Cooperating Agencies

Federal Highway Administration, Iowa Division
Federal Transit Authority, Region 5
U.S. Army Corps of Engineers, Rock Island District
U.S. Coast Guard, District 8
U.S. Department of the Army, Rock Island Arsenal
U.S. Environmental Protection Agency, Region 5
U.S. Environmental Protection Agency, Region 7
U.S. Fish and Wildlife Service, Rock Island
Illinois Department of Natural Resources
Iowa State Historic Preservation Office

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 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).

Date of Approval	FRA Administrator
5/2/2013 Date of Approval	Tamara Nicholson for Iowa DOT
5/2/2013 Date of Approval	Miriam Gutierrez for Illinois DOT

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This Tier 1 Environmental Impact Statement (EIS) evaluates intercity passenger rail service improvements in the 500-mile Chicago, IL to Omaha, NE Corridor in Cook, DuPage, Kane, Kendall, DeKalb, La Salle, Bureau, Henry, and Rock Island counties in Illinois; Scott, Muscatine, Cedar, Johnson, Iowa, Poweshiek, Jasper, Polk, Dallas, Madison, Guthrie, Adair, Cass, and Pottawattamie counties in Iowa; and Douglas County in Nebraska. A No-Build and a Build Alternative for passenger rail improvements are evaluated. The No-Build Alternative would include independently planned construction of passenger rail service from Chicago to Moline, referred to as the Chicago to Quad Cities Expansion Program. The Build Alternative would consist of improvements to tracks currently owned and operated predominantly by the Iowa Interstate Railroad and the BNSF Railway, and would create a competitive transportation alternative between Chicago and Omaha 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.

EXECUTIVE SUMMARY

ES.1 BACKGROUND

The Iowa Department of Transportation (Iowa DOT), in conjunction with the Federal Railroad Administration (FRA), is evaluating alternatives for the expansion of intercity passenger rail service from Chicago, Illinois, through Iowa, to Council Bluffs, Iowa, and Omaha, Nebraska (the Project). Intercity passenger rail service provides "connectivity between major urban centers" (MWRRI, September 2004). Iowa DOT's evaluation is documented in this Chicago to Council Bluffs-Omaha Regional Passenger Rail System Planning Study (the Study) Tier 1 Service Level Environmental Impact Statement (EIS). Past planning documents identified a "Chicago to Omaha" corridor, so for the purposes of this analysis, the corridor reference will remain as previously designated. The Project name includes "Council Bluffs" in the title because the Project terminus is the Omaha/Council Bluffs metropolitan area; "Council Bluffs" is listed before Omaha because it is located between Chicago and Omaha. For passenger rail projects, this Tier 1 EIS focuses on broad corridor and service level issues, while subsequent Tier 2 analyses would focus on the details of a specific project or action.

This Tier 1 EIS evaluates the No-Build Alternative and the Build Alternative as described in Section ES.3. In addition, following publication of the Tier 1 Draft EIS, Iowa DOT determined that an interim implementation phase for the Project would be needed, as described in Section ES.3.4.4.

ES.1.1 History

The existing rail lines that are proposed to be used to provide passenger service from Chicago, Illinois, through Iowa, to Omaha, Nebraska, were all in place by 1871 and were initially constructed to carry passengers and to haul a variety of freight (Colton, 1871; Hudson, 2005). Most of the passenger service along these routes began in the 1850s, 1860s, and 1870s (Young, 2005). By the 1880s, commuter rail service in Chicago had been developed in a hub-and-spoke pattern, extending 30 to 40 miles in 15 different directions from downtown Chicago. This hub-and-spoke system is still operating today as Chicago's Metra (Conzen, 2005; Young, 2005). Intercity passenger rail service generally was terminated by the 1970s, when railroad passenger service declined nationally, and was consolidated into Amtrak (Hudson, 2005).

The Midwest Regional Rail Initiative (MWRRI) was established in 1991 as part of federal transportation acts that included a broader national effort to support high-speed rail investment. Sponsors of the MWRRI included Amtrak and nine Midwest transportation agencies of the states of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin.

As a result of the MWRRI and the national high-speed rail initiative, numerous corridors were identified and refined, with Chicago as the hub. Between 1996 and 2004, a single transportation plan was developed that included all of these corridors; this plan is known as the Midwest Regional Rail System. The nine passenger rail corridors originally considered for the Midwest Regional Rail System included (see Figure ES-1):

- Chicago to Detroit/Grand Rapids/Port Huron, Michigan
- Chicago to Cleveland, Ohio
- Chicago to Cincinnati, Ohio
- Chicago to Carbondale, Illinois
- Chicago to St. Louis, Missouri
- St. Louis, Missouri, to Kansas City, Missouri
- Chicago to Quincy, Illinois
- Chicago to Omaha, Nebraska
- Chicago to Milwaukee, Wisconsin, and to St. Paul, Minnesota/Green Bay, Wisconsin

Planning, design, and development for passenger rail corridors have progressed since the original conception of the Midwest Regional Rail System. Figure ES-2 shows the currently proposed rail corridor in the Great Lakes Megaregion as it is anticipated to exist in 2050.

In 2009 and 2010, Iowa DOT and the Illinois Department of Transportation (Illinois DOT), in conjunction with FRA, evaluated alternatives for the corridor extending from Chicago Union Station to Iowa City, Iowa, with the completion of the Chicago to Iowa City Intercity Passenger Rail Service Tier 1 Service Level Environmental Assessment. On October 28, 2010, FRA awarded Iowa DOT and Illinois DOT a grant of $230 million to proceed with the Chicago to Iowa City corridor Tier 2 Project Level studies and construction activities.

In 2010 and 2011, additional studies were completed for the MWRRI prior to commencement of the Chicago to Council Bluffs-Omaha Regional Passenger Rail System Planning Study. These studies included MWRRI corridor alternatives analysis, capital cost updates, operating equipment configurations and performance standards, advanced train control, and public outreach (MWRRI, 2011). The Chicago to Omaha corridor (the Corridor) was included in these studies. Subsequent to these studies, Iowa DOT and FRA concluded that analysis for speeds up to 110 miles per hour (mph) is warranted for the Chicago to Omaha Corridor and would include a maximum of seven round-trips per day.

Full implementation of the MWRRI would significantly improve Midwest passenger rail service by upgrading existing rail lines to permit frequent, reliable, efficient, high-speed passenger train operations that would provide through-service and connectivity in Chicago to locations throughout the Midwest region. With full implementation, the Midwest Regional Rail System would encompass approximately 3,000 route miles in the sponsor states and would attract approximately 13.6 million passengers annually. Approximately 90 percent of the Midwest region's population would be within an hour's ride of a Midwest Regional Rail System rail station and/or within 30 minutes of a Midwest Regional Rail System feeder bus station (MWRRI, September 2004).

*Indiana DOT is evaluating additional passenger rail service to South Bend and to Louisville.
**In Missouri, current restrictions limit train speeds to 79 mph.

Sources: Routes, IDOT; State/County/City Boundaries, Census/TIGER 2010; Lake, NHD

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Midwest Regional Rail System

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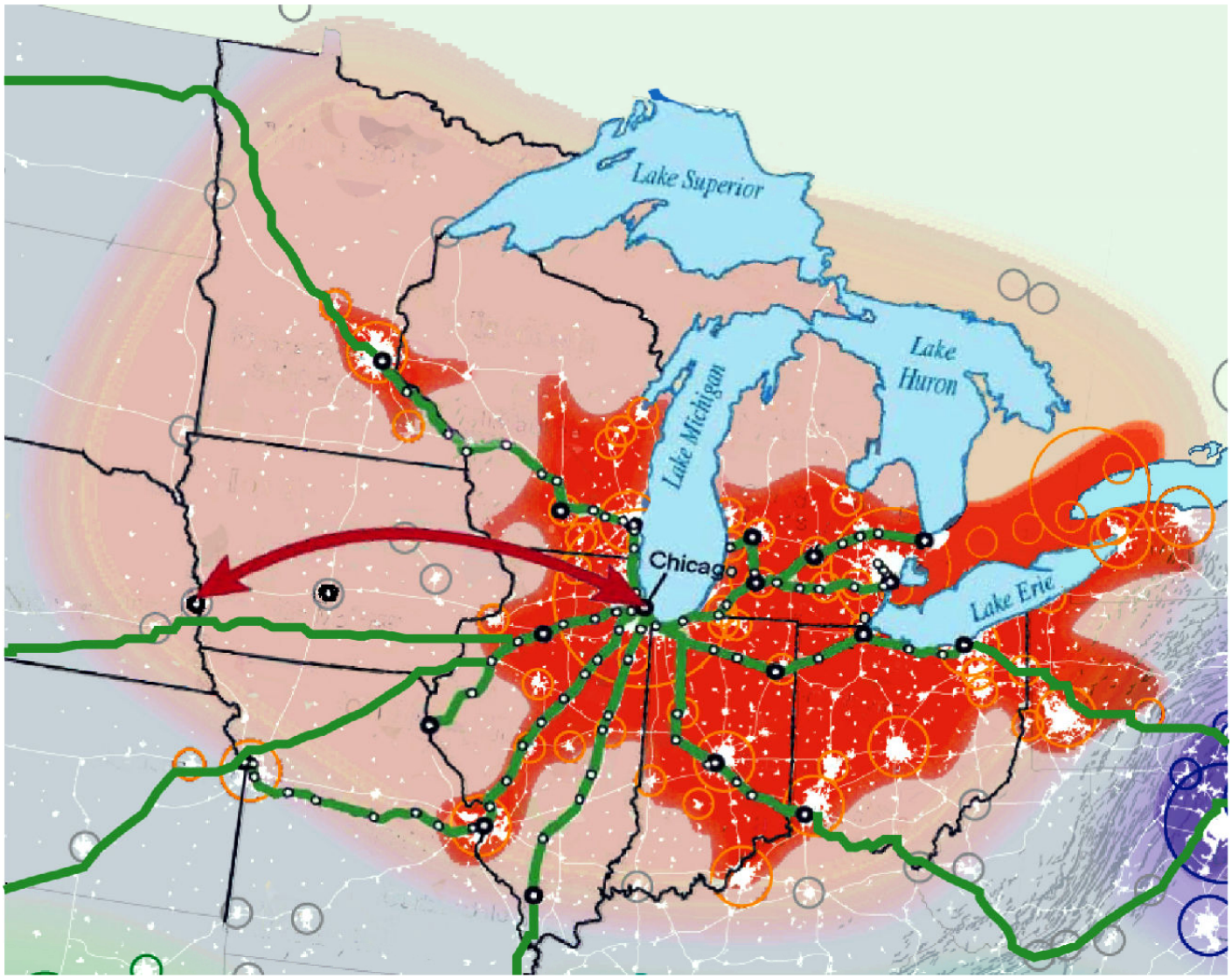
FIGURE
ES-1



Megaregion | Area of influence | Chicago to Council Bluffs-Omaha

Current long-distance and intercity passenger rail routes

Regional Plan Association, 2013,
America 2015 (http://www.america2050.org).

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Great Lakes Megaregion Rail System and Areas of Influence (2050)

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FIGURE
ES-2

On October 14, 2011, FRA agreed to a phased implementation approach for the Chicago to Iowa City corridor. Illinois DOT is proceeding with the Tier 2 studies and construction activities for the portion of the corridor extending from Chicago to Quad Cities with a terminus in Moline, Illinois. Iowa DOT would conduct Tier 2 studies for the portion of the corridor from the Quad Cities to Iowa City.

While the Chicago to Iowa City service and Chicago to Council Bluffs-Omaha service may ultimately use the same corridor from Chicago to Iowa City for implementation, the level of service under consideration is different. From Chicago to Iowa City, service was evaluated at a maximum of five round-trip trains per day at speeds up to 79 mph, while the Chicago to Council Bluffs-Omaha service is being evaluated for a maximum of seven round-trip trains per day at speeds up to 110 mph. The higher maximum speed and frequency of service for the Chicago to Council Bluffs-Omaha service would result in additional impacts, and, therefore, require additional study. For analysis purposes in this Tier 1 EIS, the passenger rail service from Chicago to the Quad Cities is assumed to be constructed and in operation.

ES.1.2 Study Area

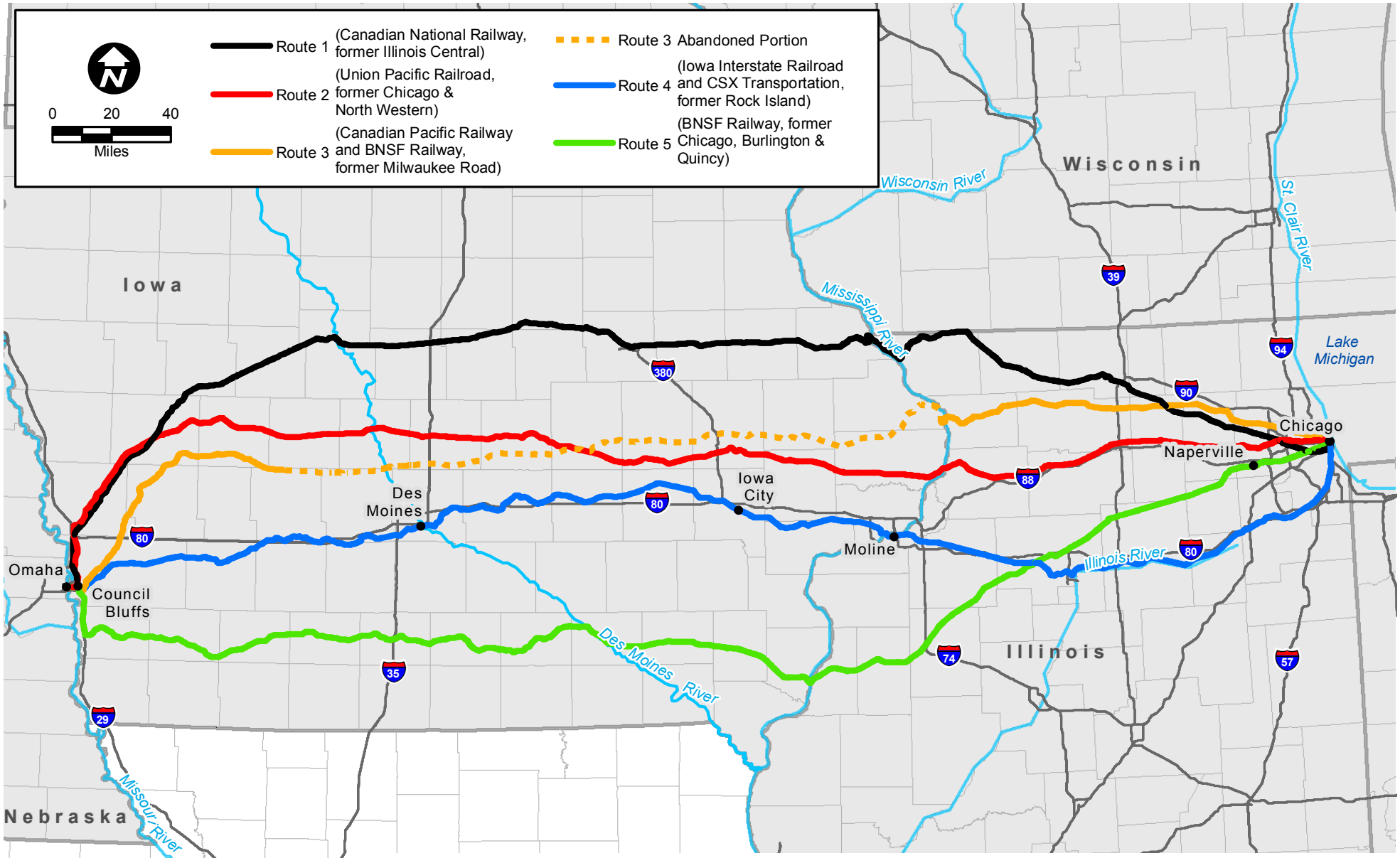
The Corridor extends from Chicago Union Station, in downtown Chicago, Illinois, on the east to a terminal in Omaha, Nebraska, on the west. The Study Area consists of the five previously established passenger rail routes between Chicago and Omaha that pass through the states of Illinois and Iowa (Figure ES-3).

ES.2 PURPOSE AND NEED

ES.2.1 Purpose

The Project and the Midwest Regional Rail System are intended “to meet current and future regional travel needs through significant improvements to the level and quality of passenger rail service,” as defined by the MWRRI in its Midwest Regional Rail System Executive Report (MWRRI, September 2004). The Chicago to Council Bluffs-Omaha Regional Passenger Rail System would provide competitive passenger rail transportation between Chicago and Omaha to help meet future travel demands in the Study Area. The Project would create a competitive passenger rail transportation alternative to the available automobile, bus, and air service and would meet needs for more efficient travel between major urban centers by:

- Decreasing travel times
- Increasing frequency of service
- Improving reliability
- Providing an efficient transportation option
- Providing amenities to improve passenger ride quality and comfort
- Promoting environmental benefits, including reduced air pollutant emissions, improved land use options, and fewer adverse impacts on surrounding habitat and water resources



Iowa Department of Transportation
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Study Area

Chicago to Council Bluffs - Omaha
Regional Passenger Rail System Planning Study

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FIGURE
ES-3

ES.2.2 Need

The need for the Project stems from the increasing travel demand resulting from population growth and changing demographics along the Corridor as well as the need for competitive and attractive modes of travel (MWRRI, June 2004). Population in the Study Area is increasing and becoming more urbanized, with expanded access to and demands for public transportation (Iowa DOT, December 27, 2010). The population is also aging and is increasingly seeking alternative modes of transportation. Currently, the predominant mode of travel in the region is the automobile, estimated to account for approximately 98 percent of travel between city pairs in the Study Area.

Intercity passenger rail service would provide an option to highway and air travel between major urban centers in the face of a growing and aging population and increasing congestion on Midwest highways and at Midwest airports. A one-way trip by automobile between Chicago and Omaha along Interstate 80 (I-80) or Interstate 88 (I-88), at posted interstate speeds, would take about 8 hours during off-peak hours. The cost of driving round-trip between Omaha and Chicago with one day of parking in either Omaha or Chicago would be approximately $547 to $577 respectively.

I-80 is also a major truck route in the region. Between 2010 and 2030, vehicle miles traveled in Iowa on I-80 are expected to increase by more than 65 percent. If no capacity improvements are made, nearly 75 percent of I-80 in Iowa would be bordering on unstable traffic flow, at or beyond capacity (Iowa DOT, January 24, 2012), resulting in stop-and-go traffic conditions in Chicago, Des Moines, and Omaha (Federal Highway Administration [FHWA], November 2010).

Air service in the Study Area is currently available between the major cities of Chicago, Moline, Des Moines, and Omaha. Direct flight service between Chicago and Omaha is served by American Airlines, Southwest Airlines, United Airlines, and U.S. Airways, with typical flight times ranging from 1 hour and 20 minutes to 1 hour and 40 minutes. Tickets purchased with 2 weeks advanced notice typically cost between $210 and $1,400 (FRA and Iowa DOT, 2012).

Bus service is provided in a majority of mid-to-large sized cities, with intermittent service in smaller towns. Service between Chicago and Omaha, with multiple stops, was provided by Greyhound, although its routes were taken over by Burlington Trailways in August 2012. Typical bus service includes two trips per day—one in the early morning and one in the late evening—with travel times ranging from 9 hours and 15 minutes for “Express” service to 9 hours and 40 minutes for regular service (Greyhound, 2011). Bus ticket prices vary from $40 to $126 (FRA and Iowa DOT, 2012). Megabus.com, a subsidiary of Coach USA, is a low-fare express bus service that recently added daily service between Chicago and Omaha with stops in Iowa City and Des Moines. Megbus.com provides two round-trips per day: one in the morning and one in the late evening. The full one-way trip from Chicago to Omaha takes 8 hours and 50 minutes.

Current passenger rail service between Chicago and Omaha is part of Amtrak’s long-distance service on the *California Zephyr*, with arrival and departure times late at night or early in the morning, and travel times of approximately 8 hours and 55 minutes from Chicago to Omaha, and approximately 9 hours and 36 minutes from Omaha to Chicago (Amtrak, November 7,

2011). Tickets purchased with 2 weeks advanced notice typically cost $69 to travel from Chicago to Omaha and $108 to travel from Omaha to Chicago (FRA and Iowa DOT, 2012).

Inclement winter weather in the Study Area often creates conditions that impact both highway and air travel, creating a need for an alternative mode that is less prone to winter service interruptions.

ES.2.3 Decisions to be Made

Iowa DOT and FRA must comply with the National Environmental Policy Act (NEPA) due to the proposed use of FRA's High-Speed Intercity Passenger Rail Program funds for the Project. FRA has issued guidance supporting a tiered NEPA approach that includes Tier 1 NEPA documents followed by Tier 2 NEPA documents (FRA, August 14, 2009). With a tiered approach, the Tier 1 NEPA document evaluates impacts of a broad-scale project with focus on more qualitative than quantitative impacts on specific resources. Following completion of the Tier 1 NEPA document and the associated decision document, Tier 2 NEPA documents are developed to evaluate quantitatively the environmental impacts within one or more specific logical sections or phases of the Project, which would be developed through separate but related projects.

The purpose of this Tier 1 EIS is to provide environmental resource and regulatory agencies, the public, and decision makers with a full understanding of the service-wide environmental impacts of the Project alternatives. Decisions to be made through this Tier 1 EIS process include selection of a preferred corridor and identification of communities served by station stops, frequency of service, speed of service, and a plan for phased implementation of service. Prior to implementation of passenger rail service between Chicago and Council Bluffs-Omaha, Tier 2 NEPA documents will be developed for the logical sections or phases identified in Section ES.7, Next Steps.

ES.2.4 Other Transportation Projects

In addition to the Chicago to Council Bluffs-Omaha Regional Passenger Rail System Planning Study, numerous transportation projects in and near the Study Area are in various stages of development. These major transportation projects for passenger rail, commuter rail, tollways, and interstate travel include the following:

- MWRRI corridors that are currently funded passenger rail projects and are under development at various stages of planning and implementation:
    - Chicago to Detroit (Pontiac), Michigan
    - Chicago to St. Louis, Missouri
    - St. Louis, Missouri, to Kansas City, Missouri
    - Chicago to Moline, Illinois (the Illinois portion of the Chicago to Iowa City project)
    - Chicago to Milwaukee, Wisconsin, to Twin Cities, Minnesota, to Duluth, Minnesota
- An Illinois DOT project between Chicago and Dubuque, Iowa, that is in the early planning stages
- Metra projects that include improvements and expansion of commuter rail service in the Chicago metropolitan area

- The Illinois State Toll Highway Authority's capital programs for improvements to existing tollways, development of new tollways, improvements to rebuild and restore the existing system, and the recently constructed south extension of I-355 into Will County
- Numerous localized interstate improvement projects of both Illinois DOT and Iowa DOT, including:
    - Illiana Corridor (Illinois), which would provide a direct connection between I-55 in Illinois and I-65 in Indiana
    - Elgin O'Hare West Bypass Study (Illinois), which involves a new expressway, arterial, transit, and bicycle/pedestrian improvements west of O'Hare International Airport
    - Council Bluffs Interstate System Improvements Project (Iowa), which addresses improvements to I-80, I-29, and I-480

ES.3 ALTERNATIVES CONSIDERED

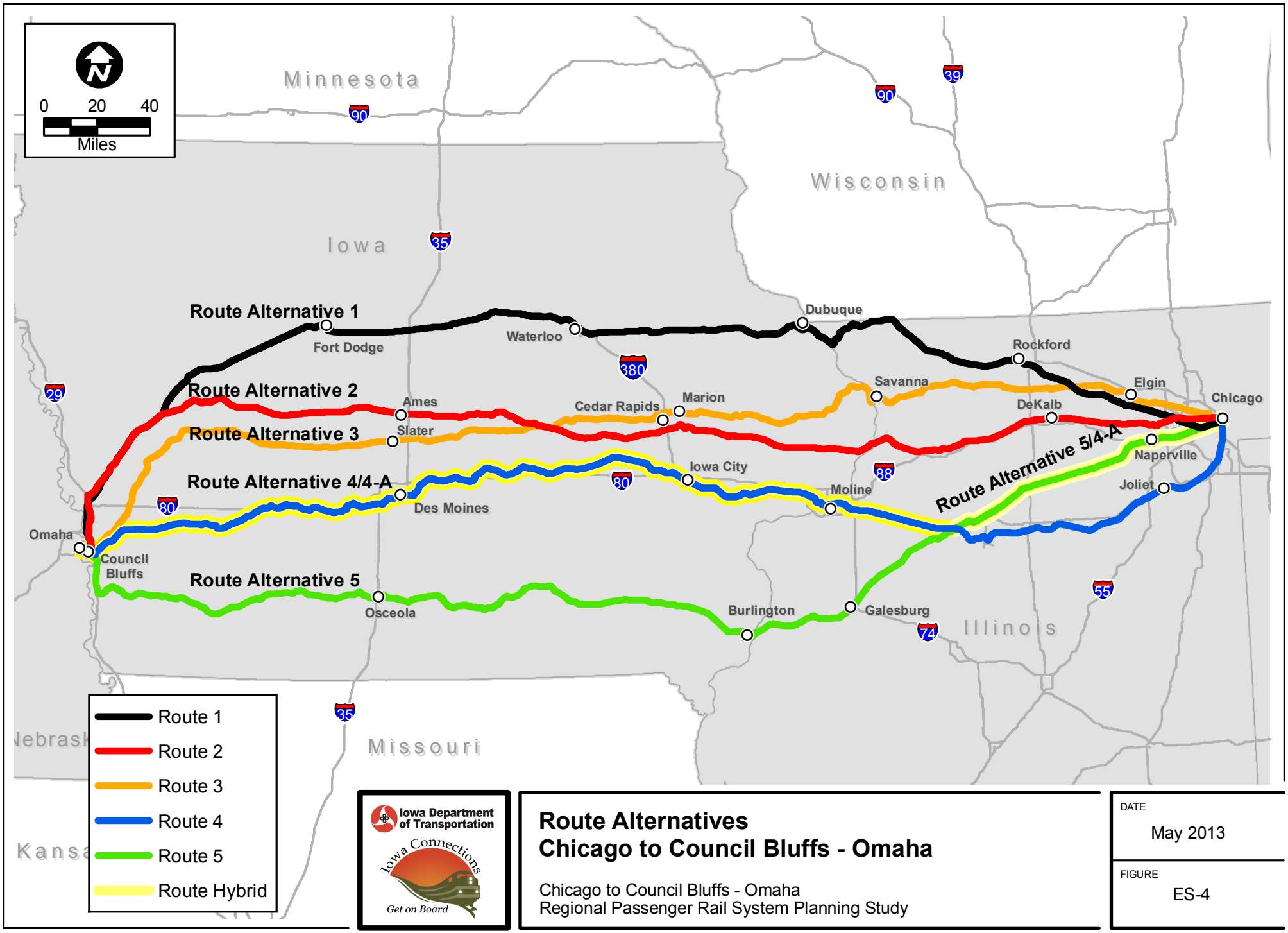
The initial range of route alternatives proposed for consideration for the Study, the screening criteria and multi-step process used to evaluate the route alternatives, and the results of the alternatives analysis are summarized in this section. Subsequent to the route screening process, options for service (speeds, frequencies, and station stops) were identified, reviewed, and screened, and design options for route connectivity through the Des Moines, Iowa, area and the Council Bluffs, Iowa, and Omaha, Nebraska, area were considered. The No-Build Alternative and Build Alternative (including its phased implementation) are also described in detail in this section.

ES.3.1 Initial Range of Route Alternatives

The potential route alternatives for the Corridor have been evaluated based on reviews of previous studies and also the ideas and concepts that were suggested by resource agencies and the public during the scoping process.

The range of route alternatives evaluated included the No-Build Alternative and existing or former freight-only or freight-passenger routes that may have been previously identified by the MWRRI and other studies.

The No-Build Alternative, the five previously established passenger rail routes in the Corridor (Route Alternatives 1 through 5), and the combination of Route 4 and Route 5 (Route Alternative 4-A) compose the initial range of route alternatives proposed for consideration for the Study. These route alternatives are shown in Figure ES-4, including the major cities through which they travel. The No-Build Alternative is included to provide a basis for comparison to the other route alternatives (40 CFR 1502.14; 64 FR 28545).



Route Alternatives
Chicago to Council Bluffs - Omaha

Chicago to Council Bluffs - Omaha
Regional Passenger Rail System Planning Study

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FIGURE
ES-4

ES.3.2 Screening Process

The screening process included two steps: an initial coarse-level screening to identify whether any route alternative would be hindered by major challenges (and would thus be eliminated from further evaluation) and a subsequent fine-level screening to evaluate each route alternative in greater quantitative and qualitative detail. This two-step screening process was intended to allow the Tier 1 EIS to focus on only those route alternatives that would meet the purpose and need for the service, and that are reasonable and feasible.

Coarse-Level Screening of Route Alternatives

Coarse-level screening was conducted to compare the merits and drawbacks of each route alternative against broad screening criteria. These criteria and their factors for evaluation for coarse-level screening are as follows:

- Purpose and Need: Travel Demand (travel demand based on population served)
- Purpose and Need: Competitive and Attractive Travel Modes (providing a time-competitive route)
- Technical Feasibility (major construction efforts and freight train traffic conflicts)
- Economic Feasibility (benefit/cost ratio and project costs)
- Environmental Concerns: Major Challenges (natural and human environment)
- Environmental Concerns: Sensitive Areas (wetlands, wildlife and waterfowl refuges, cultural resources, and park and recreation lands)
- Environmental Concerns: Right-of-Way (potential ROW acquisition)

A conservative 500-foot-wide buffer was applied to each of the route alternatives analyzed in the coarse-level screening. Unreasonable alternatives were eliminated from further consideration.

Fine-Level Screening of Route Alternatives

Fine-level screening was conducted to determine which remaining route alternatives would be carried forward for detailed evaluation in this Tier 1 EIS. During fine-level screening, route alternatives carried forward from the coarse-level screening were further screened for their ability to offer the highest potential ridership; the least potential construction, operation, and maintenance cost; and the least potential impact on the natural and human environment. This screening relied on the broad screening criteria and the factors for evaluation noted below:

- Purpose and Need: Travel Demand (potential ridership)
- Purpose and Need: Competitive and Attractive Travel Modes (running times that are time-competitive)
- Technical Feasibility: Passenger and Freight Capacity (general infrastructure improvements required)
- Technical/Economic Feasibility: Alignment (alignment or grading problems to meet speed and capacity requirements)
- Technical/Economic Feasibility: Structures (conceptual costs of major structures)
- Technical/Economic Feasibility: Grade Crossings (at-grade and grade-separated crossings)

- Economic Feasibility (high-level project costs, including operating and maintenance costs)
- Environmental Concerns: Environmental Impacts (substantial impacts on key environmentally sensitive areas in the categories listed below)
    - Streams
    - Floodplains
    - Wetlands
    - Farmland
    - Threatened and endangered species
    - Cultural resources
    - Potential Section 4(f)/6(f) protected properties
    - Environmental justice
    - Noise and vibration
    - Hazardous materials
- Environmental Concerns: Right-of-Way (refining conceptual ROW acquisition in relation to demolition/disruption of homes, businesses, farms, and historic properties)

In order to estimate potential impacts during fine-level screening, a preliminary impact area was identified for each route alternative. Existing ROW was assumed to be 100 feet wide throughout each route alternative. A buffer ranging from 25 to 50 feet wide was then applied where necessary to accommodate additional track needs, to promote efficient track maintenance, and to mitigate any operating disruptions generated by passenger trains.

Fine-level screening was applied to the remaining alternatives, and the one or more alternatives that passed through the fine-level screening process were carried forward for detailed evaluation under the Tier 1 NEPA process.

ES.3.3 Results of Route Alternative Screening Process

The coarse-level screening process eliminated Route Alternative 3 from further consideration because it would have the highest cost; require a substantial permitting effort; result in unacceptably high impacts on landowners because of the ROW needs; and cause extensive impacts on communities, infrastructure, wetlands, streams, and wildlife habitat.

The fine-level screening process eliminated Route Alternatives 1, 2, 4, and 5 from further consideration because they were neither reasonable nor feasible, as discussed below. During fine-level screening, the route alternatives were compared to the base case for two criteria. The base case represents the lowest cost or shortest travel time and varies depending on the criterion. Route Alternative 4 had the lowest estimated cost and was considered to be the base case for the preliminary cost estimate, and Route Alternative 2 had the shortest travel time and was the base case for the comparison of travel times. Route Alternatives 1, 2, 4, and 5 were eliminated for the following reasons:

- ***Route Alternative 1*** did not meet the purpose and need because it would not attract the necessary ridership to generate adequate revenue, would not offer a competitive travel time (longest and slowest alternative), would have excessive

operations and maintenance costs, would require a major new structure over the Mississippi River, and its costs were excessive compared to the base case.

- ***Route Alternative 2*** has the shortest travel time, but did not meet the purpose and need because it would not attract adequate ridership or generate the necessary revenue, would require extensive new ROW and a major new structure over the Mississippi River, would have excessive capital cost requirements (costing approximately $1 billion more than the base case) without providing any additional service or ridership benefits.
- ***Route Alternative 4*** did not meet the purpose and need because the Chicago terminus of Route Alternative 4 is at La Salle Street Station instead of Chicago Union Station, which provides the connection to the MWRRI high-speed network. This connection would be costly, would have impacts on urban areas through which the connection would be constructed, and is not practical.

  Route Alternative 4 was the least costly (not accounting for a connection from La Salle Street Station to Chicago Union Station), would attract adequate ridership, and would generate adequate revenue. However, Route Alternative 4 currently does not have a direct connection to Chicago Union Station and does not have adequate capacity for the proposed Chicago to Council Bluffs-Omaha passenger trains to travel on the shared commuter train routes in the Chicago urban area. Extensive track upgrades and additional ROW would be needed for an additional connection track and main track, and would require extensive acquisitions of adjacent homes and businesses. Based on the lack of an existing connection from La Salle Street Station to Chicago Union Station and the lack of capacity on the existing Metra commuter rail line as well as the associated cost and impacts of constructing a connection and providing additional capacity, Route Alternative 4 was determined to be neither reasonable nor feasible.

  Following publication of the Tier 1 Draft EIS for the Project, the Record of Decision for the Tier 1 Chicago to St. Louis High-Speed Rail Corridor Program (FRA, December 2012) was signed by FRA. That Record of Decision indicated that a connection is planned from Metra's Rock Island District track to Chicago Union Station along Route Alternative 4. However, an FRA-required Tier 2 site-specific NEPA document would still need to be completed to evaluate the section of the program that includes the connection, and before the project plans would be implemented. The proposed connection would require land acquisition in an urban setting. In addition, the capacity and level of service of the proposed connection is unknown. Consequently, the potential exists that the connection might not be present, or may not have adequate capacity, which would affect planning and design for the Project. Because the comparison of route alternatives for the Project was conducted based on the review of existing conditions, the lack of a current connection was a critical element in reviewing the practicality of this route alternative.
- ***Route Alternative 5*** did not meet the purpose and need because it would not attract adequate ridership or generate the necessary revenue, would require extensive new ROW and a major new structure over the Mississippi River, would

have excessive capital cost requirements (approximately $1.2 billion more than the base case) without providing any additional service or ridership benefits.

Route Alternative 4-A is the only route alternative carried forward for further analysis in the Tier 1 EIS. Below is a summary providing the rationale for carrying forward Route Alternative 4-A. When compared to the other route alternatives considered, Route Alternative 4-A:

- Meets Project purpose and need
- Has relatively low construction complexity and relatively low construction costs (technical and economic feasibility)
- Has grade-crossing complexity similar to all route alternatives (technical feasibility)
- Is the shortest route alternative (purpose and need)
- Has a competitive passenger-train travel time (purpose and need)
- Serves the largest population (purpose and need)
- Has the highest ridership and farebox revenue forecast (purpose and need, and economic feasibility)
- Has direct access to Chicago Union Station (technical and economic feasibility)
- Has no unreasonable environmental resource issues (environmental concerns)

ES.3.4 Description of Alternatives

The No-Build Alternative and the Build Alternative (Route Alternative 4-A) are carried forward for further analysis in this Tier 1 EIS and are described below.

No-Build Alternative

The No-Build Alternative would consist of the current trackage and operations with the present level of maintenance and no appreciable change to current track configuration or operations. The No-Build Alternative would not involve construction and operation of intercity passenger rail service from Chicago to Omaha, but independently planned construction of passenger rail service from Chicago to Moline would still occur. This project is referred to as the Chicago to Quad Cities Expansion Program and includes operation of two round-trips per day at speeds of up to 79 mph, a connection to join BNSF Railway (BNSF) and Iowa Interstate Railroad (IAIS) track near Wyanet, Illinois, as well as improvements at Eola Yard in Eola, Illinois. Construction for the Chicago to Quad Cities Expansion Program is anticipated to commence in 2013 and the service to be operational by 2015.

Other transportation projects in the vicinity of the proposed Chicago to Council Bluffs-Omaha Regional Passenger Rail System could occur independently, with or without the Project. Sections 1.5 and 3.26.2 of the Tier 1 Draft EIS provide more information on these projects.

Other intercity passenger rail services that currently operate within or adjacent to the Chicago to Omaha Corridor, including Amtrak's *California Zephyr* and *Southwest Chief* (both long distance trains) and Illinois' state-supported, Amtrak-operated *Illinois Zephyr* and *Carl Sandburg* services (regional trains with daytime schedules), are assumed to continue to operate under the No-Build Alternative.

Under the No-Build Alternative, other forms of long-distance and regional transportation, such as commercial airline and bus services, are assumed to continue operating within the Corridor in the same manner as current operations.

The No-Build Alternative would not meet the project purpose and need because intercity passenger rail service would not be reestablished in Iowa City or Des Moines, there would not be an attractive alternative to highway or airline travel; and congestion of these modes of transportation in the Corridor would not be reduced.

The No-Build Alternative was retained for detailed analysis to allow equal comparison to the Build Alternative carried forward and to help decision makers and the public understand the consequences of taking no action. NEPA requires consideration of no action to serve as a baseline for comparison with the proposed action.

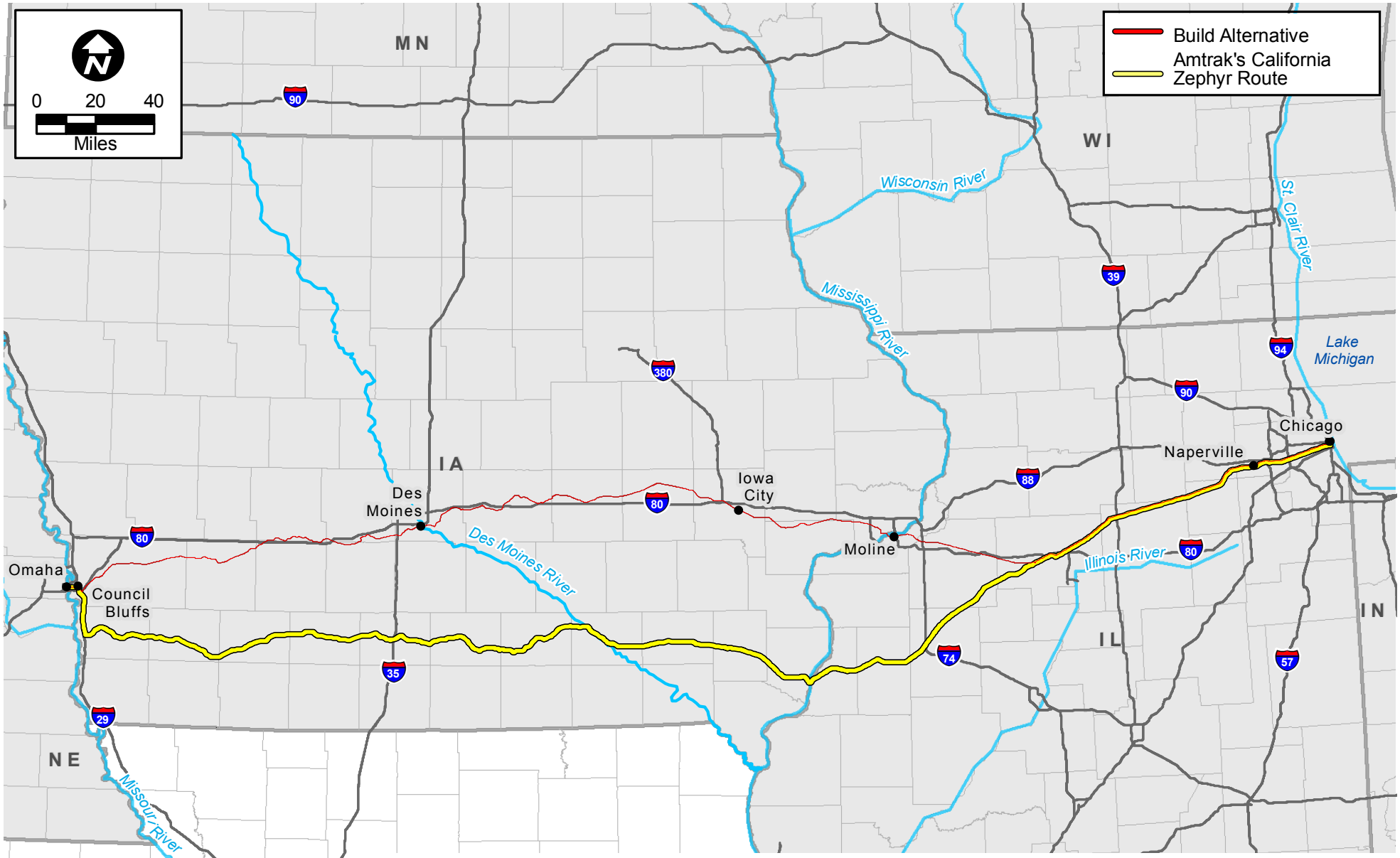
Build Alternative

The Build Alternative, which is the Preferred Alternative for this Project, consists of the improvements associated with Route Alternative 4-A to accommodate up to seven round-trip passenger trains per day at maximum speeds of up to 110 mph. The Build Alternative, shown in Figure ES-5, is approximately 475 miles long and consists of tracks currently owned and operated by four rail carriers between Chicago and Omaha. The BNSF and IAIS railways own and operate the vast majority of trackage in the Study Area, while Amtrak and Union Pacific Railroad (UP) own and operate relatively short distances within the metropolitan areas of Chicago, Des Moines, and Omaha/Council Bluffs. Figure ES-5 also shows the route of the *California Zephyr*; this service is anticipated to continue regardless of whether the Chicago to Council Bluffs-Omaha Project is constructed.

For the Build Alternative to function efficiently, improvements would be required, including infrastructure upgrades, at-grade roadway crossings, stations, and layover and maintenance facilities.

The Build Alternative would include construction of new main track, sidings, and connection tracks; upgrades to existing track to enable faster passenger train speeds and the desired passenger train service reliability; and installation of wayside signaling systems. Throughout the Corridor, connections to the existing main track would be required for meet/pass events, access to industries, and capacity for maintenance-of-way activities. Detailed capacity modeling will be conducted during Tier 2 analysis to identify more specific requirements for revisions of and improvements to the wayside signal system, crossovers and interlocking plants, and connection tracks in order to provide adequate capacity for the proposed passenger trains.

In consideration of existing infrastructure, train traffic, roadways, urban land uses, and abandoned rail corridors, a few alignment options within the Corridor were identified. There are multiple alignment options through East Des Moines, Iowa, and across the Missouri River between Council Bluffs, Iowa, and Omaha, Nebraska, as well as multiple station location options in Des Moines, Council Bluffs, and Omaha.



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Chicago to Council Bluffs - Omaha Build Alternative

Chicago to Council Bluffs - Omaha
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FIGURE
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The proposed passenger rail service would continue to use existing Amtrak long-distance or Illinois-state-sponsored service stations at Chicago Union Station, La Grange Road, Naperville, Plano, Mendota, and Princeton, Illinois; and potentially at Omaha, Nebraska. New stations or reuse and modification of existing or past stations are proposed at Geneseo and Moline, Illinois; Iowa City, Grinnell, Des Moines, Atlantic, and Council Bluffs, Iowa; and potentially Omaha, Nebraska.

An overnight train layover and light maintenance facility would be required in the Des Moines and Omaha/Council Bluffs metropolitan areas, and interim layover and light maintenance facilities may be required at Moline or Iowa City depending on implementation strategies. Specific sites for layover and light maintenance facilities will be evaluated in subsequent Tier 2 NEPA documents. In addition to light maintenance, heavy maintenance for locomotives and train sets would be required. The aforementioned Des Moines and Omaha/Council Bluff locations for light maintenance could potentially be selected to also support heavy maintenance activities

There are approximately 850 at-grade roadway crossings on the Build Alternative. Grade crossing surfaces and warning systems would need to be improved to meet safety standards for passenger trains traveling at 110 mph. All crossings would undergo diagnostic studies during Tier 2 analysis for identification of improvement needs. The crossing analysis would evaluate all crossings with potential for closure under the Build Alternative. Warning devices would be installed based on speed-dependent criteria. Existing warning devices would be reused where practical if they conform to the speed-dependent criteria.

Service Options of Build Alternative

An iterative process was conducted for determining the optimum number of round-trips per day, train speeds, and types and numbers of station stops for the Build Alternative. The process considered ridership and revenue, as well as general operation and maintenance costs, as maximum frequency and speed increased and as station stops were added. Service options considered between two and seven round-trips per day between Chicago and Omaha, and also between Chicago and Des Moines; maximum speeds of between 79 and 110 mph; and two types of station stop service, standard-stop or selected-stop. Standard-stop service would involve a train stopping at all identified station stops, and selected-stop service would involve a train stopping at only some identified station stops.

Service options were compared based on estimated travel times, ridership, revenue, and general operation and maintenance costs. The primary criteria used to screen the service options were the ridership and revenue forecasts because they are indicative of competitiveness with other modes of transportation. As anticipated, the 110 mph design speed resulted in the quickest trips and the highest estimated ridership. Iowa DOT selected the optimum service option (described in the following paragraph) for full implementation, and eliminated other considered options (such as different combinations of speeds and station stops) that did not have adequate ridership and revenue, and did not have sufficient station stops.

Operations under the Build Alternative would ultimately include a combination of standard-stop and selected-stop service. Selected-stop station stops would be Chicago Union Station, Naperville, Princeton, and Moline, Illinois; Iowa City, Des Moines, and Council Bluffs,

Iowa; and Omaha, Nebraska. Standard-stop service would include the selected-stop locations as well as station stops at La Grange Road, Plano, Mendota, and Geneseo, Illinois, and Grinnell and Atlantic, Iowa. Figure ES-6 shows the locations of all station stops. There would be up to seven round-trip passenger trains per day travelling between Chicago and Des Moines, with five of these round-trips continuing to Omaha. The passenger trains would travel at speeds of up to 110 mph, with travel time averaging under 7 hours from Chicago to Omaha and under 5 hours from Chicago to Des Moines. These travel times are competitive with the personal automobile.

Phased Implementation

Based on experience with other passenger rail projects, and on service development planning for this Project, FRA and Iowa DOT anticipate that the Chicago to Council Bluffs-Omaha Project would be incrementally funded and that construction and operations would be implemented in phases. The specific phasing of the Project is not known at this time but would be determined as funding is allocated to the Project.

The Project is anticipated to expand from the baseline of two round-trips per day from Chicago to Moline at a maximum speed of 79 mph (included in the Quad Cities Expansion Program passenger rail project) and service extended to Iowa City (included in the Chicago to Iowa City project). The Project would then be extended westward sequentially from Iowa City, to Des Moines, to Council Bluffs, and then to Omaha.

A Service Development Plan (SDP) has been drafted for the Project, addressing the rationale for and details of the proposed passenger rail service, including a plan for phased implementation of the service, an operating plan for each phase of service, and a capital and financial plan for determining the types and amounts of funding needed for each phase of service. The SDP has an approximate 20-year planning horizon, but under phased implementation, full implementation of the Project would extend beyond 20 years. Therefore, the SDP focuses on the interim implementation phase, which is the phase of the Project that would be implemented within this 20-year planning horizon. The interim implementation phase would likely include four round-trips per day at 79 mph between Chicago and Council Bluffs. Full implementation would be five to seven round-trips per day at 110 mph between Chicago and Omaha, and would be realized over many years of phased implementation as federal and state funds are allocated to the Project.

Consequently, although the Tier 1 Draft EIS evaluated potential impacts of full implementation of the Project, FRA decided that the Tier 1 Final EIS would also include an analysis of the potential impacts of the interim implementation phase. Section 3.28 has been added to the Final EIS for assessing these potential impacts in a qualitative manner. Service development planning for the later phases leading up to full implementation would be completed in coordination with the Tier 2 NEPA analyses for those phases.

Preferred Alternative

In accordance with the requirements of 40 CFR 1502.14, FRA has identified a preferred alternative for this Project: the Build Alternative, Route Alternative 4-A. The Build Alternative is preferred because it meets the purpose and need for the Project, giving the public a viable option for efficient transportation between Chicago and the Omaha/Council Bluffs metropolitan area, and points near and between those Project termini.

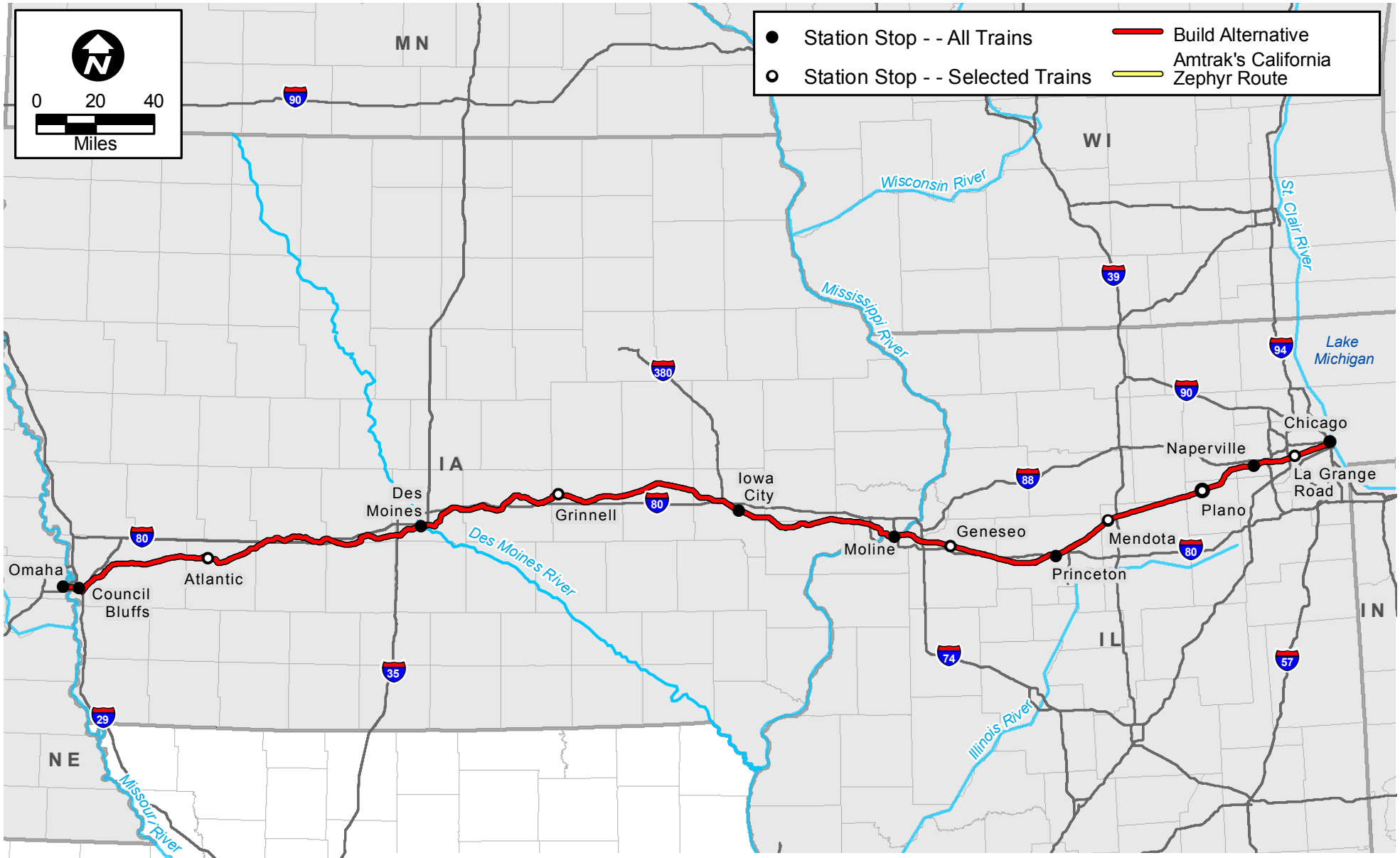

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FIGURE
ES-6

ES.5 SUMMARY OF POTENTIAL IMPACTS

This section summarizes the potential impacts of the No-Build Alternative and full implementation of the Build Alternative based on the detailed analysis of the social, economic, and environmental resources documented in Chapter 3 of the Tier 1 EIS. As discussed in Section ES.3, the No-Build Alternative does not meet the Project purpose and need, but was retained for detailed analysis to allow equal comparison to the Build Alternative. The potential impacts associated with each resource are listed in Table ES-1 and are described in more detail in the text that follows the table.

The potential impacts reported in Table ES-1 are based on construction occurring within the entire Potential Impact Area. For analysis in this Tier 1 EIS, the area along all alignment options under consideration was evaluated as if it would be impacted, and the Potential Impact Area also includes a buffer to account for future flexibility in design to avoid or minimize environmental impacts. Consequently, the potential impacts predicted to be caused by construction are overestimated. For example, although 104,150 linear feet of streams are present within the Potential Impact Area, many feet of streams would be undisturbed where no new bridges or widening of existing bridges would be required. Specific resource impacts, such as whether there would be an adverse effect under Section 106 of the National Historic Preservation Act, a use of property under Section 4(f) of the U.S. Department of Transportation Act, or an adverse effect under Section 7 of the Endangered Species Act, would be determined during Tier 2 analyses.

Table ES-1 summarizes the potential impacts of the No-Build Alternative and the Build Alternative. The potential impacts associated with each resource are described in the text that follows Table ES-1.

Table ES-1. Summary of Potential Impacts

Resource Topic	No-Build Alternative	Build Alternative
Transportation	Increased traffic congestion on highway system	Competitive transportation alternative; reduced freight traffic interference; safety improvements; changes in travel patterns where unsafe at-grade crossings are closed; temporary construction impacts (delays, detours)
Land Use, Zoning, and Property Acquisitions	Minor impacts (much less than Build Alternative)	Impacts on land use, primarily on industrial and farmland
Agricultural Resources	Minor impacts (much less than Build Alternative)	3,190 acres prime farmland; 840 acres statewide important farmland
Socioeconomic Environment	Minor improvements to socioeconomic conditions (Chicago to Quad Cities only)	Economic benefits provided through job creation, joint development, improved accessibility, and increased economic activity (Chicago to Omaha)
Title VI and Environmental Justice	No disproportionately high and adverse impacts	Beneficial economic and mobility impacts; potential impacts on Environmental Justice population area in Des Moines
Elderly and People with Disabilities	New accessible service between Chicago and Quad Cities	New accessible service between Chicago and Omaha
Public Health and Safety	Improvements to at-grade crossings and signals (Chicago to Quad Cities)	Improvements to at-grade crossings and signals (Chicago to Omaha)
Noise and Vibration	Minor impacts (much less than Build Alternative)	1.7 new noise impacts per mile; 7.0 new vibration impacts per mile
Air Quality	Increase in pollutant emissions over time due to fewer modal shifts	Decrease of most pollutant emissions due to increased modal shifts
Hazardous Waste and Waste Disposal	Minor impacts (much less than Build Alternative)	Minor impacts on 3 Superfund (NPL) sites, 34 leaking underground storage tanks, 27 Non-National Priorities List sites, and 1 wastewater treatment facility site
Cultural Resources	No Project impacts	60 historic properties (37 buildings, 1 structure, 3 bridges, and 19 historic districts)
Parks and Federally or State-Listed Natural Areas	No Project impacts	44 parks, 24 recreation areas, and 22 natural areas
Section 4(f) and 6(f) Properties	No Project impacts	44 public parks, 21 public recreation areas, 8 public refuges, and 60 historic properties
Visual Resources and Aesthetic Quality	Minor impacts on sensitive receptors	Impacts on visual resources (parks, natural areas, riparian corridors) and sensitive receptors in Des Moines
Waterways and Water Bodies	Minor impacts	Streams: 104,150 linear feet Lakes: 32 acres Ponds: 33 acres
Wetlands	Minor impacts	238 acres (1 acre aquatic bed, 84 acres emergent, 33 acres scrub-shrub, and 120 acres forested)

Resource Topic	No-Build Alternative	Build Alternative
Water Quality	Minor potential impacts	24 streams on 303(d) list of impaired water bodies; more impacts than No-Build Alternative
Floodplains	Minor impacts	1,657 acres
Topography, Geology, and Soils	Minor impacts	More impacts than No-Build Alternative, but minor impacts on Loess Hills
Natural Habitats and Wildlife	Minor impacts	178 acres of natural terrestrial habitat; aquatic habitat impacts; potential impacts from train/animal collisions; potential stormwater runoff pollution
Threatened and Endangered Species	Suitable habitat for federally and state-listed species	Suitable habitat for federally and state-listed species with potential for impact from constructing a new Missouri River crossing
Energy Use and Climate Change	Increase in energy consumption and greenhouse gas emissions due to fewer modal shifts	Long-term decrease in energy consumption and greenhouse gas emissions due to increased modal shifts
Construction Impacts	Minor, temporary impacts	Substantially more impacts than No-Build Alternative, but temporary in nature
Irreversible and Irretrievable Commitments of Resources	Minor commitments of land, construction materials, financial resources, and energy consumption by automobiles	Substantial commitments of land, construction materials, financial resources, and energy consumption
Short-Term Use versus Long-Term Productivity	Short-term construction impacts of other projects, including benefit of construction employment; minimal reduction in long-term productivity of natural resources; and improvement in transportation network	Short-term construction impacts (including benefit of construction employment) and reduction in air pollutant emissions and long-term productivity of natural resources beyond that of the No-Build Alternative; improved long-term socioeconomic productivity through transportation network enhancement
Indirect and Cumulative Impacts	Increase in vehicular traffic congestion and decrease in air quality and energy	Reduced traffic congestion and vehicle emissions; reduced ridership of other transportation modes; improved air quality and safety; indirect impacts on parks, natural areas, and wildlife; increased chance of hazardous material incidents and water pollution; transit-oriented development near stations

Note: All potential impacts shown are preliminary and have been evaluated at a Tier 1 level of analysis. Impacts will be reviewed and revised as necessary within future Tier 2 NEPA documents.

ES.5.1 Transportation

According to travel demand and diversion forecasts for 2040, The Build Alternative would attract a projected ridership of approximately 1,922,800 passenger trips per year. The Build Alternative is projected to divert 1,366,300 automobile trips, 324,700 bus passenger trips, and 40,900 plane passenger trips per year, and would also generate an induced demand estimated to be approximately 190,900 passengers per year; reducing fuel usage, air pollutants, and non-passenger rail transportation system congestion in the Study Area.

Unsafe at-grade crossings may be eliminated, where alternate access can be reasonably provided, resulting in some changes to the travel patterns of the existing transportation system. In some locations, where appropriate and feasible, implementation of grade-separated crossings would improve the safety, traffic flow, and efficiency of the transportation system. Construction activities for improvements related to grade crossings would result in temporary impacts on the vehicular transportation system; including traffic congestion, delays, detours, and disrupted access to properties and neighborhoods.

Typical travel times for the Build Alternative would be approximately 6.5 hours. This would provide a competitive transportation alternative to the automobile and bus service, and would be competitive in fares compared to air service. A one-way trip between Omaha and Chicago would take about 8 hours by automobile at posted interstate speeds, approximately 9.5 hours by bus, and approximately 1.5 hours by plane. Under the No-Build Alternative, traffic congestion, air pollutants, and fuel usage would continue to worsen.

ES.5.2 Land Use, Zoning, and Property Acquisitions

Within the Study Area, the majority of land uses within urbanized areas are industrial in nature and currently adjacent to existing freight rail lines. As a result, few direct or indirect impacts on sensitive uses are anticipated from the Build Alterantive. Most improvements would be located adjacent to existing rail lines and stations. The stations along the rail line are anticipated to enhance transportation-oriented development. New ROW would be acquired for the Build Alternative at station locations, maintenance facilities, and in areas where a new parallel track would be required. The Build Alternative would also include Des Moines Design Option 3, an option for a southeast alignment through Des Moines, Iowa, that would require substantial property acquision, and would run parallel to the Southeast Connector. Although this area is industrial in character, sensitive land uses that would be directly impacted include an established residential neighborhood and Chester Field Park. New ROW would be required for the No-Build Alternative at station locations and at Wyanet and the Eola Yard in Illinois.

ES.5.3 Agricultural Resources

Impacts of the Build Alternative within rural areas primarily include impacts to agriculture, including approximately 3,190 acres of prime farmland and approximately 840 acres of farmland of statewide importance. These impacts would be relatively minor linear amounts that would be needed for adding parallel track and siding to the existing railroad grade. No severances of existing farmland would occur. The No-Build Alternative would have minimal impacts on farmland.

ES.5.4 Socioeconomic Environment

Although the Build Alternative would cause some temporary disruptions to existing businesses and neighborhoods during construction, it would provide long-term economic benefits to communities through job creation, potential for joint development, and increased economic activity. Under the No-Build Alternative, modest improvements to socioeconomic conditions would be realized since there would be increased service between Chicago and the Quad Cities, but not in the remainder of the Corridor.

ES.5.5 Title VI and Environmental Justice

Throughout most of the Study Area, there would be no anticipated disproportionate adverse human health or environment effect on minorities or low-income populations because a majority of the project improvements would be within or adjacent to existing ROW. However, the Build Alternative includes an optional alignment through Des Moines (Des Moines Design Option 3) that would impact both minority and low-income populations. During Tier 2 analyses, refinements in the design options could avoid or minimize impacts on adjacent minority and low-income populations. The Build Alternative would provide benefits for these populations through improved accessibility, mobility and employment opportunities. Under the No-Build Alternative, impacts on environmental justice populations are not anticipated.

ES.5.6 Elderly and People with Disabilities

There would be no anticipated permanent adverse impacts on the existing transportation services and general mobility of elderly persons and persons with disabilities because a majority of the project improvements would be within or adjacent to existing ROW. The Build Alternative would provide an additional means of accessible public transportation for the elderly and disabled populations, support expanded transit operations for efficient use of the transit system, and increase the availability of transportation options that connect to other cities beyond their immediate region. The No-Build Alternative would not result in permanent adverse impacts on the transportation and mobility of the elderly and people with disabilities, although there would be some benefits by providing service through the Chicago to Quad Cities Expansion Program.

ES.5.7 Public Health and Safety

The Build Alternative would include additional track and substantial track and signal upgrades, to address public health and safety, and to limit conflicts with existing freight rail service. A centralized traffic control (CTC) system, with positive train control (PTC) integration, including a wayside signal system and remote control switches, would also be installed where needed. The Build Alternative would provide a safe and efficient mode choice for travel from Chicago to Omaha. The No-Build Alternative would contribute to increased train operations between Chicago and the Quad Cities. Consequently, the potential for at-grade conflicts would increase and upgraded warning or traffic control devices would be required to help protect the safety and health of workers and the public.

ES.5.8 Noise and Vibration

Analysis results for the Build Alternative show 5,172 moderate and 2,373 severe noise impacts compared to existing conditions. Compared to the No-Build Alternative, a low incremental increase in new noise impacts per mile associated with the Build Alternative would occur: 569 moderate and 271 severe noise impacts over an approximately 500-mile corridor. The Build Alternative is projected to result in approximately 1.1 new moderate noise impacts per mile, 0.6 new severe noise impact per mile, and a combined total of 1.7 new noise impacts per mile over approximately 500 miles. On this basis, the incremental increase in train noise is not significant.

Of the 7,545 new noise impacts predicted to occur under the Build Alternative, 3,260 of them are attributed to locomotive horn use, and they occur in areas where locomotive horns are currently in use (with many of them occurring even if the Project is built or not). The analysis does not account for any change in at-grade intersections to grade-separated intersections where horns would not be required. Implementing quiet zones has the potential to further reduce these impacts. Because of the preliminary nature of this Tier 1 analysis and the acknowledgement that upgrade of some at-grade intersections would be known during Tier 2, these grade-crossing impacts are not considered significant. The remaining 4,285 noise impacts attributable to the Build Alternative are associated with wayside noise and are spread throughout the corridor (equivalent to less than one noise impact per mile), which makes mitigation challenging and potentially impractical in some areas based on the consideration of feasibility and reasonableness of noise barriers for a few receptors. Given the minimal number of noise impacts per mile, and the potential that many of the impacts may not occur either through conversion of at-grade intersections to grade-separated intersections or through use of quiet zones, noise impacts, whether the Project is built or not, are not considered significant.

The ground-borne vibration analysis identified approximately 7.0 vibration impacts per mile associated with the Build Alternative. On a Project-wide basis, 7.0 additional vibration impacts (due to 14 daily pass-by events) per mile are not considered significant. However, the number of vibration impacts is projected to dramatically increase in more densely populated portions of the study area, particularly where train speeds may reach a maximum of 110 mph. The magnitude of the increase in vibration impacts attributable to the Build Alternative is considered to be significant.

Under the No-Build Alternative, 4,603 moderate and 2,102 severe noise impacts are estimated to occur along the approximately 500 mile corridor. Vibration impacts under the No-Build Alternative are not projected to change. If the Project were not constructed, the Chicago to Quad Cities Expansion Program would contribute to slightly increased noise and vibration along this portion of the Chicago to Omaha route.

ES.5.9 Air Quality

Impacts on air quality are unavoidable because the Build Alternative would include new train service. However, impacts on emissions, energy consumption, and climate change would be beneficial overall because this additional rail service is anticipated to replace some passenger vehicles, and bus and plane trips along a similar route. Trains produce fewer emissions per passenger than other modes of transportation. Year 2040 projections indicate that operation

of the Build Alternative would directly impact the air quality by reducing hydrocarbon (HC) emissions by approximately 142 tons per year and sulfur dioxide (SO_2) emissions by approximately 2.7 tons per year. In addition, carbon dioxide (CO_2), the main greenhouse gas (GHG) emission, would decrease by approximately 23,513 tons per year. Nitrogen oxides (NO_X) emissions, the only GHG emission that would increase with the Build Alternative, would increase by approximately 420 tons/year.

A general conformity analysis included the assessment of air quality impacts of the Build Alternative in the counties which are currently designated as maintenance or nonattainment, all of which are in the Chicago area. The slight increase in NO_x emissions is balanced by a reduction in emissions of HC, particulate matter smaller than 10 microns in diameter (PM-10), and particulate matter smaller than 2.5 microns in diameter (PM-2.5). This reduction would help the counties and states with their air quality management. Although the resulting net emissions are below the *de minimis* threshold, this general conformity analysis would need to be verified in the Tier 2 NEPA analyses. Under the No-Build Alternative, another viable and energy efficient transportation mode such as passenger rail service would not be provided. Therefore emissions of pollutants generated by vehicles and planes are expected to increase due to anticipated worsening traffic congestion.

ES.5.10 Hazardous Waste and Waste Disposal

Because of track and crossing upgrades, the safety of hazardous material transportation by freight trains would improve under the Build Alternative along the entire Corridor, and would experience minor improvements under the No-Build Alternative between Chicago and the Quad Cities. The Build Alternative would impact three National Priority List (NPL) Superfund sites, 27 non-NPL sites, 34 Leaking Underground Storage Tank (LUST) sites, and one wastewater treatment facility.

Although the Build Alternative is within the contamination areas of three NPL sites, specific impacts would not be determined until the Tier 2 NEPA studies. The potential for exposure to hazardous waste contamination during construction may vary. The Des Moines TCE Site, and the Railroad Avenue Groundwater Contamination Site (in Des Moines), have both gone through cleanup activities. However, the cleanup of contaminated soils in the Omaha Lead Site includes only residential yards, public parks, playgrounds, and child care facilities. Consequently, the Corridor, extending primarily through industrial use areas within the boundaries of the Omaha Lead Site, could have some residual lead contamination in the soil.

For the No-Build Alternative, it is anticipated that there would be only minimal impacts on hazardous material or waste sites.

ES.5.11 Cultural Resources

The Potential Impact Area, which accounts for the area potentially disturbed by construction, includes 60 historic resources (37 buildings, 1 structure, 3 bridges, and 19 historic districts) either listed on the National Register of Historic Places (NRHP) or eligible for listing on the NRHP. Direct impacts on NRHP resources could occur within the Potential Impact Area, and indirect impacts (such as visual and noise impacts) on historic resources could occur within the APE. As the Project proceeds into the Tier 2 NEPA process, avoidance of these properties would be considered.

Based on a review of cultural resources within the Area of Potential Effect (APE), resources outside but near the Potential Impact Area were also reviewed for indirect impacts, such as visual intrusion or audible impacts, as a result of construction activities and future operation of the passenger rail system. Depending on the proximity of cultural resources to operating trains, structures may be identified for protection from noise and vibration impacts and incompatible visual intrusions. If the Project would require diminishment of historic properties, these modifications may be considered potential adverse effects and require further Section 106 consultation to determine the preferred method of treatment (mitigation).

Under the No-Build Alternative, the Chicago to Quad Cities service would contribute to slightly increased noise and ground vibration along this portion of the Chicago to Omaha route. The Chicago to Quad Cities Tier 1 environmental assessment indicated that no impacts on significant cultural resource properties were anticipated to occur for the Wyanet Connection and Eola Yard improvements. The Chicago to Quad Cities Expansion Program has the potential to affect historic properties within and between the aforementioned cities, but the impacts would be addressed as part of the Tier 2 NEPA process and Section 106 consultation for that project.

ES.5.12 Parks and Federally or State-Listed Natural Areas

The Potential Impact Area includes 44 parks, 24 recreational resources, and 22 natural areas. In most instances, only a very small portion of the resources are within the Potential Impact Area, which was developed with a sufficient buffer to facilitate design refinement and likely reduction of the area during Tier 2 NEPA analysis. There are three parks (Tiffin City Park in Tiffin, Iowa; Twin Creek Park in Pleasant Hill, Iowa; and Waterworks Park in Des Moines, Iowa) and two natural areas (Zoo Woods Forest Preserve in Riverside, Illinois, and Correll Wildlife Area near Adair, Iowa) that are transected by the Build Alternative. In addition, there are six locations where there are parks, recreation areas, or natural areas on opposite sides of the Build Alternative. Avoidance of these properties would be considered in the Tier 2 analysis and unavoidable impacts will be further analyzed in the Tier 2 and Section 4(f) NEPA documents.

Under the No-Build Alternative, the Chicago to Quad Cities service would contribute to slightly increased air emissions and noise in parks, recreation areas, and natural areas along this portion of the Corridor. The Chicago to Iowa City Intercity Passenger Rail Service Tier 1 Service Level Environmental Assessment, which included the Chicago to Quad Cities service, indicated that no impacts on parks or recreation areas were anticipated to occur for the Wyanet Connection and Eola Yard improvements, but some prairie areas would likely be disturbed to construct the Wyanet Connection.

ES.5.13 Section 4(f) and 6(f) Properties

The Potential Impact Area, which includes land likely to be disturbed during construction and thereby resources on which the Project would have direct effects, includes 44 public parks, 21 public recreational resources, 8 public refuges, and 60 private and public historic properties. In most instances, only a very small portion of the resources are within the Potential Impact Area, which was developed with a sufficient buffer to facilitate design refinement and likely reduction of the area during Tier 2 NEPA analysis. In some cases,

resources protected by Section 4(f) would be transected by the Potential Impact Area, including three parks and two natural areas.

As the Project proceeds into Tier 2 analysis, avoidance of these properties would be considered and unavoidable potential impacts would be further analyzed. It is not anticipated that any impacts would result in a constructive use of these Section 4(f) resources. Further evaluation of the potential impacts will be addressed during Tier 2 analysis when more details of the design and operation are known.

The Potential Impact Area also includes three individual parks and five park districts or community park departments that received Land and Water Conservation Funds (LWCF). During Tier 2 analysis, coordination will occur with the administering agencies to determine if lands within the Potential Impact Area were improved with LWCF funding. If any areas are considered to be LWCF lands, potential impacts will be addressed during Tier 2 analysis.

Under the No-Build Alternative, the Project would not be built, and impacts on Section 4(f) and 6(f) resources are not anticipated beyond those that could occur due to other projects.

ES.5.14 Visual Resources and Aesthetic Quality

Only small portions of visual/scenic resources would be within the Potential Impact Area because additional ROW would be abutting the existing ROW rather than being on new alignment. As a result, alteration of these resources and effects on the views of those resources would most likely be minimal. In addition, the expansive Mississippi and Missouri Rivers would provide unique scenic views as the passenger trains travel on the bridges over these water resources. Views of scenic resources would also be provided by adjacent parks, recreation areas, natural areas (including the Loess Hills), perennial stream corridors, historic buildings, and views of urban and rural small town character. The Build Alternative follows existing railroad alignments and would travel by residential areas containing sensitive visual receptors. However, those residents are currently accustomed to views of the railroad facilities. Des Moines Design Option 3 would result in visual impacts to the sensitive visual receptors in the neighborhood that it would bisect. Under the No-Build Alternative, it is anticipated that there would be minimal or no direct impacts on visual/scenic resources and sensitive residential visual receptors because of little or no additional ROW acquisition.

ES.5.15 Waterways and Water Bodies

The Build Alternative would cross, or otherwise impact, approximately 104,150 linear feet of waterways. In addition, 32 acres of lakes and 33 acres of ponds would potentially be impacted. For the No-Build Alternative, including the Wyanet Connection and the Eola Yard in Illinois, there would be minimal impacts on waterways and water bodies.

ES.5.16 Wetlands

Based on National Wetlands Inventory mapping, there would be potential impacts on approximately 1 acre of aquatic bed wetland, 84 acres of emergent wetlands, 33 acres of scrub-shrub wetlands, and 120 acres of forested wetlands, totaling 238 acres of potential wetland impacts within the Potential Impact Area. As the project proceeds into the Tier 2 NEPA analyses, wetland impacts will most likely be reduced as actual ROW requirements are determined and minimized where practicable. For the No-Build Alternative, including the

Wyanet Connection and the Eola Yard in Illinois, there would be minimal impacts on wetland areas.

ES.5.17 Water Quality

The Build Alternative would cross 24 of the 28 streams on the 303(d) List of Impaired Waters (water quality limited waters) within the Study Area. The Build Alternative could potentially affect the water quality of several water resources, as would the No-Build Alternative, but to a lesser extent. Potential water quality impacts could be caused by soil erosion from stormwater runoff, fill material placed in water resources, and construction of bridges and culverts or culvert extensions. In addition, potential pollutant runoff and spills from operation and maintenance activities could potentially reach adjacent water resources. The avoidance or minimization of water quality impacts would be accomplished in appropriate areas by the use of stormwater Best Management Practices (BMPs) and adherence to federal and state water quality requirements.

ES.5.18 Floodplains

The Build Alternative would cross and permanently encroach on several 100-year floodplain areas as a result of adding track and siding, bridge additions or replacements, and culvert replacements or extensions. Approximately 1,657 acres of 100-year floodplains would be within the Potential Impact Area. For the No-Build Alternative, including the Wyanet Connection and the Eola Yard in Illinois, there would be minimal impacts on 100-year floodplains.

ES.5.19 Topography, Geology, and Soils

The topographic conditions are not expected to pose an adverse challenge to the Build Alternative since it is adjacent to an existing railroad grade, and minimal cut and fill would be required. Bedrock encountered in the Potential Impact Area would increase construction costs, but would not be an insurmountable challenge for the project. In addition, the Build Alternative would not impact the underground mining entrances located in the Des Moines, Iowa area. The Build Alternative would have minor impacts on the Loess Hills landform area as a result of adding track and siding in the northeast portion of Council Bluffs, Iowa. The grading operations of the Build Alternative would impact various soil types, most of which are silt loams and silty clay loams, which would not pose adverse construction challenges. It is anticipated that there would be no impacts from topography, geology, or soils having characteristics that would adversely affect the No-Build Alternative.

ES.5.20 Natural Habitats and Wildlife

It is estimated that approximately 178 acres of natural terrestrial habitat areas would be directly impacted by the Build Alternative, in addition to the aquatic habitats (waterways, water bodies, wetlands) previously discussed. Because the proposed widening activities abut the existing ROW, impacts from the alternative would be relatively minimal and linear, and would not further fragment remaining large parcels of natural habitat areas.

The wildlife species that are present along the rail corridor have been continually exposed to train traffic in varying degrees. However, improvements of the Build Alternative—including new CWR track, and new trains and equipment having less overall weight than freight

trains—would result in less noise and vibration than the existing train noise and vibration that the resident and migratory species have been experiencing. It is therefore anticipated that impacts from noise and vibration would be negligible. The potential effects of noise and vibration, and potential train collisions with migratory birds and other wildlife, which can vary considerably among species, will be further analyzed during the Tier 2 NEPA analysis, in coordination with the US Fish and Wildlife Service (USFWS) and state resource agencies. During the Tier 2 NEPA analysis, coordination with USFWS, the Illinois Department of Natural Resources (Illinois DNR), Iowa Department of Natural Resources (Iowa DNR), and Nebraska Game and Parks Commission (NGPC) would take place to determine potential locations of migratory bird and/or eagle occupancy within the Study Area, in addition to determining seasonal nesting, roosting, and foraging requirements of potentially affected wildlife species. The increase in train traffic and railroad ROW could also increase the chances of water quality/pollutant-related impacts on wildlife and their habitats.

Under the No-Build Alternative, the number of noise and vibration occurrences, potential collision impacts, and water quality/pollutant-related impacts on wildlife and their habitats would be fewer than those of the Build Alternative.

ES.5.21 Threatened and Endangered Species

The Build Alternative would have no impacts on designated critical habitats (DCHs) of any federally listed threatened or endangered species. It is also possible that one or more new bridge structures could be needed across the Missouri River, which is suitable habitat for the federally endangered pallid sturgeon (*Scaphirhynchus albus)* and piping plover species (*Charadrius melodus*). In addition, it is likely that the upland and riparian woodland areas in the Iowa counties of the Study Area may potentially provide suitable foraging and roosting habitat for the endangered Indiana bat (*Myotis sodalis*), although there is no DCH for this species in the Study Area. The Build Alternative would result in minimal linear impacts to wooded areas, rather than fragmenting large parcels of woodlands. The Build Alternative would also result in minor linear impacts on the Eola Road Marsh, which contains habitat for four state-listed endangered species.

The potential for train collisions with threatened or endangered species, and potential effects of noise and vibration, which can vary considerably among various species, will be further analyzed during the Tier 2 NEPA process, in coordination with USFWS and state resource agencies. The potential for impacts from erosion and sedimentation, pollutant runoff and spills, and temporary construction impacts would also be further analyzed in the Tier 2 NEPA documents.

Field surveys and coordination with USFWS, Illinois DNR, Iowa DNR, and NGPC will take place during the Tier 2 NEPA studies to determine the potential for the existence of, and impacts on threatened or endangered species in the Study Area.

Under the No-Build Alternative, it is anticipated that there would be no adverse effects on federally listed species, and may have potential minor impacts on state-listed species, if only temporary, at the Eola Road Marsh. In addition, the number of noise and vibration occurrences, potential train-species collision impacts, and water quality/pollutant-related impacts on potential threatened and endangered species would be fewer than those of the Build Alternative.

ES.5.22 Energy Use and Climate Change

Implementation of the Build Alternative would have the potential to provide energy savings and would reduce the transportation system's impact on GHG emissions. Based on a preliminary passenger rail forecast, the Build Alternative would provide a net reduction on energy consumption and GHG emissions through diverted trips from automobiles, buses, and trains to new passenger rail service. Ridership and modal diversion forecasts indicate that the Build Alternative would decrease automobile traffic by approximately 646.3 million passenger-miles per year and reduce bus travel by approximately 153.6 million passenger-miles per year. CO_2, the main GHG emission, would decrease by approximately 23,513 tons per year. Although new passenger trains would consume approximately 17.1 million gallons of fuel per year, automobile fuel consumption would decrease by approximately 17.8 million gallons per year. Under the No-Build Alternative, passenger train service would not be as readily available to the public west of Moline, resulting in the continued reliance of automobiles, buses, and planes for transportation for this portion of the Study Area. As a result, energy consumption and GHG emissions would likely continue to steadily increase.

ES.5.23 Construction Impacts

Typical main line improvements proposed for the Build Alternative include construction of an additional track through much of the Study Area to increase rail capacity and limit conflicts with existing rail operations. Other construction activities include an upgrade of the rails, cross ties, signalization, and grade crossing protection throughout the Potential Impact Area. Construction of these improvements would result in temporary construction impacts, including increases in waste disposal, potential impacts to water quality, air quality, increased noise levels, vibration, dust, traffic congestion, visual changes, disrupted access to properties and neighborhoods, and safety issues. Under the No-Build Alternative, temporary construction impacts would be similar to those of the Build Alternative, but to a lesser extent.

ES.5.24 Irreversible and Irretrievable Commitments of Resources

Construction of the Build Alternative would result in the irreversible and irretrievable commitment of land where additional ROW is needed. The land would be converted from its current condition to a railroad grade and track. Construction materials would consist largely of steel, concrete, ballast rock, and wood. Whereas the use of these materials would be largely irretrievable, these resources are not in short supply and many of the materials could be recycled for other projects when they no longer meet the design needs for passenger rail service. Several energy resources would be committed to the Project, including petroleum, natural gas, electrical, and manpower expenditures for construction, operation, and maintenance. These resources are generally irretrievable.

Under the No-Build Alternative, the Chicago to Quad Cities service would contribute to some commitment of resources for that project for constructing the Wyanet Connection and Eola Yard improvements. Also, energy resources would continue to be consumed by automobile travelers between Chicago and Omaha at a slightly higher rate than with the Project.

ES.5.25 Short-Term Vs. Long-Term Productivity of the Environment

The Build Alternative could contribute to potential short-term construction impacts related to hazardous materials and waste disposal, water quality, air quality, noise and vibration, property access, and traffic and pedestrian delays/detours. In addition, short-term employment, use of materials to construct the project, and purchases of goods and services generated by project construction could create a short-term increase in the local economy that would end once the construction phase is completed.

In the region between Chicago and Omaha, the addition and enhancement of passenger rail service would contribute to improvements in the transportation network and access within the region by providing competitive passenger rail service that would meet the needs of increased future travel demand and more efficient travel between major urban centers. With the Build Alternative, long-term benefits would include a reduction in air pollution emissions as a result of passenger rail service replacing automobile, bus, and plane trips; and decreased congestion on local streets and highways. Other long-term benefits would include improved accessibility within the region, economic benefits through employment opportunities, potential for transit-oriented development, increased economic activity, improvements in safety for at-grade crossings.

In addition to some permanent impacts to waterways, water bodies, wetlands, floodplains, plant communities, natural habitat, and wildlife; other long-term losses/effects on the productivity of the environment would include the following:

- Removal of existing farmland from productivity
- Reduction of the local tax base as a result of acquiring farmland, commercial, and industrial property for additional railroad ROW
- Potential economic impacts on other modes of public transportation
- Potential acquisition of park land, recreation land, and natural areas
- Noise and vibration impacts on sensitive receptors
- Collision impacts on wildlife

The No-Build Alternative would contribute to short-term and long-term impacts and benefits similar to those of the Build Alternative, but to a lesser extent.

ES.5.26 Indirect and Cumulative Impacts

Construction and operation associated with any phase of the Build Alternative has the potential to cause indirect impacts. The following is a summary of potential indirect impacts identified through evaluation of various environmental resources:

- Increased noise and ground vibration, as well as air emissions, and visual and aesthetic impacts could potentially result in indirect impacts of reduced use of nearby parks, recreation areas, and natural areas. Section 4(f) properties could be indirectly affected by noise, ground vibration, aesthetics, and access issues. Additionally, there could be indirect impacts on wildlife through reduced use of areas near train operations. Threatened or endangered species could potentially be indirectly affected by air emissions and water quality impacts affecting habitat.

- Indirect effect of reducing ridership on current transportation services, such as intercity bus and flight service, by offering a competitive alternative to these modes. Diverted trips from these modes to passenger rail service may have implications to the viability of these modes in the future.
- Potential indirect positive impacts include a slight reduction in vehicular congestion on I-88 and I-80 within the Study Area. This would have positive impacts on air quality, safety and reduce future delays due to congestion.
- Commencement of passenger service and modification of at-grade crossings could indirectly affect traffic flow from previous traffic conditions.
- Increased chance of a hazardous material incident, which could also affect water quality as railway contaminants or accidental chemical/fuel spills from operations and maintenance activities could reach water resources adjacent to, or downstream of the project area.
- Noise and vibration from passenger rail traffic could cause indirect impacts to cultural resources by affecting visitor experience. Induced transit-oriented development in the vicinity of station areas may indirectly affect nearby cultural resources.
- Potential indirect impacts to downstream water bodies and wetlands could occur from culvert and/or bridge replacements.
- Transit-oriented development could result indirectly from the construction and use of station locations.
- Indirect impacts on adjacent land uses from changes in traffic flow at rail crossings and near future station sites. Temporary traffic indirect impacts would occur through closings during construction and rerouting traffic through adjacent neighborhoods and business areas. Increased travel time and delay for local residents and potential economic impacts to businesses that depend on convenient accessibility. Potential increased congestion and traffic delays near crossings with new passenger rail service.
- Temporary increase in GHG emissions from construction activities from on-site equipment as well as increased delays and congestion from automobile and bus traffic.
- Indirect positive impacts on air quality from contributing to the development of a more complete multi-modal transportation system within the Study Area and encouraging changes in long-term travel behavior and advocacy for more energy efficient modes of transport that improve air quality.
- Upgrades to rail infrastructure may indirectly benefit existing freight service.

Cumulative impacts from other projects in the region would also occur. The majority of projects are linear transportation projects, often occurring either in existing ROW or adjacent to existing ROW. It is likely that many of these projects would be affecting drainage and could involve impacts to wetlands and other waters of the U.S. In rural areas, it is likely that the other projects may be affecting farmland, natural areas, and wildlife habitat primarily through expansion of existing corridors.

When considered collectively with other projects in the region, the Build Alternative would have a slight beneficial contribution to cumulative impacts by improving overall air quality and reducing roadway congestion and would have the potential for increased transit-oriented development. Should construction of this Project occur simultaneously with some of the other projects in the region, existing passenger and freight rail services could see temporary increases in delays and congestion, but overall train traffic would be maintained throughout construction.

Many of the other transportation projects are improvements along existing alignments, with reconstruction or other modifications occurring either within or adjacent to existing ROW. Therefore, new impacts of the other projects outside existing ROW would be relatively narrow and linear. Consequently, cumulative impacts on resources within a designated area, such as a watershed or ecosystem, would likely be minor.

The majority of the Build Alternative corridor is in rural areas dominated by farmland uses. Highly developed areas are also present along the corridor. Land use throughout the Corridor is likely to remain unchanged with the implementation of the Build Alternative and other proposed projects. Suburban areas associated with large cities such as Chicago and Des Moines are likely to incur the most change in land use with a potential for cumulative impacts because of the land available for modification in areas where population is increasing.

Given the numerous planned transportation projects, air quality, mobility, and safety would cumulatively benefit. Minimal cumulative negative impacts associated with these projects would likely occur on farmland, habitat, wetlands, and streams along the Build Alternative.

Station development associated with the Build Alternative has the potential to result in induced development in close proximity to the stations. However, station locations will be selected through coordinated efforts with local city/county/metropolitan area planners to help ensure that the sites and opportunities presented for growth development are suitable to handle increased traffic and other demands, minimizing the potential for adverse cumulative impacts.

Under the No-Build Alternative, the Chicago to Quad Cities service would contribute to slightly increased air emissions, energy consumption, and noise along this portion of the Chicago to Omaha route. Potential direct, or indirect, and cumulative impacts of those improvements are being addressed in Tier 2 NEPA documents currently underway. The No-Build Alternative would result in a slight indirect impact on transportation due to the lack of passenger rail service between Moline and Omaha. This indirect impact would primarily be in the form of increased traffic congestion as travelers between Moline and Omaha would continue to use existing roadways. In addition, the No-Build Alternative would have a slight negative contribution to cumulative impacts on transportation by continuing the dependence on personal automobiles on highways for travel between Moline and Omaha, and to a more limited extent, between Chicago and Moline.

ES.5.28 Permits

Construction of the Build Alternative 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, Iowa DNR, Nebraska Department of Environmental Quality (NDEQ)
- Section 9 Bridge Permit – USCG (navigable waters)
- Section 10 Permit – USACE (impacts in navigable waters)
- Section 402 NPDES Permit – Illinois EPA, Iowa DNR, NDEQ (land disturbance and stormwater runoff)
- Section 408 Approval – USACE (impacts to levees/flood control structures)
- Floodplain Development Permit – DNRs of each state, and local jurisdictions
- Air Pollution Control Permits – Illinois EPA, Iowa DNR, NDEQ
- National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 61 – Illinois EPA, Iowa DNR, NDEQ
- Iowa Sovereign Lands Construction Permit – Iowa DNR
- Formal Notice and Airspace Review – Federal Aviation Administration

The No-Build Alternative may also require a majority of these same permits.

ES.5.29 Interim Implementation Phase Impacts

As discussed in Section ES.3.4.4, Phased Implementation, the interim implementation phase of the Project is the last phase that would be implemented within the 20-year planning horizon of the SDP. The interim implementation phase would consist of four round-trips per day at 79 mph between Chicago and Council Bluffs. A qualitative review was performed for the impacts that the interim implementation phase would have on each resource previously reviewed for impacts under full implementation of the Build Alternative in Sections ES.4.1 through ES.4.27.

The interim implementation phase was evaluated based on two main categories of activities likely to cause environmental impacts: 1) ROW acquisition and construction (footprint-dependent impacts), and 2) operation and maintenance of the system. Some resources were evaluated individually, and some were addressed in aggregate. In addition, some resources would be affected by only one category, and some resources would be affected by both categories. For example, natural habitats and wildlife can be directly affected by vegetation removal as a result of ROW acquisition and construction impacts, and can also be affected by train operations as a result of animal collision impacts.

Whereas the interim implementation phase would be a step toward full implementation (which would have the greatest Project impacts), less ROW acquisition and construction would be required in this phase, and fewer operations and slower speeds would occur. Consequently, adverse environmental impacts would be less than for full implementation of the Build Alternative, and are discussed qualitatively in comparison to the estimated impacts of full implementation (previously described in Sections ES.4.1 through ES.4.27). In addition, any beneficial impacts that would result from the interim implementation phase, such as reduced cumulative air emissions from more efficient transportation of people, would

not occur to the same extent as under full implementation of service. A more detailed discussion of the impacts on each resource is presented in Section 3.28 in Chapter 3 of this Tier 1 EIS.

ES.6 SUMMARY OF POTENTIAL MITIGATION

Table ES-2 introduces potential mitigation for impacts to resources that would result from full implementation of the Build Alternative, as identified through the Tier 1 NEPA process. Specific mitigation measures, to the extent required, will be identified and discussed during Tier 2 analysis after design details are known, recorded in NEPA documents as specific impacts are identified, and implemented prior to construction.

Table ES-2. Potential Mitigation

Impacted Resource	Potential Mitigation
Transportation	Signal upgrades to address safety concerns at intersections and to limit disruption of existing freight rail service. Traffic Control and Safety plan for construction. Specific mitigation measures, to the extent required, will be discussed in Tier 2 NEPA documents.
Land Use, Zoning, and Property Acquisition	Where property acquisition cannot be avoided, the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act will be followed. During Tier 2 analyses, the extent of land use, zoning, and property acquisition impacts will be analyzed for potential mitigation issues that may be identified through agency coordination and public involvement.
Agricultural Resources	As part of the Tier 2 NEPA process, coordination would take place with the NRCS. Form NRCS-CPA-106, Farmland Conversion Impact Rating for Corridor Type Projects, would be required to determine if farmland impacts are above the threshold level for consideration of farmland protection measures.
Socioeconomic Environment	In the Tier 2 analysis, strategies to avoid, minimize, or mitigate potential impacts on socioeconomic conditions (neighborhoods, community facilities, businesses, employment) will be considered. In addition, public involvement and agency coordination activities may result in identification of potential mitigation needs.
Title VI and Environmental Justice	Potential mitigation measures will be determined in the Tier 2 NEPA studies, if it is determined that adverse human health or environmental effects occur to minority and/or low-income populations, and if those effects are determined to be disproportionately high.
Elderly and People with Disabilities	Adverse impacts on the elderly and people with disabilities could be mitigated by providing beneficial ADA compliant services and facilities for those populations. A more detailed analysis of adverse impacts on the elderly and disabled populations, mitigation measures, and the public involvement process will be provided in the Tier 2 NEPA documents.
Public Health and Safety	The Tier 2 NEPA studies will address safety measures and strategies to protect the health and safety of passengers, as well as motor vehicles and pedestrians, at existing or new at-grade crossings.

Impacted Resource	Potential Mitigation
Noise and Vibration	Minimizing locomotive horn use would be the greatest opportunity to mitigate potential noise impacts. Other mitigation measures could include upgrading of some electronic circuitry through installation of constant time circuitry (warning lights) at public at-grade roadway-rail crossings. Municipalities can choose to initiate the process of developing quiet zones to take advantage of the infrastructure provided by the proposed project. During the Tier 2 NEPA process, measures to mitigate ground-borne vibration would be evaluated.
Air Quality	During the Tier 2 NEPA studies, mitigation to reduce NO_x emissions would be considered and investigated, such as converting fleet vehicles from diesel fuel to alternative fuels, or the feasibility of implementing idling restrictions for locomotives at station stops and maintenance facilities. All emissions are below their *de minimis* thresholds for the nonattainment and maintenance areas. General air quality conformity analysis modeling may be required in Tier 2 NEPA documents to verify these findings.
Hazardous Waste and Waste Disposal	Potential impacts on or from NPL Superfund sites and other non-NPL sites will be further evaluated in the Tier 2 NEPA studies, to determine level of risk and potential mitigation or cleanup procedures. Mitigation requirements may include safety procedures and protection of human health and the environment to help ensure that there would be no further contamination of adjacent sites, and to provide a safe working environment during construction. In addition, solid waste materials generated during construction could be recycled or properly disposed of.
Cultural Resources	If, during the preparation of Tier 2 NEPA documents, it is determined that the project will adversely affect NRHP-eligible historic resources, mitigation measures may be developed in accordance with the terms of a PA between FRA and consulting parties, including the ACHP and SHPOs.
Parks and Federally or State-Listed Natural Areas	Specific mitigation measures, to the extent required, will be discussed in Tier 2 NEPA documents as specific impacts are identified.
Section 4(f) and 6(f) Properties	During the preparation of Tier 2 NEPA documents, minimization and mitigation measures for adverse impacts will be determined, to the extent required, through consultation with the official of the agency owning or administering the resource. Minimization of harm could include alternative design that lessens the impact on Section 4(f) resources and/or mitigation measures that compensate for residual impacts. For 6(f) LWCF lands that cannot be avoided, mitigation would include replacement property that is of at least equal fair market value as the impacted property, and of reasonably equivalent usefulness for recreation purposes.
Visual Resources and Aesthetic Quality	Through continued public involvement, residents' concerns about the potential views of the railroad facilities will be identified. Mitigation and impact minimization efforts will be addressed in more detail in the Tier 2 NEPA documents. Mitigation could include consideration of potential measures such as appropriate re-vegetation of disturbed areas of the scenic resources, visual screening of railroad facilities from adjacent residential areas, appropriate design of aesthetic features, and landscaping that would complement and blend with the context of the surrounding visual environment.

Impacted Resource	Potential Mitigation
Waterways, Water Bodies, and Wetlands	Mitigation options for unavoidable impacts on waterways, water bodies, and wetlands will be discussed in more detail during the Tier 2 NEPA documents. Mitigation measures could include mitigation banking, in-lieu fees, and on-site or off-site mitigation. During the design process, coordination will take place with the USACE and appropriate state resource agencies to develop mitigation strategies. The mitigation strategies to be identified and selected would account for the fact that not all mitigation options are available to all states and USACE Districts.
Water Quality	The Tier 2 NEPA documents would address mitigation measures and control of pollutants and sediments in regard to the National Pollutant Discharge Elimination System (NPDES) permitting, Storm Water Pollution Prevention Plans (SWPPPs), and stormwater Best Management Practices (BMPs). In addition, each state's required Section 401 Water Quality Certifications would be addressed. Mitigation for impacts on mapped or unmapped water wells, including proper abandonment of the wells (such as plugging and sealing) to prevent groundwater pollution would also be addressed.
Floodplains	During the Tier 2 NEPA process, coordination with the State Emergency Management Agencies (SEMAs), the DNRs of each state, and local floodplain administrators would be initiated to discuss floodplain development permitting and potential mitigation measures. In accordance with Executive Order 11988, discussions would include avoidance and minimization measures such as restoring natural and beneficial floodplain values, significant changes in flooding risks or damage, and the potential for incompatible floodplain development.
Topography, Geology, and Soils	No requirements for mitigation related to topographic, geologic, and soil conditions are anticipated, with the exception of impacts on the Loess Hills, which could include buffer zones and re-establishing native vegetation. Specific impacts and potential mitigation measures will be investigated and evaluated in further detail in the Tier 2 NEPA documents.
Natural Habitats and Wildlife	During the Tier 2 process, avoidance and minimization of impacts would be assessed, and unavoidable impacts to natural habitats and migratory birds would be coordinated with USFWS and state resource agencies to determine compliance with regulatory requirements and potential mitigation measures to offset impacts, which could include restrictions on construction activities in specific areas during the breeding/nesting seasons. Coordination with Iowa DNR would also take place regarding mitigation of woodland impacts, which require replacement according to Iowa Code 314.23, Environmental Protection.
Threatened and Endangered Species	During the Tier 2 process, Section 7 consultation with USFWS would take place to determine whether or not the Build Alternative could have the potential to affect a federally listed species, and if so, whether or not the proposed activity would adversely affect (jeopardize the continued existence of) a listed species. Mitigation measures for unavoidable adverse impacts would be determined as part of the formal Section 7 consultation. Avoidance and minimization of impacts on state-listed species would also be assessed during the Tier 2 NEPA documents. If it is determined that unavoidable impacts on state-listed species would occur, coordination with the Illinois DNR, Iowa DNR, and NGPC, as appropriate, would take place to determine potential mitigation measures.

Impacted Resource	Potential Mitigation
Energy Use and Climate Change	Mitigation may not be required for energy and climate change due to the positive impact and the diverted trips from other modes of transportation, lowering the overall amount of CO_2 emissions along the Study Area. Verification will be made during the Tier 2 NEPA studies.
Construction Impacts	Impacts from construction activities will be reviewed and mitigation will be considered during the development of the Tier 2 NEPA documents. The potential for Project construction impacts may be mitigated through measures such as the following: • Waste Disposal – Recycling and properly disposing of construction debris. • Water Quality – Management of stormwater runoff through implementation of BMPs. • Air Quality – Adherence to construction permit conditions and all state and local regulations in regard to emissions and exhaust, fugitive dust, and burning of debris. • Noise and Vibration – Equipping and maintaining muffling equipment for construction machinery, and limiting times of day for various construction activities. • Access – Development of a traffic mitigation plan for construction sequencing. • Traffic and Safety – Developing and implementing a traffic control and safety plan.
Indirect and Cumulative Impacts	Specific mitigation measures, to the extent required, will be discussed in Tier 2 NEPA documents as specific indirect and cumulative impacts are identified.

ES.7 COMMENTS AND COORDINATION

Agency coordination, tribal coordination, and public involvement have taken place during the development of this Tier 1 EIS.

ES.7.1 Agency Outreach

Agencies are categorized as public entities with decision-making authority for the public. Agency coordination has included interaction through email notices, email responses, in-person meetings, and teleconferences. An early coordination (EC) packet and invitation to the agency scoping meeting was provided to 14 federal agencies, 13 Illinois state agencies, 14 Iowa state agencies, 9 Nebraska state agencies, and several county/regional and municipal governmental organizations within or near the various route alternatives. Agency input on the Study and Project was received during the agency scoping meetings on February 21, 2012, in Ames, Iowa, and on February 22, 2012, in Chicago, Illinois, as well as through responses to the EC packet distributed on April 1, 2012. Federal and state resource agencies provided guidance concerning potential environmental requirements, including permitting and approvals needed for the Project. Representatives from counties and local municipalities generally noted their support for the Project, primarily for economic purposes, with a preference for route alternatives within or near their jurisdiction, or a proposal for a combination of route alternatives or a connection line from their municipalities to the route alternative. Route Alternative 4 or 4-A through the Quad Cities, Iowa City, and Des Moines

was generally favored based on a small sample size of representatives from counties and local municipalities. Chapter 4 of this Tier 1 EIS provides a full list of the agencies providing comments, documents the issues raised, summarizes the comments, and notes the responses.

Cooperating Agencies

On May 17, 2012, FRA extended an invitation to 24 federal and state agencies to become cooperating agencies for this Tier 1 EIS. Invitation letters were sent to specific agencies based on FRA and Iowa DOT's identification of reviewing agencies that may have an interest in the Project because of the potential for intergovernmental issues and/or the potential for impacts within that agency's legal jurisdiction. Cooperating agencies participate in meetings, provide pertinent information, raise concerns, assist in determining appropriate mitigation, and review pre-draft and pre-final documentation.

Agencies that agreed to serve as cooperating agencies on this Project are:

- FHWA Iowa Division
- FTA Region V
- USACE Rock Island District
- USCG District 8
- U.S. Department of the Army, Rock Island Arsenal
- USEPA Region 5
- USEPA Region 7
- USFWS Rock Island
- Illinois DNR
- Iowa SHPO

The Tier 1 Draft EIS was issued to these agencies, along with other agencies and the public, and comments from cooperating agencies were considered during preparation of the Tier 1 Final EIS. Section 4.4 in Chapter 4 includes a summary of comments on the Tier 1 Draft EIS, Appendix O has been supplemented with specific agency comments on the Tier 1 Draft EIS, and Appendix Q includes a table of comments on the Tier 1 Draft EIS and responses to those comments.

Milestones

Iowa DOT coordinated with both reviewing and cooperating agencies from Illinois, Iowa, and Nebraska at selected Project milestones during this Study. These milestones are 1) purpose and need, 2) alternatives to be analyzed, 3) alternatives to be carried forward, and 4) selection of the preferred alternative which was addressed in the Tier 1 Draft EIS and made available to all reviewing and cooperating agencies.

ES.7.2 Tribal Outreach

Coordination with Illinois DOT and the Nebraska Department of Roads (NDOR) was conducted to compile a list of tribes and Native American groups, whose tribal ranges included the portions of Illinois, Iowa, and Nebraska along the route alternatives. A coordination packet that described the Study and Project, and included a figure of the route alternatives, was mailed to representatives of each of 15 tribes and Native American groups on May 17, 2012. An information packet was also sent to the Nebraska Commission on

Indian Affairs. At the request of the Yankton Sioux Tribe, 14 additional Sioux Tribes of the region were sent EC packets on July 5, 2012.

The Kickapoo Tribe in Kansas does not currently have sufficient staffing to provide input on the Project and deferred to other tribes and Native American groups with similar historical ties. The Winnebago Tribe of Nebraska reviewed the route alternatives and indicated that it has cultural properties in some of the areas that could undergo construction, and requested that they be notified immediately if any burial sites or other cultural properties are found. The Yankton Sioux Tribe noted that the proposed route alternatives fall within its ancestral lands and is requesting further coordination for conducting a traditional cultural property (TCP) study and including other Sioux tribes in the region as part of Project coordination. Section 4.4 in Chapter 4 of this Tier 1 EIS includes a summary of comments received on the Tier 1 Draft EIS, including those from tribes and Native American groups, and Appendix Q includes a table of comments on the Tier 1 Draft EIS and responses to those comments.

ES.7.3 Stakeholder Outreach

At the onset of the Study, Iowa DOT conducted a Stakeholder Analysis to identify public stakeholders in Illinois, Iowa, and Nebraska who may be affected by or have data related to the Study. The stakeholder database expanded as more members of the public engaged in the Study through the public outreach process. All identified stakeholders are receiving updates at Study milestones via various outreach tools, including a Study webpage on Iowa DOT's website, a Project website for hosting online meetings, a toll-free Study information line, an online community tool kit (including a community survey), and an email mailing list.

To announce online and in-person meetings, press releases and media advisories have been released to all print media outlets statewide in Illinois and Iowa, and to the Omaha World Herald and Lincoln Journal Star in Nebraska at all Study milestones, public participation opportunities, and comment periods. This media strategy resulted in 66 earned media mentions in local and national news outlets from February 2012 through January 21, 2013. In addition to press releases, advertisements have been placed 11 newspapers throughout the Study Area to announce the public meetings and avenues to review information and provide comments.

Iowa DOT, in conjunction with FRA, hosted an online open-house meeting from February 13 to April 16, 2012, for the public to understand and comment on the scope of the Study and the initial range of route alternatives. The online scoping meeting was held on the Project website (http://chicagotoomaha.com/). Public comments from the online scoping meeting were collected through online comment forms, email messages, letters mailed or faxed to Iowa DOT, and the toll-free Study information line. Based on automatic electronic login recordation for the online open-house meeting, there were 2,789 attendees, and 994 comments were collected.

Very few public comments expressed concern with potential impacts on the natural and physical environment, either from not constructing the Project or from constructing and operating the Project. The majority of commenters supported development of the Project and cited a variety of reasons for their support, including fuel efficiency, reliability, safety, comfort, competitive cost, and economic development. Those not in favor of the Project gave several reasons, including that current bus service is sufficient and that taxpayer funds should

not be used for the Project. However, there were several commenters indicating support for the Project if no taxpayer funds were used. Commenters identifying themselves as retirees and/or college students typically supported the Project. A summary of comments is presented in Section 4.3.2 in Chapter 4 of this Tier 1 EIS.

A set of three public information meetings was held in May 2012 to obtain input from the public on preliminary results from screening the initial range of route alternatives. The public information meetings were conducted both through in-person open-house meetings held in three locations and through an online, self-directed open-house meeting. In-person meetings were conducted on Tuesday, May 1, 2012, at Chicago Union Station in Chicago, Illinois; Wednesday, May 2, 2012, at the State Historical Society Building in Des Moines, Iowa; and Thursday, May 3, 2012, at the Mid-America Center in Council Bluffs, Iowa. The online open-house meeting was available from May 1 through May 21, 2012, on the Project website.

During the comment period for the alternatives analysis, 208 comments were received from agencies, organizations, and the public. The majority of commenters noted that they would use the project and cited a variety of reasons, including personal or business travel. In addition, 134 commenters noted their support for the Project, including a preference for Route Alternative 4 or Route Alternative 4-A, as well as potential economic benefits. Six comments were submitted by those who were not in support of the Project. Non-supportive comments cited the use of taxpayer money and the lack of a market for long-term use.

In addition to the public information meetings, two Stakeholder Meetings were held in May 2012 with invited municipal representatives, elected officials, and community leaders to discuss the same information that was presented at the in-person and online open-house meetings.

Public opinion of the full implementation of the Preferred Alternative from Chicago to Omaha was gathered through an online community survey, which began April 13, 2012. This survey was qualitative in nature and reflects the opinion of only those 1,934 people who elected to respond. The survey remained open until December 26, 2012, the end of the comment period on the Tier 1 Draft EIS. The vast majority of respondents indicated that they would use the service for business travel or both business and personal travel, support the establishment of regional passenger rail, and think it will have a positive economic impact.

ES.7.4 Tier 1 Draft EIS Public Hearing and Comment Process

After the Tier 1 Draft EIS was published, Iowa DOT and FRA held public hearings in three major communities along the proposed route: Chicago, Illinois – December 11, 2012; Des Moines, Iowa – December 12, 2012; and Council Bluffs, Iowa – December 13, 2012. In all, 152 people signed in at the three public hearings, with the highest attendance (74 people) occurring at the Des Moines, Iowa, hearing. Each hearing included a formal presentation, followed by a question-and-answer session. Iowa DOT and consultant staff were available for discussions, which were held with attendees at the information boards and aerial maps of the Study Area. Attendees wishing to provide comments were invited to complete and submit a comment form either in person or through direct mail, or to use one of the many other Project comment mechanisms, discussed below.

At all three public hearings, the same information was presented. The purpose of the public hearings was for Iowa DOT to receive public input on the Tier 1 Draft EIS, including the Project's purpose and need, all reasonable alternatives, the affected environment, and the potential environmental impacts of the alternatives considered. Iowa DOT also explained the basis for selection of the Build Alternative and the No-Build Alternative.

In addition to the public hearings, Iowa DOT hosted an online open-house meeting from November 9 through December 26, 2012, on the Project website (http://chicagotoomaha.com/), which presented the same information as the public hearings. The online open-house meeting garnered 910 unique visitors through the end of the comment period on December 26, 2012.

Following the last public hearing, a Stakeholder Meeting was held in Council Bluffs, Iowa on December 14, 2012 with municipal representatives, elected officials, and community leaders. The purpose of the meeting was to discuss the same information that was presented at the in-person public hearings and online open-house meeting.

Very few public comments expressed concern with potential impacts on the natural and physical environment, either from not constructing the Project or from constructing and operating the Project. The majority of commenters supported development of the Project and cited a variety of reasons for their support, including fuel efficiency, reliability, safety, comfort, competitive cost, and economic development. Those not in favor of the Project gave several reasons, including that current bus service is sufficient and that taxpayer funds should not be used for the Project. Key comments are summarized in Section 4.4 in Chapter 4 of this Tier 1 EIS.

ES.7.5 Future Opportunities for Input

The scoping period and public comment period on the Tier 1 Draft EIS provided opportunities for agencies; tribes and Native American groups, and stakeholders to review route alternatives and the potential impacts associated with their implementation. The comments received during the public comment period were reviewed and used to create this Tier 1 Final EIS, which has been issued in the same manner as was the Tier 1 Draft EIS. The Tier 1 Final EIS will be available for review for 30 days, and FRA can take no action for implementing the proposed action during the comment period. Subsequent to the end of the comment period, FRA will issue a Record of Decision (ROD) to document its decision on a proposed action. The ROD will address public input on the Tier 1 Final EIS and will document the selected alternative as well as specific mitigation measures and other environmental commitments. The issuance of the ROD will complete the Tier 1 process.

ES.8 NEXT STEPS

ES.8.1 Tier 1 Completion

The Tier 1 Draft EIS was issued to solicit input on the preferred alternative from the public, resource agencies, tribes, and Native American groups. Comments received on the Draft EIS during the comment period were used to prepare and issue this Tier 1 Final EIS that addresses these comments. Subsequent to distribution of the Final EIS, a Record of Decision (ROD) will be developed, documenting the decision of selecting the preferred alternative and the process for accommodating mitigation measures that will be implemented in subsequent

phases of the Project. Most mitigation measures represent commitments for further coordination with the public, resource agencies, tribes, and Native American groups during Tier 2 studies as more detailed information on the design of the Project is developed.

ES.8.2 Tier 2 Sections

As funding becomes available, Tier 2 studies and NEPA documentation would be advanced for logical sections of the proposed Project. That is, one or more sections could be developed as individual projects that would comprise components of the Chicago to Council Bluffs-Omaha Regional Passenger Rail System Program. Separate Tier 2 NEPA documentation would be prepared for each of the sections identified; however, the specific class of NEPA document has not yet been determined for each of the Tier 2 sections. Each of the sections would have independent utility and, therefore, could be improved with or without improvements to other sections. Likewise, each of the sections could be implemented in phases, as discussed further in Section ES.7.5. Preliminary design and NEPA documentation would be conducted in support of those Tier 2 studies because such details are necessary to identify the resources that would be impacted by construction activities, and on a long-term basis. At this time, the following Tier 2 sections are anticipated for full implementation, but these sections may be combined, modified in the future, or revisited based on available funding:

- Chicago to Aurora, Illinois, Track Improvements
- Aurora, Illinois, to the Wyanet Connection near Wyanet, Illinois, Track Improvements
- Wyanet Connection near Wyanet, Illinois, to Iowa City, Iowa, Track Improvements
- Mississippi River Bridge
- Iowa City, Iowa, Station
- Iowa City, Iowa, Layover and Maintenance Facility
- Iowa City to Short Line Yard, Des Moines, Iowa, Track Improvements
- Grinnell, Iowa, Station
- Des Moines, Iowa, Short Line Yard Improvements
- Des Moines, Iowa, Station
- Des Moines, Iowa, Layover and Maintenance Facility
- Des Moines to Council Bluffs, Iowa, Track Improvements
- Atlantic, Iowa, Station
- Council Bluffs, Iowa, Station
- Omaha, Nebraska/Council Bluffs, Iowa, Layover and Maintenance Facilities
- Council Bluffs, Iowa, to Omaha, Nebraska, Track Improvements
- Missouri River Bridge
- Omaha, Nebraska, Station

ES.8.3 NEPA Documents and Additional Studies

Multiple NEPA documents would be developed during the Tier 2 NEPA process, but are anticipated to be a mixture of Environmental Assessments for areas such as the Missouri River crossing between Council Bluffs, Iowa, and Omaha, Nebraska, and Categorical

Exclusions for areas with minimal effects. Public input would be considered in the Tier 2 NEPA and design processes. In addition to NEPA documentation for evaluation of the Tier 2 sections, numerous studies would be completed as part of the Tier 2 NEPA process to determine the specific nature and quantity of impacts. For each Tier 2 section, the analyses would consider avoidance and minimization of impacts on sensitive environmental resources and may include:

- Detailed local-level alternatives analysis
- Wetland delineations and identification of Section 404 permitting requirements
- Cultural resources surveys and Section 106 consultation
- Threatened and endangered species surveys
- Engineering surveys
- Noise and vibration analysis
- Section 4(f) evaluation
- Phase I Environmental Site Assessments
- Air emissions analysis in non-attainment areas
- Station-area traffic studies

ES.8.4 Mitigation Planning and Project Commitments

Potential mitigation for impacts is summarized in Section ES.5. Specific mitigation during the Tier 2 process would be determined in consultation with the federal or state agency responsible for assessing impacts on a given resource. As needed, formal consultation would occur with resource agencies to address obligations to minimize and mitigate impacts, such as those obligations under Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA). During the Tier 1 process, the primary commitments have been to work with the public, resource agencies, tribes, and Native American groups to identify specific mitigation measures during the Tier 2 process and subsequently implement those measures.

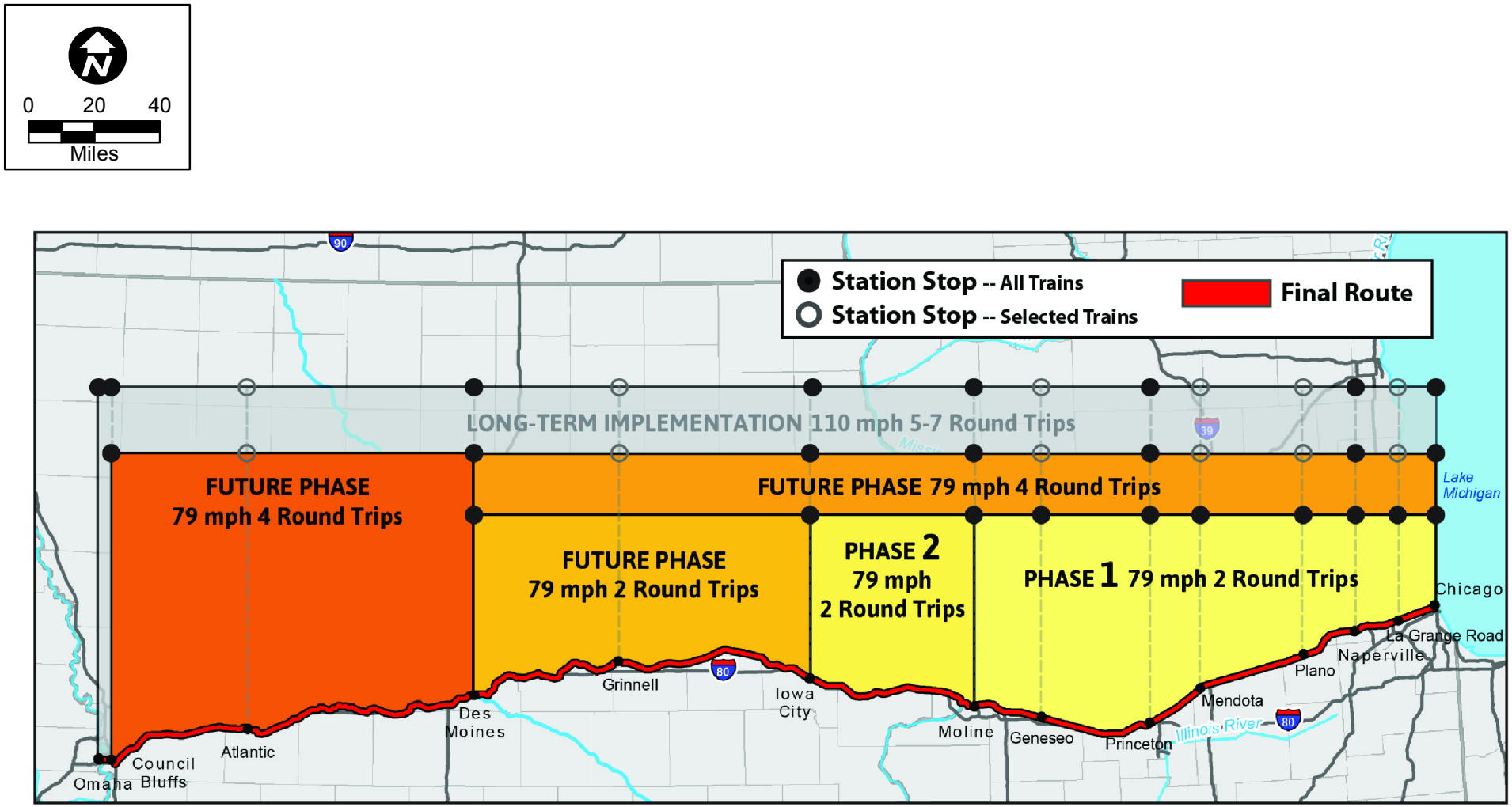
ES.8.5 Phased Implementation

Based on experience with other passenger rail projects, and on service development planning for this Project, Iowa DOT anticipates that the Chicago to Council Bluffs-Omaha Project would be incrementally funded and that construction and operations would be implemented in phases. Within the approximate 20-year planning horizon of the SDP, initial and successive phases have been considered through the interim implementation phase, which is the last phase that would be implemented using existing SDP information. Funding initially could be allocated for improvements of facilities to support speeds lower than a maximum of 110 mph, or to improve/construct particular stations and maintenance and layover facilities. Service initially could start with fewer stations, at lower speeds, and with fewer round-trips. As more funding is allocated to the Project, further improvements could be implemented to expand service. The specific phasing of the proposed Project is not known at this time but will be determined as funding is allocated to the proposed Project. Figure ES-7 illustrates the proposed implementation phases.

Based on current service development planning, the proposed Project is anticipated to commence with two round-trips per day from Chicago to Moline at a maximum speed of 79 mph (Phase 1); Phase 1 is funded and would occur independently as part of the Quad Cities Expansion Program passenger rail project. Phase 2 would include two round-trips per day between Chicago and Iowa City. The Project would then be extended westward to Des Moines, with two and then four round-trips per day between Chicago and Des Moines. The last phase of the proposed Project that would be implemented within the 20-year planning horizon of the SDP would be four round-trips per day between Chicago and Council Bluffs. The proposed schedule developed for the SDP for these phases includes the following estimated time frames:

- Chicago to Moline (two round-trips) – construction 2014-2015; service begins December 31, 2015
- Chicago to Iowa City (two round-trips) – construction 2015-2016; service begins 2017
- Chicago to Des Moines (two round-trips) – construction 2020-2021; service begins 2022
- Chicago to Des Moines (four round-trips) – equipment procurement 2024; service begins 2025
- Chicago to Council Bluffs (four round-trips) – construction 2028-2029; service begins 2030

After additional service development planning is completed in the future, the service would be extended to Omaha; currently estimated to commence in 2040. Ultimately, the speed and the frequency of round-trips would increase with subsequent implementation phases up to a maximum of 110 mph and up to seven round-trips per day from Chicago to Des Moines, with five of the round-trips extending from Chicago to Omaha. Full implementation would be realized over many years of phased implementation as federal and state funds are allocated to the proposed Project.



Iowa Department of Transportation

Iowa Connections

Get on Board

Implementation Phases

Chicago to Council Bluffs - Omaha
Regional Passenger Rail System Planning Study

DATE
May 2013

FIGURE
ES-7

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ABBREVIATIONS, ACRONYMS, AND SHORT FORMS

ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
ADA	Americans with Disabilities Act
ADT	average daily traffic
APE	Area of Potential Effect
ASARCO	American Smelting and Refining Company, Inc.
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BNSF	BNSF Railway
BTUs	British Thermal Units
CAA	Clean Air Act of 1970
CBIS	Council Bluffs Interstate System
CBEC	Council Bluffs Energy Center
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
CO	carbon monoxide
CO2	Carbon Dioxide
COGs	Councils of Government
Corridor	Chicago to Omaha corridor

CRI&P	Chicago, Rock Island & Pacific Railroad
CTA	Chicago Transit Authority
CTC	Centralized Traffic Control
CTS	Coralville Transit System
CWR	continuously welded rail
DART	Des Moines Area Regional Transit Authority
dB	decibels
dBA	A-weighted decibels
DCHs	Designated Critical Habitats
DOT	Department of Transportation
EA	Environmental Assessment
EC	early coordination
EcoCAT	Ecological Compliance Assessment Tool of Illinois DNR,
EIS	Environmental Impact Statement
Environmental Procedures	FRA's Procedures for Considering Environmental Impacts
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRMs	Flood Insurance Rate Maps
FRA	Federal Railroad Administration

FRS	Facility Registry System
FRSA	Federal Railroad Safety Act
FTA	Federal Transit Administration
FWCA	Fish and Wildlife Coordination Act of 1934
GBV	ground-borne vibration
GHG	greenhouse gas emissions
GIS	geographic information system
HC	hydrocarbons
HIRTA	*Heart of Iowa Regional Transit Agency*
HUD	U.S. Department of Housing and Urban Development
I-29	Interstate 29
I-480	Interstate 480
I-80	Interstate 80
I-88	Interstate 88
IAIS	Iowa Interstate Railroad
ICT	Iowa City Transit
IFPA	Illinois Farmland Preservation Act
IGWS	Iowa Geological and Water Survey
ILCS	Illinois Compiled Statutes
Illinois DNR	Illinois Department of Natural Resources
Illinois DNR/OWR	Illinois Department of Natural Resources/Office of Water Resources
Illinois DOT	Illinois Department of Transportation
Illinois EPA	Illinois Environmental Protection Agency
Iowa DOT	Iowa Department of Transportation
Iowa DNR	Iowa Department of Natural Resources

INAI	Illinois Natural Areas Inventory
INPC	Illinois Nature Preserves Commission
ISGS	Illinois State Geological Survey
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
L_{dn}	day-night noise level
L_{eq}	equivalent noise level
LEP	limited English proficiency
LUST	leaking underground storage tank
LWCF	Land and Water Conservation Fund Act of 1965
MAPA	Metropolitan Area Planning Agency
MBTA	Migratory Bird Treaty Act of 1918
MetroLINK	Rock Island County Metropolitan Mass Transit District
MGT	million gross tons
MPO	Metropolitan Planning Organization
MSA	metropolitan statistical area
MSATs	Mobile Source Air Toxics
MWRRI	Midwest Regional Rail Initiative
NAAQS	National Ambient Air Quality Standards
NCSD	Nebraska Conservation and Survey Division
NDEQ	Nebraska Department of Environmental Quality
NDOR	Nebraska Department of Roads
Nebraska DNR	Nebraska Department of Natural Resources
NEMA	Nebraska Emergency Management Agency
NEPA	National Environmental Policy Act of 1969
NESHAP	National Emission Standards for Hazardous Air Pollutants

NFIP	National Flood Insurance Program
NGPC	Nebraska Game and Parks Commission
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NS	Norfolk Southern Railway
NWI	National Wetlands Inventory
O_3	ozone
OHW	ordinary high water
OHWMs	Ordinary High Water Marks
OLE	Office of Location and Environment
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PAB	Palustrine Aquatic Bed
Pb	lead
PEM	Palustrine Emergent
PFO	Palustrine Forested

PL	Public Law
PM	particulate matter
PM-2.5	particulate matter smaller than 2.5 microns in diameter
PM-10	particulate matter smaller than 10 microns in diameter
PRA	Pittman-Robertson Act
Project	the expansion of intercity passenger rail service from Chicago, Illinois, through Iowa, to Omaha, Nebraska
PSS	Palustrine Scrub-Shrub
PTC	Positive Train Control
PWEDA	Public Works and Economic Development Act
Quad Cities	East Moline, Moline, and Rock Island, Illinois, and Davenport and Bettendorf, Iowa
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROW	right-of-way
RTA	Regional Transportation Authority
SARA	Superfund Amendments and Reauthorization Act
SEATS	Special Needs and Elderly Assisted Transportation System
SEMAs	State Emergency Management Agencies
SES	SouthEast Service
SFHA	Special Flood Hazard Areas
SHPO	State Historic Preservation Office
SIP	state implementation plan
SO_2	sulfur dioxide
STAR Line	Suburban Transit Access Route
STS	Special Transit Service

Study	Chicago to Omaha Regional Passenger Rail System Planning Study
SWITA	Southwest Iowa Transit Agency
SWPPP	Storm Water Pollution Prevention Plan
TCE	Trichloroethylene
TCP	traditional cultural property
TEA-21	Transportation Equity Act
THPO	Tribal Historic Preservation Office
TSA	Transportation Security Administration
TSCA	Toxic Substances Control Act
TWC	track warrant control
UP	Union Pacific Railroad
UP-NW	Union Pacific Northwest
UP-W	Union Pacific West
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOCs	volatile organic compounds
VMT	vehicle miles traveled
WA	Wilderness Act