Environmental Assessment

Union Pacific Railroad Track Improvement Project form Joliet to Dwight, IL

Will, Grundy and Livingston County, Illinois

April 2011

IL-Chicago-St. Louis Supplement SDP EA.pdf

Illinois Department of Transportation

Union Pacific Railroad UPRR's Track Improvement Project from Joliet to Dwight, Illinois

Environmental Assessment

Submitted Pursuant to 64 FR 28545
by the

US DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

and

ILLINOIS DEPARTMENT OF TRANSPORTATION

March 31, 2011
Date of Approval

For Illinois DOT

ABSTRACT: The Illinois Department of Transportation (DOT) in conjunction with the Federal Railroad Administration (FRA) are evaluating improvements within the proposed Union Pacific Railroad Track project to be constructed on the UPRR Joliet Subdivision between Joliet (Milepost (MP) 36.7) and Dwight, Illinois (MP 72.8). This Environmental Assessment (EA) addresses mainline track capacity and operational issues for existing and expected near-term freight and Amtrak services along the current Amtrak service routing between Joliet and Dwight.

These improvements were not included in the Chicago – St. Louis High Speed Rail Project Environmental Impact Statement (EIS), completed in January 2003 and the Record of Decision (ROD) signed in January 2004. The proposed improvements have independent utility in addressing issues for existing and expected near-term freight and Amtrak services, and does not preclude other options to address the Chicago-Dwight portion of High Speed Rail if further corridor studies are initiated or advanced under the National Environmental Protection Act (NEPA).

The preferred alternative follows the current Amtrak service routing from Chicago - St. Louis and includes 1) track upgrades from Joliet (MP 36.7) to Dwight (MP 72.8) to allow 110 mph trains where safe and practical, 2) a new 2nd mainline track along the Union Pacific Railroad from Joliet (MP 36.8) to Elwood (MP 44.69) and 3) a freight siding from MP 55.0 to 57.13. Also includes other improvements to increase in on-time performance and reduce the potential for delay to one or more of the trains operating over this line including installation of Centralized Traffic Control (CTC) with a Positive Train Control (PTC) overlay. No significant impacts to natural, social or human environments would occur. Potential impacts of 1.28 acres of wetland, 0.65 acres of open water, and 4 vibration impacts.

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ABBREVIATIONS AND ACRONYMS

$\mu g/m^3$	Micrograms per Cubic Meter of Air
µg	Microgram
AAI	All Appropriate Inquiries
AAR	American Association of Railroads
ACHP	Advisory Council for Historic Preservation
ACS	American Community Survey
ADID	Advanced Identification
ADT	Average Daily Traffic
APE	Area of Potential Effects
AREMA	American Railway Engineering and Maintenance-of-Way Association
ARRA	American Recovery and Reinvestment Act of 2009
ARRA	American Recovery and Reinvestment Act
ASTM	American Society for Testing and Materials
AWQMN	Ambient Water Quality Monitoring Network
BCR	Bridge Condition Report
BNSF	Burlington Northern Santa Fe Railway
BSC	Biological Stream Characterization
C	Coefficient of Conservatism
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CATS	Chicago Area Transportation Study
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CIC	CenterPointe
CMAP	Chicago Metropolitan Agency for Planning
CN	Canadian National Railway Corporation
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CREATE	Chicago Region Environmental and Transportation Efficiency
CTA	Chicago Transit Authority
CTC	Centralized Traffic Control
CWA	Clean Water Act
CWR	Continuously Welded Rail
dBA	A-Weighted Decibels
DBH	Diameter at Breast Height
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EcoCAT	Ecological Compliance Assessment Tool
EDR	Environmental Data Resources

EJ	Environmental Justice
EO	Executive Order
ESA	Endangered Species Act
FD	Final Design
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	U.S. Department of Transportation, Federal Highway Administration
FQI	Floristic Quality Index
FRA	U.S. Department of Transportation, Federal Railroad Administration
FTA	U.S. Department of Transportation, Federal Transit Administration
GHC	Greenhouse Gas
HQAR	High Quality Aquatic Resources
HSIPR	High Speed Intercity Passenger Rail
HSR	High-Speed Rail
IBI	Index of Biotic Integrity
ICC	Illinois Commerce Commission
IDNR	Illinois Department of Natural Resources
IDOT	Illinois Department of Transportation
IDPH	Illinois Department of Public Health
IEPA	Illinois Environmental Protection Agency
IHPA	Illinois Historic Preservation Agency
ILCA	Illinois Land Conservation Act
INAI	Illinois Natural Areas Inventory
ISGS	Illinois State Geological Survey
IWPA	Interagency Wetland Policy Act
LAWCON	Land and Water Conservation Act
LUST	Leaking Underground Storage Tank
Metra	Metropolitan Rail Corporation
MFR	Multi-Family Residences
mIBI	macroinvertebrate Index of Biotic Integrity
MNTP	Midewin National Tallgrass Prairie
MOA	Memorandum of Agreement
MP	Mile Post
mph	Miles per Hour
MSA	Metropolitan Statistical Area
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFA	No Further Action
NFR	No Further Remediation
NH_3	Ammonia
NIPC	Northeastern Illinois Planning Commission
NO_2	Nitrogen Dioxide
NOI	Notice of Intent
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System

NPL	National Priority List
NR	National Register
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NWI	National Wetland Inventory
O_3	Ozone
OSLAD	Open Space Lands Acquisition and Development
Pb	Lead
PM	Particulate Matter
ppm	Parts Per Million
PTC	Positive Train Control
RI	Rock Island
ROD	Record of Decision
ROW	Right-of-Way
RTA	Regional Transportation Authority
SFR	Single-Family Residences
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SRP	Site Remediation Program
TLM	Track Laying Machine
TRT	Track Renewal Train
TSD	Treatment, Storage, and Disposal Facility
UP	Union Pacific
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USC	United States Code
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
UST	Underground Storage Tank
VMT	Vehicle Miles of Travel
VOC	Volatile Organic Compound
WCDH	Will County Department of Highways
WOUS	Waters of the United States
WWTP	Waste Water Treatment Plan

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1.0 PURPOSE AND NEED

1.1 Background

The Federal Railroad Administration (FRA) has released guidance on implementing the President's "Vision for High Speed Rail" for applying for funding for high speed rail projects under the American Recovery and Reinvestment Act of 2009 (ARRA). In response, the Illinois Department of Transportation (IDOT) submitted an application for funding under FRA's "Track 2" High Speed Intercity Passenger Rail (HSIPR) Program for the Chicago – St. Louis corridor. On January 28, 2010, IDOT received $1.1 billion for corridor improvements between Dwight and St. Louis based on the 2004 Record of Decision (ROD).

The 2003 Final Environmental Impact Statement (FEIS) and 2004 ROD for the Chicago - St. Louis High-Speed Rail Project selected a "build" alternative, including track, siding, signal and grade crossing improvements along the existing single track corridor south of Dwight to St. Louis and documented environmental impacts for the "build" alternative including 110 miles per hour (mph) diesel locomotive operations in this corridor. The 2004 ROD "build" alternative would reduce travel time between Chicago and St. Louis.

The 2004 ROD deferred selection of a corridor from Dwight to Chicago to future study. Under the "no build" scenario for this section, the existing Amtrak alignment using Union Pacific Railroad (UPRR) and Canadian National Railway (CN) facilities was maintained, maximum operating speed remained at 79 mph, and no physical improvements or changes in Amtrak operating characteristics (i.e., number and speed of trains) were recommended. The FEIS recognized that further actions could be taken in the Dwight-Chicago portion to make additional service improvements when needed, subject to subsequent environmental review.[1]

Since the 2004 ROD, the IDOT has made significant progress on the Chicago and St. Louis Corridor in cooperation with the UPRR, which owns the right-of-way (ROW) south of Joliet and operates rail freight services in the corridor. Upgrades along the UPRR portion of the corridor pursuant to the 2004 ROD have included track, signaling and grade crossing improvements.

1.2 Introduction

The proposed project is part of an incremental approach to improving existing railroad infrastructure to reduce travel time for the passenger rail mode and is the most cost-effective approach to improving current intercity rail service and facilitating development of high-speed rail within the Chicago – St. Louis corridor.

[1] 3.2.2. "Selected Alignment", Chicago-St. Louis High Speed Rail Project Final EIS, Illinois Department of Transportation, January 2003,

1.3 Project History

For over a decade, the IDOT has pursued improvements to passenger rail service between Chicago and St. Louis. The Chicago – St. Louis corridor is part of the Midwest Regional Rail System plan to develop and implement a 21st Century regional passenger rail system.

2003 Final Environmental Impact Statement/2004 Record of Decision: In January 2003, the IDOT completed a FEIS for the Chicago – St. Louis corridor. The Preferred Alternative from the FEIS included the provision of high-speed rail service, operating at 110 mph, along the existing Chicago – St. Louis Amtrak route south of Dwight, Illinois. No action was proposed between Chicago and Dwight. The proposed service consisted of three round trips per day. A ROD was signed in January 2004. Since the ROD, the IDOT has made significant progress on the Chicago and St. Louis Corridor in cooperation with the UPRR, which owns the ROW south of Joliet and operates rail freight services in the corridor. Extensive rehabilitation and upgrading of the Chicago-St. Louis corridor track and signal systems has been undertaken, and four-quadrant gates installed at many grade crossings in the corridor. Under earlier programs, work had been completed using $40 million in loan and grants provided by the IDOT and loans from the FRA. On January 28, 2010, IDOT received an additional $1.1 billion for corridor improvements between Dwight and St. Louis based on the 2004 ROD.

In addition, IDOT has coordinated the planning efforts with the CN, the owner and operator of the rail line between Joliet and downtown Chicago. These efforts have involved subsidizing Amtrak operations and investing capital to upgrade Union Pacific (UP) and Amtrak facilities.

New Environmental Impact Statement (2011): On February 14, 2011, FRA and IDOT issued a Notice of Intent (NOI) to prepare a Tier 1 Environmental Impact Statement for the Chicago, IL to St. Louis, MO High Speed Rail Corridor Program. According to the NOI, the Tier 1 EIS will assess changing the existing rail corridor from one track to two tracks; increasing the number of high-speed passenger trains; potential corridor route alternatives between Chicago and Joliet, IL, through the City of Springfield, and for the approach to St. Louis, MO; and the associated transportation and environmental impacts. Also in the NOI, FRA and IDOT stated their intention to not examine the Norfolk Southern-Canadian National alignment between Dwight and Chicago, which was previously studied in the 2003 FEIS. The dropping of this alignment from further study will result in a single "build" alternative utilizing the UPRR alignment between Dwight and Joliet for the High Speed Rail Corridor Program, which coincides with the limits of this Environmental Assessment.

1.4 Project Area

The overall Environmental Assessment (EA) project area lies along a section between Joliet and Dwight which extends in a southeast direction across Will County, Grundy County and

northeastern Livingston County. The action proposed in this document consists of three components located within UPRR's Joliet Subdivision.

The first component will encompass the extension of the 110 mph speed limit approximately 36 miles from the city of Joliet to the village of Dwight. The second component consists of a new 2nd mainline track located between UPRR Milepost (MP) 36.7 in the city of Joliet, and MP 44.69 in the village of Elwood. The third component consists of a new siding track located between UPRR MP 55.0 near the city of Wilmington and MP 57.13 near the village of Braidwood. Figure 1-1 shows the Joliet to Dwight EA Project area, with the location of the 110 mph operational improvements and 2nd mainline track improvements reviewed in this document. The locations of the existing culvert at MP 38.3 and bridges at MP 42.6 and 44.4 reviewed in this document are shown on Figure 1-1.

1.5 Project Purpose and Need

1.5.1 Purpose of the Proposed Action

The project purpose is to enhance capacity and increase the fluidity of operations on the UPRR Joliet Subdivision in the line section between Joliet and Dwight. This purpose is fully complementary with the projects awarded under the FRA HSIPR grant to IDOT that will be implemented in the section south of Joliet. As noted above in 1.3, the purpose is also complementary with the single Dwight–Joliet corridor that is proposed to be considered by the Tier 1 EIS for the Chicago-St. Louis High Speed Intercity Passenger Rail program.

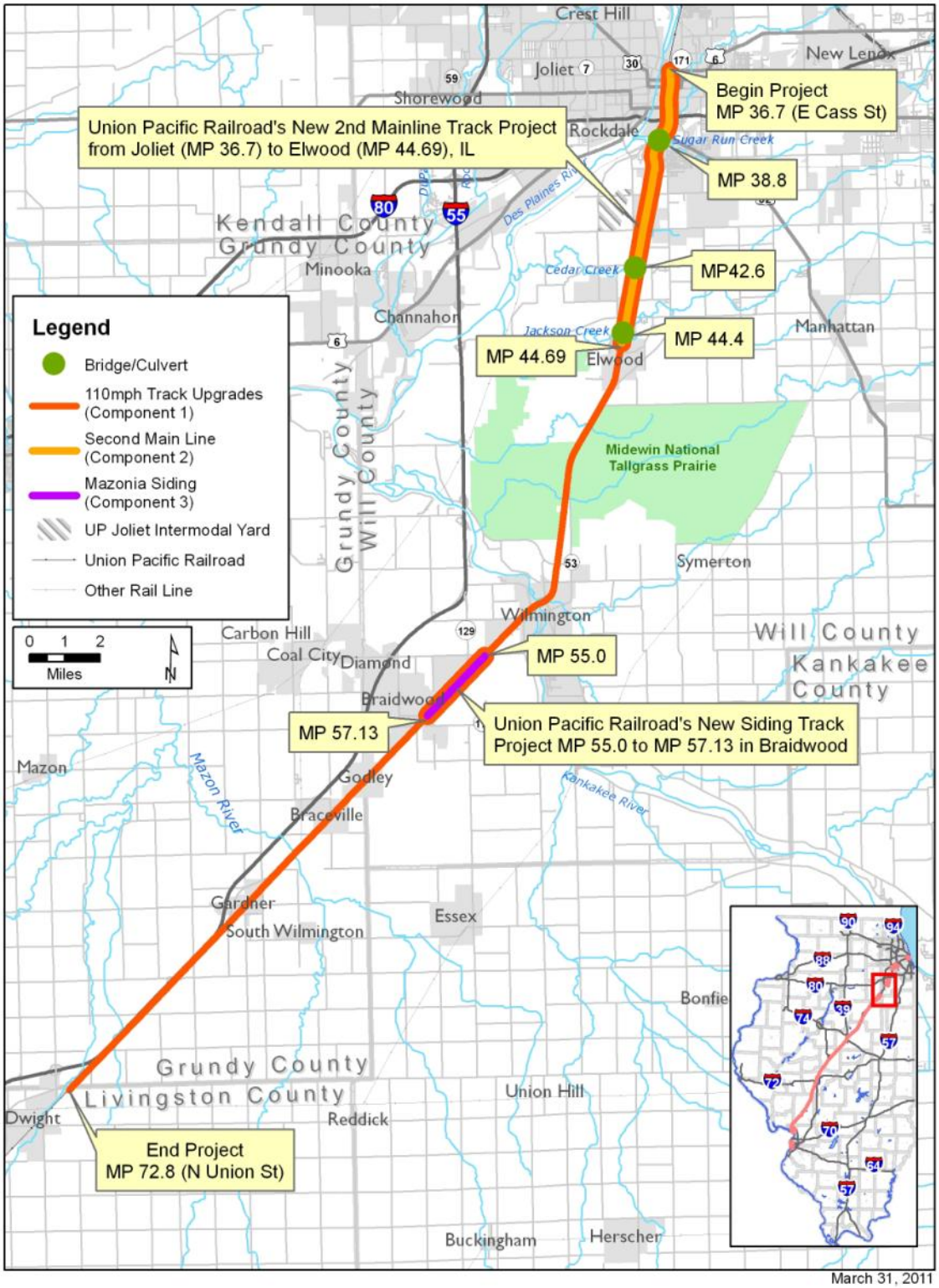
The project's purpose is also to benefit existing medium and long-distance Amtrak service, including the Lincoln Service between Chicago and St. Louis; the Kansas City Mule and Ann Rutledge trains between St. Louis and Kansas City, MO; and the Texas Eagle, providing service between Chicago and St. Louis, and then southwest to Little Rock, AR, Dallas/Ft. Worth, TX, and other points west to Los Angeles, CA. These trains serve one suburban Chicago stop and eight intermediate stops between Chicago and St. Louis, including Joliet, Bloomington-Normal and Springfield, Illinois.

The proposed alternatives have independent utility in addressing mainline track capacity and operational issues for existing and expected near-term freight and Amtrak services, and do not preclude other options to address the Dwight-Chicago portion of High Speed Rail if further corridor studies are initiated or advanced under the National Environmental Protection Act (NEPA).

1.5.2 Need for the Proposed Action

There is a need for improvements to on-time-performance on the existing Chicago-St. Louis route and to provide for an increase in average speeds and shorter trip times. Under the current schedules, there are about 15 trains per day operating over this section of line, including 10 Amtrak trains (including the two long distance "Texas Eagle" trains and eight

Figure 1-1. Project Area



intermediate distance "Lincoln Service" trains) and five UPRR freights (a combination of local and through trains).

Under the present infrastructure configuration, delays to passenger and freight trains can and do occur on the 37-mile line section between Joliet and Dwight on the Chicago to St. Louis corridor. For example, "Lincoln Service" trains 300 and 301 (first departures of the day northbound and southbound, respectively) are scheduled to meet north of Dwight, but the limited siding and track capacity, along with frequent road crossings in this section, constrains the meet locations, frequently subjecting these trains to delays. In a similar context, trains 302 and 303 are scheduled to meet in this same section of line.

Reducing travel time and improving service reliability are paramount to increasing the viability of intercity passenger rail transportation between Chicago and St. Louis. In order to be attractive, passenger rail must meet or better the travel time of auto travel on the parallel interstate freeways with 65 mph speed limits. An overall reduction in travel time between Chicago and St. Louis is required to achieve that need. On-time performance, another key aspect of reliability, must also be improved.

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2.0 ALTERNATIVES

2.1 Introduction

The alternatives evaluated in this EA includes the continuation of existing Amtrak service in the corridor (No Build Alternative) and a Detailed Build Alternative that provides for improvements to enhance capacity and increase the fluidity of operations on the UPRR Joliet Subdivision in the line section between Joliet and Dwight. The Detailed Build Alternative is also fully complementary to the projects awarded under the FRA HSIPR Grant to IDOT that will be implemented in the section south of Dwight.

2.2 No Build Alternative

The No Build Alternative includes existing and expected near-term freight and Amtrak services between Chicago and Dwight. These services would operate on the existing track configuration of double track between MP 36.7 to 38.5 and single track between MP 38.5 to 72.81 and would not include any signaling improvements or additional crossovers to enhance operational flexibility.

South of the project limits, it is anticipated that other improvements to implement High Speed Rail will be pursued, as contained in the Chicago – St. Louis High Speed Rail Project EIS, completed in January 2003, with the ROD signed in January 2004. The EIS and ROD included the upgrade of the existing single track and 22 miles of siding, 12 miles of second track, one grade-separated highway-railroad grade crossing, and the installation of enhanced warning devices at 174 grade crossings, along the UP/Amtrak route between Dwight and St. Louis to allow 110- mph operation for three round trips per day. Since the ROD, the IDOT has made significant progress on the Chicago and St. Louis Corridor in cooperation with the UPRR, which owns the ROW south of Joliet and operates rail freight services in the corridor.

In February 2011, FRA and IDOT issued a Notice of Intent to prepare a new Tier 1 EIS for further high speed passenger rail service improvements from Chicago, IL to St. Louis, MO, building upon the selected alternative of the 2004 ROD. The NOI included a proposal to examine 110 mph passenger train service as well as to effectively consider a single "build" alternative utilizing the UPRR corridor between Dwight and Joliet. Therefore, the Tier 1 EIS proposal, which will examine improvements to allow 110 mph service north from Dwight to Joliet, will encompass the UPRR corridor examined in this Environmental Assessment as well as potential improvements north of Joliet and south of Dwight. It is possible the No Build Alternative in this EA would be superseded in the future by potential improvements resulting from the Tier 1 EIS study.

With the opening of the new Joliet intermodal terminal, the number of freight trains is expected to increase in the next year from five per day to 12 per day (construction began in August 2009 and the initial phase opened for revenue service in August 2010). Additional growth in the number of freight trains is also expected beyond the 12 trains per day, with

the potential of up to 22 trains per day by 2017. The existing number of Amtrak trains is ten per day (five northbound, five southbound). North of Dwight, the existing maximum operating speed of 79 mph would be maintained, as defined in the 2003 FEIS and 2004 ROD. No physical improvements and no changes in Amtrak operating characteristics (i.e., number and speed of trains) would be made north of Dwight.

The No Build Alternative would not meet the purpose and need of the project. It would not enhance capacity and increase the fluidity of operations on the UPRR Joliet Subdivision in the line section between Joliet and Dwight. The single main track and the existing double track would not provide the operating flexibility required in view of the growing rail freight traffic and maintenance of existing Amtrak rail passenger service.

2.3 Detailed Build Alternative

2.3.1 110 mph Passenger Service, New Second Mainline Track and Mazonia Siding Track

The Detailed Build Alternative consists of three components located within the EA project area. The first component will encompass design and construction of improvements to existing trackage that support the extension of the 110 mph speed limit for passenger trains, approximately 36 miles from Dwight, IL to Joliet, IL and includes track upgrades, crossing upgrades, about 10 turnouts, and related work. The second component will encompass the final design and construction of new 2nd mainline track between Joliet and Elwood, IL. The alternative consists of track improvements to the existing double tracks between MP 36.7 to 38.5, and adding a second mainline track between MP 38.5 to 44.69. In approximately the northern two miles of the project area, which are already double-tracked, the track improvements would include the addition of crossovers between the two existing tracks as well as turnout/signal upgrades. Additional construction activities throughout the entire project area include the installation of 21 new turnouts and approximately 6 miles of new track. The third component (Mazonia Siding) is located between MP 55.00 and MP 57.13, and consists of the construction of a new siding track adjacent to the north side of the existing single mainline track. Two new turnouts and approximately 12, 200 feet of track will be constructed for the Mazonia Siding. For all components, the signal system will be upgraded to a Centralized Traffic Control (CTC) signal system and will include a Positive Train Control (PTC) overlay.

2.3.2 At-Grade Crossings

Within the project corridor, there are 38 at-grade crossings (including seven private grade crossings) in the project corridor. Because the UPRR ROW is 100 feet wide at existing grade crossings, the crossing areas are wide enough to accommodate the addition of a second track. All public grade crossings located within the project corridor will be upgraded from the existing warning devices to four-quadrant gates with vehicle detection equipment. For private crossings located on farming property, the crossing is primarily used to move farming equipment from one field to another on farms that are bisected by a rail line. In this situation,

the crossing is proposed to receive a Field-to-Field Treatment that will incorporate a locked, reduced-access gate system. Both the land owner and Emergency Medical Services will have access to release this locked system when no trains are within the approach circuits.

No grade crossings will be required for the third component (Mazonia Siding project). For additional information regarding at-grade crossing treatments, see Section 3.3.1 Transportation.

2.3.3 Culvert and Bridge Crossings

A review of the culverts and bridges in the project corridor was conducted to determine the potential impacts (see appendix E). It was determined that the first component of the project would have a low potential impact on the bridges and culverts since the work is contained within the existing right-of-way and on the same track alignment. The second and third components, would require extending some of the existing culverts and bridges to accommodate the additional embankment required to construct the second main track between Joliet and Elwood (second component) and siding track north of Braidwood (third component). There are no large culverts or bridges located within the third (Mazonia Siding) component. Additional bridges and culverts have been identified as potential replacement, however, the final location and design of these structures is pending approval of funding. If these bridges and culverts are included as part of this project, additional environmental surveys and subsequent documentation will need to be conducted. Also, coordination with the appropriate agencies, for example, Illinois Historic Preservation Agency/State Historic Preservation Officer, US Fish and Wildlife Service and US Army Corps of Engineers (USACE).

Within the second component, there is one large culvert at MP 38.8 and bridges at MP 42.6 and 44.4 where the rail line crosses waterways. These would be modified with the addition of a second track. The existing roadbed on the bridges and approaches would be modified for the second track in accordance with current FRA standards. Temporary easement or ROW acquisition may be required at the stream crossings of the Sugar Run Creek at MP 38.8, the Cedar Creek at MP 42.6 and Jackson Creek at MP 44.4 in Will County. Work on these structures would be limited to extending the culvert at MP 38.8 to the east, extending the bridge at MP 42.6 to the east and replacement of the one-track bridge at MP 44.4 with a double track bridge. A conceptual drawing of the proposed replacement structures has been prepared by the UPRR and is included in Appendix D. Additional detail regarding these structures is described below.

Structure Improvement – MP 38.8. The first structure to be widened, at MP 38.8, is an extension of an existing arch top culvert to accommodate the proposed additional track (see photo in Figure 2-1). The UPRR has indicated that an additional temporary construction easement 50 feet wide by 200 feet in length (measured parallel to track) may be needed directly west of the existing UPRR ROW and centered at the culvert location. The land use west of the project site is former industrial and railroad uses. To the east, there is an inactive

quarry. There are no roadways, residences or business adjacent to the site that would be impacted by the construction of the culvert extension.

Figure 2-1. Existing Sugar Run Creek Culvert (MP38.8)

Source: Bing Maps (April 2010)

Structure Improvement – MP 42.6. The second structure to be widened (at MP 42.6), has a span of 11 feet; the current structure is nearly 90 years old (see photo in Figure 2-2). To avoid construction or longer-term impacts on this waterway, the UPRR has indicated that the installation of two 20-foot spans is under consideration, and the process of considering the construction phasing details for the work required at this location is underway.

Regarding access to the work zone, UPRR has proposed that access would be via Millsdale Road, approximately 400 feet north of the bridge site. The UPRR has sufficient ROW to build an access road within their existing property limits, or can temporarily use the new track embankment as the access road.

The bridge site is located on the south side of Joliet in a largely undeveloped area. However, the surrounding area is in transition from an agricultural use to industry and rural residential subdivisions. Primarily, this transition is due to the recent start of construction of the 785-acre UPRR Joliet Intermodal Terminal and the 2,200 acre CenterPointe Intermodal Center (former Joliet Arsenal), which are located west of the railroad ROW. The vacant agricultural parcels surrounding the site are owned by the CenterPointe Joliet Terminal Railroad, LLC, or other development interests. The City of Joliet Zoning Map shows the undeveloped parcel east of the UPRR ROW is zoned as rural

residential. The parcels on the west side of the UPRR ROW are not zoned and have an agricultural use.[1]

Figure 2-2. Existing Cedar Creek Bridge (MP 42.6)

Source: Bing Maps (April 2010)

Structure Improvement – MP 44.4. The existing structure at MP 44.4 (see photo in Figure 2-3) consists of two spans – one with a 42-foot length, the other being 56 feet long, for an overall length of 98 feet. The current structure is 104 years old. The UPRR is proposing to replace this structure with a combination of a 52-foot span and a 66-foot span. This would total an overall length on the order of 118 feet, which would avoid additional impacts on Jackson Creek. Furthermore, pilings for the new abutments would be driven outside of the existing ones, which the UPRR notes could then be used as retaining walls. On a preliminary basis, the railroad has also advised that they believe the existing center pier can be extended (with driven piles as foundational support) for the future second track.

If it becomes clear that the existing abutments cannot be used as retaining walls, the UPRR believes the overall bridge length at MP 44.4 would have to be considerably lengthened – to an overall length of around 240 feet. Similarly, if the existing center pier cannot be used, a new row of piling would have to be driven north or south of the existing pier substructure. This option would require adjustment of span lengths as well. Phasing of construction would be required at this location.

[1] City of Joliet Zoning Map accessed May 2009, http://www.cityofjoliet.info/For-Residents/documents/ZoningMap.pdf

Access to the work site at MP 44.4 has been given considerable attention by the UPRR. A major concern at this site is that the bridge is on high fill. If the new track embankment could be built as a first step, this would provide access to the bridge to facilitate construction of the replacement structure. However, if the embankment cannot be built first, on-track equipment would be required to construct the new structure. In this instance, new bents would have to be driven and it is expected that the center pier would have to be removed in order to comply with the no-rise condition at this waterway. The approach and specific site requirements are subject to additional investigation.

Figure 2-3. Existing Jackson Creek Bridge (MP 44.4)

Source: Bing Maps (April 2010)

The UPRR has also given considerable attention to construction staging and timing to ensure that impacts on its neighbors are minimized. A new single-family residential subdivision is located southeast (Meadowbrock Subdivision) and northeast (Wooded Cove Estates) of the Jackson Creek Crossing at MP 44.4. For example, the UPRR noted that construction will be limited to the hours between 7 am and 6 pm. In addition, construction staging areas for the extended 2nd main track project would be co-located with the UPRR's Joliet Intermodal Facility. Construction equipment and materials required for the project have been proposed to be staged immediately adjacent to the railroad's property at an existing grade crossing near the project site.

2.3.4 Right-of-Way and Construction Requirements

No displacements are expected as the majority of the track improvements would occur within the UPRR's ROW between Joliet and Dwight. Temporary easements may need to be obtained by UPRR for construction access and to stage materials; however, these easements will not require the relocation of businesses or residences, or impact sensitive environments.

2.3.4.1 110 mph Project Corridor between MP 36.7 and MP 72.81

The first component will encompass the extension of the 110 mph speed limit for passenger trains approximately 36 miles from Joliet, IL to Dwight, IL. Temporary easements could be required between MP 36.7 and 72.81 for track and signal work. Track construction would require earthen fill at some locations and excavation at other locations for subgrade construction. Staging areas for construction equipment, materials, and spoils would be located within the UPRR's ROW.

Construction activities for the 110 mph passenger service will include use of a Track Renewal Train (TRT) to install new rail and concrete ties along the existing mainline. This work will also include resurfacing of the stone ballast, renewal of crossing surfaces and approaches, and upgrade of the signals and crossing warning systems.

2.3.4.2 UPRR's 2nd Mainline Track Project between MP 36.7 and MP 44.69

Temporary easement or ROW acquisition could be required at the stream crossings of the Sugar Run Creek at MP 38.8, Cedar Creek at MP 42.6 and Jackson Creek at MP 44.4 in Will County. Work on these structures would be limited to extending the culvert at MP 38.8 to the east, extending the bridge at MP 42.6 to the east and replacement of the single track bridge at MP 44.4 with a double track bridge. Additional culvert and bridges within the Joliet to Dwight project corridor structures are categorized as projects that would require environmental remediation through improvements to existing railroad track for purpose of preventing or correcting environmental pollution of soil, air or water. Culvert work with extensions would be conducted at MP 40.49, MP 40.51, MP 41.8, MP 42.95, MP 43.2, MP 43.58 and MP 44.10. Culvert work without extensions or replacement would be conducted at MP 39.35, MP 41.90, MP 41.97, MP 42.20, MP 43.9 and MP 44.90 as shown in Appendix E.

Track construction would require earthen fill at some locations and excavation at other locations for subgrade construction. Staging areas for construction equipment, materials, and spoils would be limited to the culvert and bridges within the UPRR ROW between Joliet and Dwight, or within the UPRR ROW at the Joliet Intermodal Facility which is currently under operation. The intermodal facility site is located 2,000 feet west of the UPRR ROW near Laraway and Brandon Roads, between Joliet and Elwood.

2.3.4.3 Mazonia Siding Track between MP 55.0 and MP 57.13

Temporary easements may need to be obtained by UPRR for construction access and to stage materials; however, these easements will not require the relocation of businesses or residences, or impact sensitive environments. The existing culverts at MP 56.3 and 55.7 would be replaced. An easement would be required at MP 55 and MP 57.13 to construct construction pads for new turnouts. Work on these structures would be limited to the turnout area and culverts within the UPRR ROW.

2.4 Preferred Alternative

2.4.1 Benefits of the Preferred Alternative

The Preferred Alternative is the Detailed Build Alternative (described in detail in Section 2.3 above), which consists of the 110 mph passenger service, UPRR's 2nd Mainline Track Project and Mazonia Siding Track Project. This project is proposed to proceed as part of the HSIPR Program for Final Design (FD)/Construction using FRA funding, as well as local and railroad resources.

This project would be of immediate benefit to the rail passenger and freight services using this line today. Further, major progress has been achieved in terms of environmental and engineering activities, allowing the project to be procured and installed in an expeditious manner. Both IDOT and the UPRR are committed to ensure that the benefits of this project are made available as soon as possible. The rail carrier has indicated that it is fully behind this project and is prepared to initiate work.

The proposed improvements would facilitate the implementation of the overall improvements within the UPRR Joliet Subdivision between Joliet and Dwight. Having the extended length of second main track would increase the options a dispatcher would have available for arranging meets or other complex moves, thereby reducing the potential for delay to one or more of the trains operating over this line.

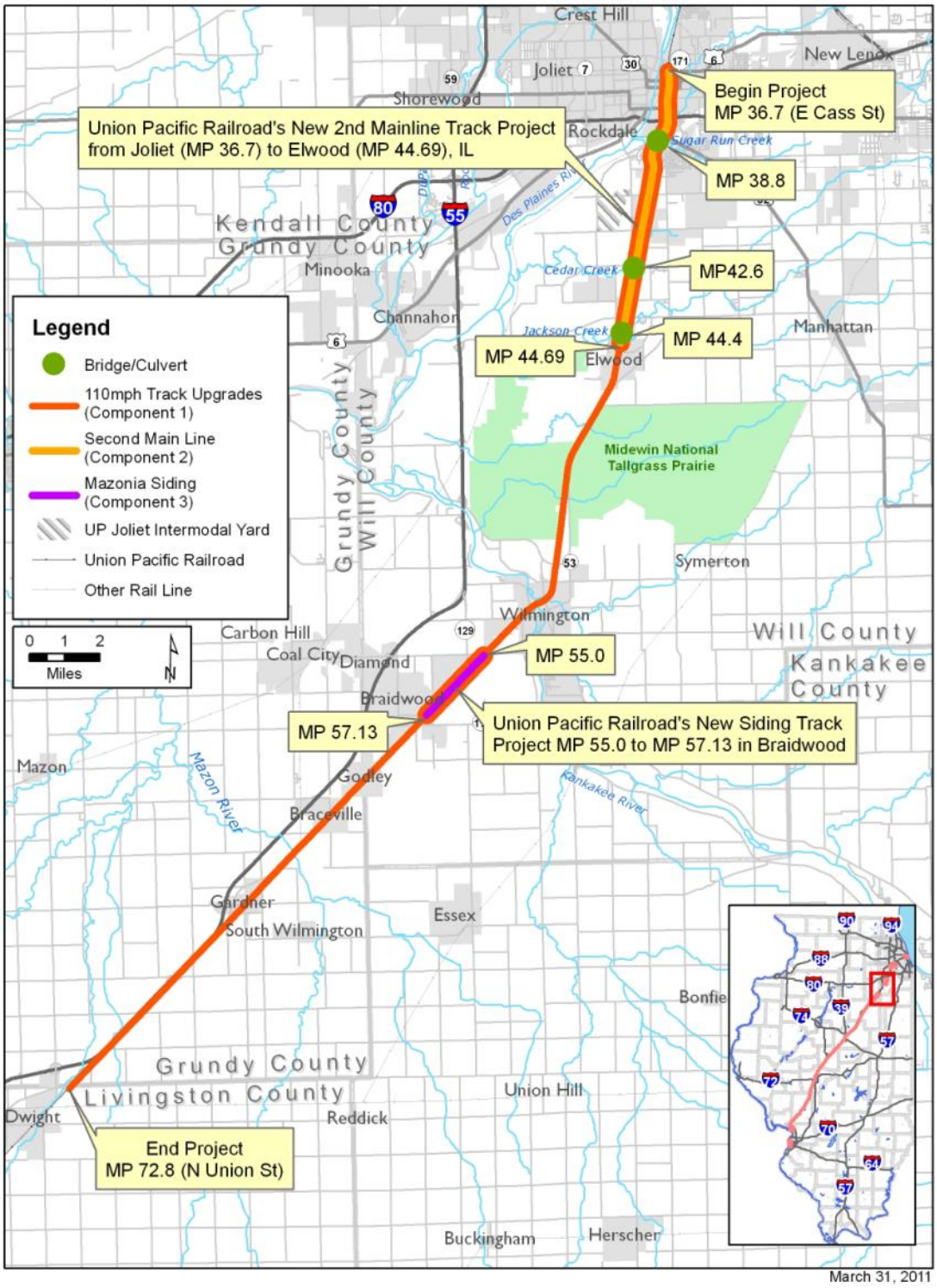
The proposed Mazonia Siding Track improvements between MP 55.0 to 57.13, would improve fluidity of train movement, decrease delays in passenger trains, and reduce congestion in the area between Braceville and Joliet. The siding track will also improve the efficiency of the railroad by allowing for train meets and sorting of cars for freight trains as well as an area for storing trains during maintenance incidents.

As part of the FRA Track 1a application process, UPRR's Network Operations personnel estimated that there would be a 10% increase in on-time performance due to the implementation of these physical plant improvements. However, as mentioned earlier, the freight train speeds on this section of line would not increase due to this work and continue to operate at at 60 mph.

The upgrade to CTC with a PTC overlay in the improvement zone would enhance the safety of train operations through the zone, including those grade crossings within the project limits. The signal upgrade project would also improve operating conditions in the Joliet area, including expediting the hand-off of dispatch control to/from the Canadian National, on whose tracks the existing "Lincoln Service" and "Texas Eagle" trains run to/from Chicago.

Figure 2-4 shows the Preferred Alternative (Detailed Build Alternative).

Figure 2-4. Preferred Alternative



2.4.2 Relationship of Preferred Alternative to Chicago-St. Louis High Speed Rail

It is recognized that the proposed improvements included herein as the Preferred Alternative would enhance capacity and increase the fluidity of operations on the UPRR Joliet Subdivision in the line section between Joliet and Dwight for the existing and expected near-term freight and Amtrak services. It is also recognized that these improvements would offer similar capacity and operational benefits if the existing Amtrak service were augmented or supplanted by the proposed High-Speed Rail passenger service. By offering additional passing, routing and storage opportunities for freight and passenger trains, the Preferred Alternative improvements are fully complementary to similar St. Louis to Dwight improvements of the 2003 FEIS Selected Alternative.

The 110 mph passenger service, UPRR's 2nd Mainline Track Project and Mazonia Siding Tract Project has independent utility in addressing capacity and operational issues for existing and expected near-term freight and Amtrak services, and does not preclude other options to address the Chicago –Dwight portion of High Speed Rail if further corridor studies are initiated or advanced under NEPA.

Consistent with the FRA's requirements for the original round of HSIPR Program Track 1a projects, the State of Illinois intends to assure that all construction work is scheduled to be completed by the fall of 2012 or as future FRA guidance demands.

The portion of work included by the 110 mph passenger service, 2nd mainline track work and Mazonia siding work, signal improvements, culvert/bride extensions (between MP 36.8 to 44.69) and new siding (between MP 55.0 and MP 57.13) is estimated at approximately $280 million (Fiscal Year 2011 dollars). It is anticipated that the State of Illinois and the Union Pacific Railroad will provide funds to initiate this project; however, a re-submittal of an application for future rounds of ARRA funding may occur.

The Preferred Alternative would enhance capacity and increase the fluidity of operations on the UPRR Joliet Subdivision in the line section between Joliet and Dwight. The proposed second track and siding track would provide for immediate improvements to existing Amtrak service. Acknowledged "choke points" in this corridor would be alleviated, and two trains would be able to utilize the corridor at the same time. This would provide for improved operation of existing and future freight and Amtrak passenger trains within the corridor, as meets with UP freight trains could be better scheduled and accommodated.

Contents

3.0 ENVIRONMENTAL RESOURCES, IMPACTS AND MITIGATION

3.1 Physical Environment

The project area was inventoried for environmental resources. Included in this section is a discussion of the resources potentially impacted by the proposed 110 mph passenger service (MP 36.7 to 72.8), 2nd Mainline Track (MP 36.7 to 44.69) and Mazonia Siding (MP 55.0 to 57.13) in the project corridor. Where appropriate, mitigation measures are identified.

This chapter has been prepared as an EA subsequent to the ROD that was received for the FEIS for the Chicago-St. Louis High-Speed Rail Project in 2003. As such, the Final EIS (FEIS) and Draft EIS (DEIS) can be referenced for additional information on any of the topics discussed in this section and Chicago-St. Louis corridor.

3.1.1 Air Quality and Energy

"Air Pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, and/or reducing human or animal health. Air quality is a term used to describe the amount of air pollution the public is exposed to.

U.S. Environmental Protection Agency

Air quality in the United States is governed by the Federal Clean Air Act (CAA) and is administered by the United States Environmental Protection Agency (USEPA). As required by the CAA and the 1990 Clean Air Act Amendments (CAAA), the USEAP has established National Ambient Air Quality Standards (NAAQS) for six major air pollutants, as shown in Table 3-1. These pollutants, known as criteria pollutants, are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10}, $PM_{2.5}$), ozone (O_3), and sulfur dioxide (SO_2). The "primary" standards have been established to protect the public health. The "secondary" standards, intended to protect the nation's welfare, account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

In addition to the criteria pollutants, USEPA also regulates air toxics. Mobile source air toxics (MSATs) are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause cancer or other serious health and environmental effects. The CAAA listed 188 Hazardous Air Pollutants from transportation. A group of 93 compounds emitted from mobile sources are listed in the USEPA Integrated Risk Information System. USEPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers. These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide (CO)	9 ppm (10 mg/m^3)	8-hour [1]	None	
	35 ppm (40 mg/m^3)	1-hour [1]		
Lead (Pb)	0.15 µg/m^3 [2]	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m^3	Quarterly Average	Same as Primary	
Nitrogen Dioxide (NO_2)	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Same as Primary	
	0.100 ppm	1-hour [3]	None	
Particulate Matter (PM_{10})	150 µg/m^3	24-hour [4]	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual [5] (Arithmetic Mean)	Same as Primary	
	35 µg/m^3	24-hour [6]	Same as Primary	
Ozone (O_3)	0.075 ppm (2008 std)	8-hour [7]	Same as Primary	
	0.08 ppm (1997 std)	8-hour [8]	Same as Primary	
	0.12 ppm	1-hour [9]	Same as Primary	
Sulfur Dioxide (SO_2)	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 µg/m^3)	3-hour [1]
	0.14 ppm	24-hour [1]		

[1] Not to be exceeded more than once per year.

[2] Final rule signed October 15, 2008.

[3] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 parts per million (ppm) (effective January 22, 2010).

[4] Not to be exceeded more than once per year on average over 3 years.

[5] To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 micrograms per cubic meter of air (µg/m^3).

[6] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3 (effective December 17, 2006).

[7] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

[8] (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

(c) USEPA is in the process of reconsidering these standards (set in March 2008).

[9] (a) USEPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").

(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.

Most air toxics originate from human made sources, including on road mobile sources, non-road mobile sources (e.g., trains), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

Also of concern are greenhouse gases (GHG) that trap heat in the atmosphere. These gases are necessary to life as we know it, since they keep the planet's surface warmer than it otherwise would be. As concentrations of greenhouse gases increase, however, the Earth's temperature rises. This is known as the "Greenhouse Gas Effect." Effects of these rising temperatures include climate change and rising sea levels. For additional information about the USEPA, the reader can contact its general internet address found at www.epa.gov. Additional information on the activities of USEPA's Office of Mobile Sources can be found at www.epa.gov/oms/ .

There are no changes proposed in the number of Amtrak trains. The speed of Amtrak trains in the project corridor would increase from 79mph to 110 mph. As a result, the Preferred Alternative is projected to affect air quality levels when compared to the No-Build. As result, an air quality analysis was performed.

This section describes the existing air quality conditions in Will, Grundy and Livingston County and the potential effects during construction of the preferred alternative. The criteria pollutants of concern are PM_{10} and $PM_{2.5}$ from the diesel train and construction equipment emissions. Additional pollutants include CO from emissions from roadway vehicles, and O_3 precursors (volatile organic compounds [VOCs] and nitrogen oxides [NO_x]). The potential impacts on GHG from diesel trains and construction equipment is also considered.

3.1.1.1 Existing Conditions

Attainment Status / Regional Air Quality Conformity

Section 107 of the 1977 CAAA requires that the USEPA publish a list of all geographic areas in compliance with the NAAQS, plus those not attaining the NAAQS. Areas not in NAAQS compliance are deemed non-attainment areas. Areas that have insufficient data to make a determination are deemed unclassified, and are treated as being attainment areas until proven otherwise. An area's designation is based on the data collected by the state monitoring network on a pollutant-by-pollutant basis.

The project area is located in Will, Grundy and Livingston County, Illinois. Will and Grundy County are located in the Chicago Metropolitan Region. Livingston County is primarily a rural county. As shown in Table 3-2, the USEPA has classified Livingston County as an attainment area for all pollutants. Will and Grundy counties are classified as attainment areas for CO, PM_{10} and Pb, and nonattainment areas for O_3 and $PM_{2.5}$.

Table 3-2. Project Area Federal Attainment Status

Pollutant	Will County, IL	Grundy County, IL	Livingston County, IL
Carbon Monoxide (CO)	Attainment	Attainment	Attainment
Lead (Pb)	Attainment	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment	Attainment
Particulate Matter (PM_{10})	Attainment	Attainment	Attainment
Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment	Attainment
Ozone (O_3)	Nonattainment	Nonattainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment	Attainment

Source: Environmental Protection Agency (EPA), 2011

The CAA requires that a State Implementation Plan (SIP) be prepared for each nonattainment area, and a maintenance plan be prepared for each former nonattainment area that subsequently demonstrated compliance with the standards. The CAAA requires federal agencies to ensure that their actions conform to the appropriate SIP. The SIP provides for implementation, maintenance, and enforcement of the NAAQS. Prior to approval or funding by a federal agency, a proposed project must demonstrate compliance with USEPA's Conformity Rule by determining that it would not cause or exacerbate exceedance of an NAAQS. As a project being developed under FRA, this project falls under the General Conformity Rule, which requires a conformity determination for each pollutant where the total of direct and indirect emissions in a nonattainment or maintenance area caused by a federal action would equal or exceed EPA-specified significant threshold values. In Illinois, general conformity criteria and procedures are set forth in 35 Illinois Administrative Code 255. The significance rates for the project area are 100 tons per year for VOCs and NO_x (i.e., ozone precursors) and for $PM_{2.5}$.

Ambient Air Quality

The project is located within the Chicago-Gary-Lake Co., IL-IN 8-hr ozone nonattainment area and the $PM_{-2.5}$ nonattainment area. Air quality monitors in Will County are located in Joliet, Channahon, and Wilmington. No air quality monitors are located in Grundy or Livingston County. The last three years of monitored data from the Will County monitors are shown in Table 3-3. As these data show, no exceedances of the NAAQS for PM_{10}, NO_2, and SO_2 standards were measured in Will County. One measurement exceeding the current 24-hour $PM_{2.5}$ standard, was monitored in 2007 in Joliet and two levels exceeding the 8-hour ozone standard in 2006 in Wilmington. Both exceedances did not constitute a violation of the NAAQS, because values shown in the table do not correspond to the NAAQS time periods. The 24-hour $PM_{2.5}$ standard is a three-year average of the 98 percentile values and the 8-hour ozone standard is a three-year average of the fourth highest values.

Table 3-3. Will County Air Quality Monitored Data (2006-2008)

Pollutant		Standard	Rte. 6 & Young Rd. Channahon			Midland & Campbell Sts. Joliet			36400 S. Essex Rd. Wilmington		
			2006	*2007*	*2008*	*2006*	*2007*	*2008*	*2006*	*2007*	*2008*
Carbon Monoxide (CO) [ppm]	1-hour	Maximum									
		2nd Maximum									
		# of Exceedences									
	8-hour	Maximum									
		2nd Maximum									
		# of Exceedences									
Particulate Matter [ug/m^3]	PM_{10}	Maximum 24-Hour				35	71	41			
		Mean Annual				17	24	15			
		# of Exceedences				0	0	0			
	$PM_{2.5}$	Maximum 24-Hour				28.3	44.0	31.8	22	31.6	26.9
		Mean Annual				12.7	14.58	11.41	9.82	12.07	10.19
		# of Exceedences				0	1	0	0	0	0
Ozone (O_3) [ppm]	8-hour	First Highest							0.078	0.075	0.064
		Second Highest							0.076	0.074	0.062
		Third Highest							0.068	0.072	0.061
		Fourth Highest							0.068	0.071	0.060
		# of Days Standard Exceeded							2	0	0
Nitrogen Dioxide (NO_2) [ppm]		1-Hour Maximum							0.037	0.034	
		1-Hour Second Maximum							0.035	0.033	
		Annual Mean							0.006	0.005	
		# of Days Standard Exceeded							0	0	
Sulfer Dioxide (SO_2) [ppm]		1-Hour Maximum	0.08	0.077	0.147						
		3-Hour Maximum	0.064	0.054	0.068						
		24 Hour Maximum	0.022	0.018	0.025						
		Annual Mean	0.004	0.005	0.004						

Source: USEPA AirData Monitor Values Report accessed January 26, 2011
http://www.epa.gov/air/data/monvals.html?co~17197~Will%20Co%2C%20Illinois

3.1.1.2 Potential Impacts

Pollutants that can be traced principally to diesel locomotives and construction equipment are relevant to the evaluation of the project's impacts; these pollutants include CO, VOC, NO_x, O_3, PM_{10}, and $PM_{2.5}$. Transportation sources account for a small percentage of regional emissions of SO_2 and Pb; thus, a detailed analysis is not required. The project elements that could adversely affect air quality levels include diesel locomotive emissions from moving and idling, emissions from diesel train service at maintenance and storage facilities, and emissions from construction.

Volatile organic compounds and NO_x emissions from these sources are a concern primarily because they are precursors in the formation of ozone and particulate matter. Ozone is formed through a series of reactions that occur in the atmosphere in the presence of sunlight. Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels often are found many miles from the sources of the precursor pollutants. Therefore, the effects of VOC and NO_x emissions generally are examined on a regional or "mesoscale" basis.

PM_{10} and $PM_{2.5}$ impacts are both regional and local. A significant portion of particulate matter, especially PM_{10}, comes from disturbed vacant land, construction activity, and paved road dust. $PM_{2.5}$ also comes from these sources. Motor vehicle exhaust, particularly from diesel construction vehicles, is also a source of PM_{10} and $PM_{2.5}$. PM_{10}, and especially $PM_{2.5}$, can also be created by secondary formation from precursor elements such as SO_2, NO_x, VOCs and ammonia (NH_3). Secondary formation occurs due to chemical reaction in the atmosphere generally downwind some distance from the original emission source. Thus, it is appropriate to predict concentrations of PM_{10} and $PM_{2.5}$ on both a regional and a localized basis.

CO impacts are generally localized. Even under the worst meteorological conditions and most congested traffic conditions, high concentrations are limited to a relatively short distance (300 to 600 feet) of heavily traveled roadways or rail corridors. The project would not change automobile or truck traffic patterns within the project area. As result, these impacts are not analyzed. However, emissions from construction vehicles and diesel locomotives can also be major sources of CO. Consequently, it is appropriate to predict concentrations of CO on both a regional and a localized or "microscale" basis for the proposed improvements within the project corridor.

MSAT impacts are both regional and local. On September 30, 2009 Federal Highway Administration (FHWA) released *Interim Guidance Update on Air Toxic Analysis in NEPA Documents.* According to these documents, regardless of the alternative chosen, MSAT emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent between 1999 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle miles of travel (VMT) growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great

(even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases. This project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative. As such, this project has not been linked with any special MSAT concerns.

Air Quality during Project Operation

Under the current schedules, there are about 15 trains per day operating over this section of line, including 10 Amtrak trains and five UPRR freights (a combination of local and through trains). The number of Amtrak trains on the mainline track would remain the same. However, the speed of passenger trains would increase from 79 mph to 110 mph in the project corridor. Freight trains on the mainline track would continue to operate at 60 mph.

Potential Regional Impacts

While the proposed project would increase diesel locomotive emissions due to speed increase, these increases may be off-set by small decreases in the travel times and smaller emissions from the newer locomotives.

As portions of the project area are classified as nonattainment for O_3 and $PM_{2.5}$, the regional impacts are quantified to ensure that project-related emission increases do not exceed the applicable General Conformity thresholds. Table 3-4 presents the preliminary estimates of the regional emissions generated by the project. Based on preliminary estimates, emissions of pollutants of concern are below the applicability thresholds and the General Conformity rule does not apply.

Table 3-4. Emissions Generated by the Project (tons/year)

Scenario	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	CO_2
No Build Alternative	28.8	111.3	5.1	3.7	3.5	26.6
Build Alternative	30.8	119.1	5.6	3.6	3.5	28.3
Change	2.0	7.8	0.5	-0.1	-0.1	1.7

Source: Air Quality Modeling Analysis, see Appendix F

Potential Local Impacts

Along the Rail Right-of Way. The project will increase diesel emissions (PM_{10}, $PM_{2.5}$) along the train tracks. However, the speed increase (and therefore, the shorter residence time) and the purchase of newer locomotives with stricter emission limits are likely to off-set this increase. It is recommended that an analysis be conducted, using emission factors for diesel locomotives and USEPA's AERMOD dispersion algorithm, to estimate the potential impacts of these emissions at the sensitive land uses (residences, playgrounds, etc.) near the rail line. It is not anticipated that the results of this analysis would predict a measurable increase in $PM_{2.5}$ concentrations near rail right-of-way and it is not likely, therefore, that the project operations would cause or exacerbate a violation of the applicable air quality standards.

At Train Stations. The project is not anticipated to increase vehicular (automobile) traffic near the proposed stations locations. It is unlikely, therefore, that the project would cause significant air quality impacts.

At-Grade Crossings. The project should not increase vehicular delays at at-grade crossings and it is unlikely that it would result in any substantial impact on air quality levels.

Maintenance/Storage Yards. There would be no increase to maintenance and storage requirements due to this action. Therefore, it is unlikely that there would be significant impact from this action to the nearby sensitive land uses.

Construction Impacts

Temporary impacts are possible that may be caused by dust and exhaust emissions generated by equipment during construction. Equipment would include the use of trucks, backhoes, graders, compactors, bobcats, cranes, loaders, and compressors. State and local regulations regarding dust control and other air quality emission reduction controls would be followed.

It is unlikely that the construction of the project, which would follow state and local regulations regarding construction activities and equipment, would cause a violation of the applicable standards. The UPRR will comply with local regulations to suppress dust emissions as necessary.

GHG emissions would also be generated during the construction phase of the project. However, these emissions are likely to be relatively minor given the limited duration of the construction activities. Construction activities are proposed to commence in fall 2011 and be completed by spring 2012.

3.1.1.3 Mitigation

Project Construction

To control local air pollution impacts during project construction, a permit may be required for portable bituminous and concrete plants that may be used in project construction. However, these materials would likely originate from existing permitted plants and would be delivered to the construction site.

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time, such as reducing the numbers of trips and extended idling. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate mitigation strategies. The Illinois Environmental Protection Agency (IEPA) request that construction specifications require the use of either later model construction equipment meeting the more stringent Tier 3 emission standards or equipment that has been retrofitted with diesel oxidation catalysts or

particulate filters. The use of clean fuels, such as ultra-low sulfur diesel, biodiesel, or natural gas also can be a very cost-beneficial strategy.

Project Operation

Travel demand management strategies and techniques that reduce overall vehicle-mile of travel; reduce a particular type of travel, such as long-haul freight or commuter travel; or improve the transportation system's efficiency will mitigate MSAT emissions. Examples of such strategies include congestion pricing, commuter incentive programs, and increases in truck weight or length limits. Operational strategies that focus on speed limit enforcement or traffic management policies may help reduce MSAT emissions even beyond the benefits of fleet turnover. Well-traveled highways with high proportions of heavy-duty diesel truck activity may benefit from active Intelligent Transportation System programs, such as traffic management centers or incident management systems. Similarly, anti-idling strategies, such as truck-stop electrification can complement projects that focus on new or increased freight activity.

Long-term air quality on both a microscale and mesoscale levels are expected to improve once the project is operational due to improved train operations and reduction of travel time between Joliet and Dwight. Similarly, the 2nd mainline track and Mazonia Siding improvements would reduce locomotives idling for other trains to pass in the corridor. Moreover, USEPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades.

3.1.1.4 Energy

Current energy consumption that results in pollutant emissions occurs with the four basic transportation modes used for travel in the project corridor — air, rail, bus, and automobile. In general, Amtrak passengers account for about 2 percent of person-kilometers (person-miles) traveled in the corridor, while automobile traffic accounts for approximately 84 percent. Airlines account for about 13 percent of travel. In addition, other vehicular transport by rail and motor vehicles results in energy consumption and resultant emissions.

The proposed project would enhance capacity and increase the fluidity of operations on the UPRR Joliet Subdivision in the line section between Joliet and Dwight. The number of Amtrak trains would remain the same and the speed would increase from 79 mph to 110 mph in the project corridor. UPRR's Network Operations personnel estimated that there would be a 10% increase in on-time performance due to the implementation of the proposed improvements. However, freight train speeds on this section of line would not increase due to this work and continue to operate at at 60 mph.

Energy Consumption during Project Construction

No-Build Alternative: The No-Build alternative would not require construction. Therefore, no changes in energy consumption are expected.

Preferred Alternative: During construction of the improvements, additional energy would be expended beyond what would be used for project operation. This additional energy would be consumed on a short-term basis by construction of improvements and by construction-related delays to existing rail traffic. However, once the project is operational, long-term energy savings are expected from significantly improved train operations and reduction of travel time between Joliet and Dwight.

Energy Consumption during Project Operation

Passenger rail service under the No-Build and Preferred Alternatives would be a continuation of the existing 10 daily round trips between Joliet and Dwight, with the speed of trains increasing from 79 mph to 110 mph. Increased ridership resulting from the normal travel growth in the corridor would be accommodated by adding more cars to existing trains. The additional energy required to haul added weight could be compensated for by use of more efficient locomotives in the future.

3.1.2 Floodplains

3.1.2.1 Existing Conditions

Federal protection of floodplains is afforded by Executive Order 11988, "Floodplain Management," and by implementation of federal regulations under 44 Code of Federal Regulations (CFR) 9.00. These regulations direct federal agencies to undertake actions to avoid impacts on floodplain areas by structures built in flood-prone areas. In accordance with these federal directives, the FHWA has enacted federal-aid policy guidance and regulations under 23 CFR 650 and the FRA has established procedures under FRA Docket No. EP-1, Notice 5 "Procedures for Considering Environmental Impacts".

The Federal Emergency Management Agency (FEMA) has primary responsibility for identifying flood-prone areas. FEMA conducted flood studies for the project areas in Will, Grundy and Livingston County to locate the extent of the flooding from a 100-year storm.

There are ten floodplains within the project corridor, primarily associated with the stream crossings as summarized in Table 3-5. County information was obtained from the FEMA website and included in Table 3-5. Appendix D shows the floodplain map for the project corridor within Will County. Floodplain maps were not available for Grundy or Livingston.

3.1.2.2 Potential Impacts

The No-Build alternative would not impact 100-year floodplains. The build alternative may permanently and temporarily impact 100-year floodplains within the project corridor. Culvert replacement and bridge replacement and/or widening may cause both permanent and temporary impact to these floodplains depending on the final engineering plans.

Figure 3-1. Site Location Map

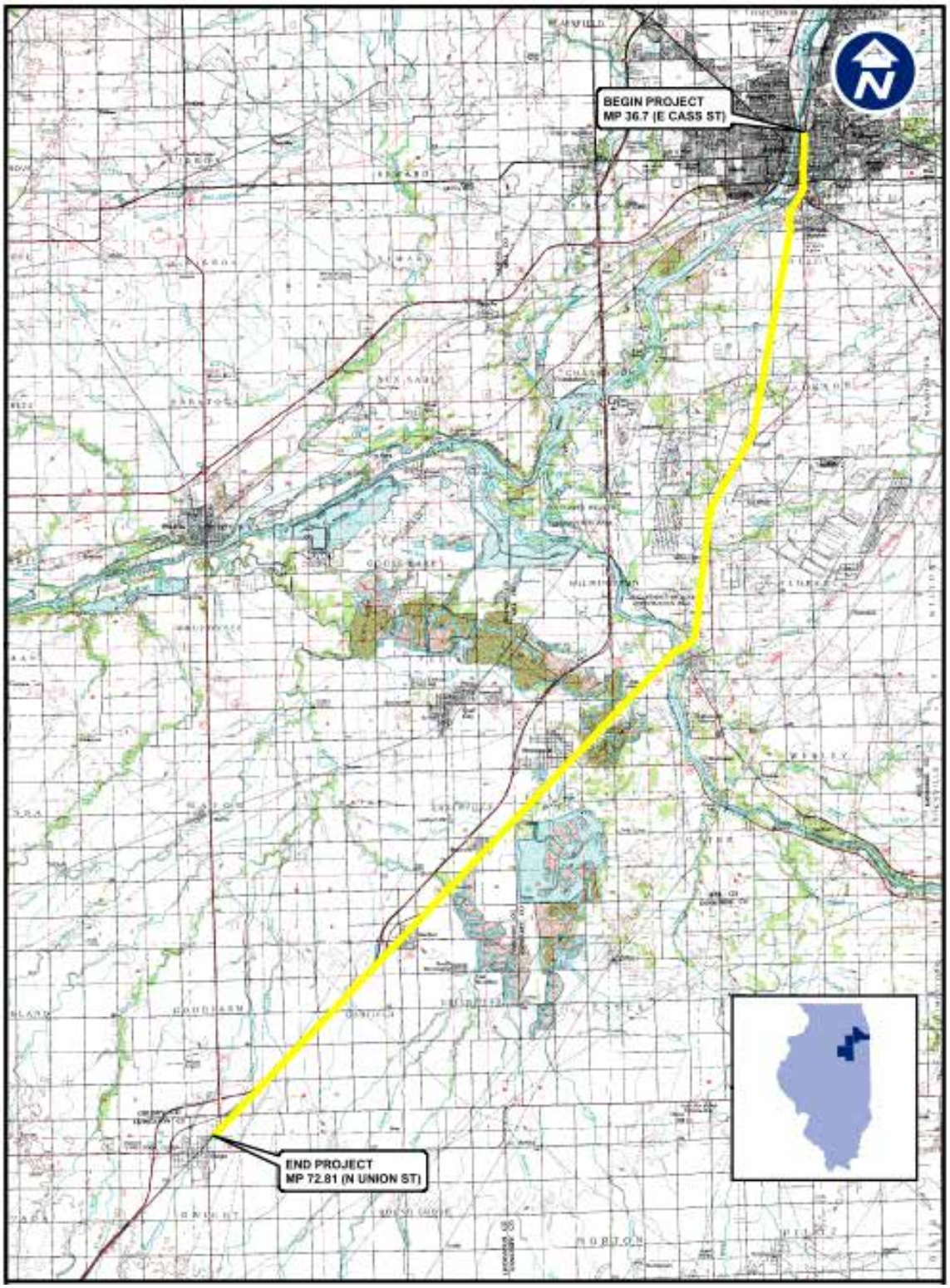


Table 3-5. Floodplains

County	Name	Location	Type
Will	Hickory Creek Floodplain	Immediately south of Interstate 80	Zone AE
Will	Sugar Run Floodplain	West of the intersection of Chicago Street and Mills Road	Zone AE
Will	Cedar Creek Floodplain	North of Sharp Road	Zone A
Will	Cedar Creek Middle Tributary Floodplain	North and South of Millsdale Road	Zone A
Will	Cedar Creek Unnamed Tributary	Approximately 3000 feet south of Millsdale Road	Zone A
Will	Jackson Creek Floodplain	Approximately 4000 feet south of Manhattan Road	Zone AE
Will	Jackson Creek Tributary Floodplain	Approximately 1000 feet north of Diagonal Road	Zone A
Grundy	Mazon River Floodplain	Approximately 2400 feet north of County Road 6000 South	Zone A4, Zone B
Grundy	Illinois Central Gulf Railroad Ditch	City of Gardner – south/east side of railroad tracks	Zone A1
Livingston	Gooseberry Creek Floodplain	Southern end of project limits – north side of Village of Dwight	Zone AE

3.1.2.3 Permits

A local stormwater permit will be required for all hydraulic structures. A permit will also be required from the Illinois Department of Natural Resources (IDNR) for the structure replacement/extensions. Individual IDNR permits will be required for the structures located within a FEMA designated floodway, while the other culverts along the corridor will comply with the non-notification Statewide Permit requirements.

3.1.2.4 Mitigation

Temporarily impacted areas would be restored following construction. Permanent impacts would require proper sizing of hydraulic structures and compensatory storage where required.

3.1.3 Noise and Vibration

The assessment of the potential for the project to cause noise and vibration impacts was accomplished by applying the procedures provided by the FRA *High-Speed Ground Transportation Noise and Vibration Impact Assessment* guidance manual (U.S. Department of Transportation [USDOT] Federal Railroad, October 2005). The assessment included evaluating noise and vibration from train operations, which includes both rolling stock noise along the corridor and horn noise at the at-grade crossings.

The FRA screening procedure is conservative and is used to identify sensitive receptors where the next level of analysis is appropriate. Using the FRA screening procedure approach, sensitive receptors with the potential for noise and vibration impacts are identified. Receptor locations within the screening distance are then evaluated using the general assessment level of analysis. If impacts are still identified in the general assessment, a detailed analysis would be warranted.

The proposed project improvements were evaluated for the Joliet (MP 36.7) to Dwight (MP 72.8) corridor. The overall improvements include increasing the passenger train speeds from 79 mph to 110 mph, double tracking portions between Joliet and Elwood (MP 38.50 to MP 45.50), and constructing the Mazonia siding (MP 55.0 to 57.13). Existing passenger train speeds less than 79 mph were evaluated at the current speed limit and not increased to 110 mph in the Build scenario. The noise and vibration assessment in the areas of the proposed double track section evaluated potential impacts with half of the train traffic volumes using the new track while the other half continues to use the existing track.

3.1.3.1 Noise Evaluation

Screening Noise Evaluation

The FRA screening procedure identifies a screening distance for both obstructed and unobstructed urban conditions and for quiet suburban/rural areas. Given the generally rural nature of the corridor, the quiet suburban/rural area screening distance of 500 feet was used to screen the project corridor. Sensitive receptors were identified along the project corridor and include single-family residences (SFR), multi-family residences (MFR), churches, schools, and parks. Thirty four receptor locations were selected to represent the various land uses along the corridor and are depicted in Appendix C.

Within the corridor, there are 26 public at-grade railroad crossings. All of these at-grade crossings are not within a 24-hour quiet zone and therefore train operators are required to use train horns on approach to the crossing. Nineteen of the receptors are within ¼ mile of the crossings and therefore the evaluation includes horn noise in the assessment for these receptors. The exception to this is the two crossings in Elwood that are designated as 24-hour quiet zones. Horn noise was not included in this part of the assessment for the Elwood area.

General Noise Assessment

The general assessment was conducted to evaluate the potential impacts associated with the proposed project improvements (increased speed, double track sections, and the Mazonia siding). As the corridor is an active rail corridor, the existing noise environment includes the existing 10 passenger trains and the five freight trains. Based on the location of the receptors to the tracks and the rural land use, the dominant noise sources along the corridor are the existing rolling train noise and the locomotive horns near the at-grade crossings. Due to the project corridor being an active rail corridor with the trains being the dominant

noise source, the impact evaluation is based on the comparison of the existing train noise and the train noise under the proposed build condition. As the freight train noise is a contributor to the noise environment, the freight train traffic is included in the evaluation. Table 3-6 summarizes the train traffic information for the existing and build condition.

Table 3-6. Existing Train Traffic

Train Traffic Information	Passenger Train Traffic	Freight Train Traffic
No. of Trains (7am to 10pm)	9	3
No. of Trains (10pm to 7am)	1	2
Number of Locomotives	1	2
Number of Cars	6	50
Train Speed Existing, mph	79	60
Train Speed Build, mph	110	60

Source: UPRR; Amtrak Schedule (2011)

In addition to the rolling stock noise, horn noise was included in the evaluation at the grade crossings where sensitive receptors were identified, and idling locomotive noise was included in the evaluation along the proposed Mazonia siding location. Based on the FRA regulations for horn noise, operators shall not apply the horn more than ¼ mile from the crossing based on the operating speeds of 60 mph or greater. Therefore, horn noise was evaluated for receptors within ¼ mile of the at-grade crossings. Table 3-7 summarizes the general assessment results for the project corridor.

Based on the general assessment for the proposed improvements, noise impacts associated with the proposed project are not anticipated. Generally, the increased passenger train speed increases the rolling stock noise levels by an average 2 weighted decibels (dB(A)). However, the freight train noise is the dominant noise source in the corridor and therefore the overall noise levels remain constant as there is generally no change in freight noise between the existing and build scenarios. Additionally, the increased passenger train speed reduces the overall train horn noise as the duration of the horn noise is shorter at the higher speeds. A detailed noise analysis and a noise abatement evaluation are therefore not warranted as no impacts have been identified.

Construction Noise

Trucks and machinery used for construction produce noise which may affect some land uses and activities during the construction period. Residents along the corridor would at some time experience perceptible construction noise from implementation of the project. To minimize or eliminate the effect of construction noise on these receptors, time restrictions will be used to limit the period of exposure to construction noise, with construction activity only occurring from 7 a.m. to 6 p.m.

Table 3-7. General Assessment Noise Analysis Results

Receptor Number	Dist. to Existing Track, feet	Horn Noise Included	Receptor Type	Noise Metric	Project Noise Levels, dB(A)		Build Increase Over Existing, dB(A)	Allowed Increase (Moderate Impact), dB(A)	Impact Determination
					Existing/ No-Build	Build			
R1	118	Yes	SFR	L_{dn}	75	75	0	0	No Impact
R2	583	Yes	SFR	L_{dn}	55	55	0	1	No Impact
R3	193	Yes	Church	L_{eq}	73	73	0	2	No Impact
R4	32	Yes	SFR	L_{dn}	81	81	0	0	No Impact
R5	141	No	SFR	L_{dn}	65	65	0	1	No Impact
R6	651	Yes	School	L_{eq}	68	67	-1	3	No Impact
R7	186	Yes	SFR	L_{dn}	73	73	0	1	No Impact
R8	142	No	SFR	L_{dn}	64	64	0	2	No Impact
R9	270	Yes	SFR	L_{dn}	71	71	0	1	No Impact
R10	162	Yes	SFR	L_{dn}	74	74	0	1	No Impact
R11	269	No	SFR	L_{dn}	60	60	0	2	No Impact
R12	230	Yes	SFR	L_{dn}	72	71	-1	1	No Impact
R13	194	Yes	SFR	L_{dn}	73	72	-1	1	No Impact
R14	95	Yes	SFR	L_{dn}	77	76	-1	0	No Impact
R15	168	No	SFR	L_{dn}	63	62	-1	2	No Impact
R16	165	No	SFR	L_{dn}	63	62	-1	2	No Impact
R17	137	No	SFR	L_{dn}	65	65	0	1	No Impact
R18	673	Yes	Park	L_{eq}	68	68	0	3	No Impact
R19	58	Yes	MFR	L_{dn}	79	79	0	0	No Impact
R20	202	No	SFR	L_{dn}	62	62	0	2	No Impact
R21	25	No*	SFR	L_{dn}	76	76	0	0	No Impact
R22	522	No*	Park	L_{eq}	56	56	0	3	No Impact
R23	164	No	SFR	L_{dn}	64	63	-1	2	No Impact
R24	120	No	SFR	L_{dn}	66	66	0	1	No Impact
R25	104	Yes	SFR	L_{dn}	76	76	0	0	No Impact
R26	240	Yes	SFR	L_{dn}	72	71	-1	1	No Impact
R27	132	Yes	SFR	L_{dn}	75	75	0	0	No Impact
R28	112	Yes	SFR	L_{dn}	76	76	0	0	No Impact
R29	73	Yes	SFR	L_{dn}	78	77	-1	0	No Impact
R30	502	Yes	SFR	L_{dn}	68	68	0	1	No Impact
R31	76	No	SFR	L_{dn}	69	68	-1	1	No Impact
R32	87	No	SFR	L_{dn}	68	67	-1	1	No Impact
R33	85	No	SFR	L_{dn}	79	79	0	0	No Impact
R34	69	No	Church	L_{eq}	60	60	0	5	No Impact

* 24-hour Quiet Zone location

3.1.3.2 Vibration Evaluation

Screening Vibration Evaluation

The screening assessment for potential vibration effects was based on land use coupled with an appropriately conservative screening distance obtained from the FRA guidance manual. The screening distance for residential land uses with infrequent events along a corridor with speeds between 100 mph and 200 mph is 100 feet. Sensitive receptors identified within this screening distance were evaluated for potential vibration impacts.

General Vibration Evaluation

Based on the vibration screening evaluation, sensitive receptors exist within the vibration screening distance (100 feet). The FRA general assessment procedures for vibration were used to predict the vibration level at the identified receptor locations. Table 3-8 summarizes the general assessment analysis for vibration.

Table 3-8. Ground-borne Vibration General Assessment

Receptor No.	Dist. to Existing Track, ft	Existing Vibration Level, VdB	Build Vibration Level, VdB	Increase in Vibration, VdB	FRA Criteria (Infrequent Events), VdB	Impact Determination
R4	32	88	91	3	80	Yes
R14	95	80	83	3	80	Yes
R21	25	88	88	0	80	No
R29	73	82	85	3	80	Yes
R31	76	82	85	3	80	Yes
R32	87	90	90	0	80	No
R33	85	90	90	0	80	No
R34	69	79	79	0	83	No

Based on the ground-borne vibration analysis for the corridor, vibration impacts are anticipated as part of the proposed project due to the predicted vibration level exceeding the vibration criteria and also due to the vibration level increasing 3 velocity decibels (VdB) over the existing vibration levels. The vibration impacts are generally associated with the speed increase from 79 mph to 110 mph. There are no ground-borne noise impacts associated with vibration as the ground-borne noise levels are less than the FRA impact criteria.

Vibration Mitigation

The following maintenance procedures are used by the rail industry to mitigate vibration impacts through minimizing vibration sources:

- Regularly scheduled rail grinding

- Wheel truing programs
- Vehicle reconditioning programs
- Use of wheel-flat detectors

3.1.4 Visual Resources

3.1.4.1 Existing Conditions

Guidance

Visual and aesthetic quality along the project corridor was assessed in accordance with the FHWA guidance titled *Visual Impact Assessment for Highway Projects* (USDOT 1983). Under the FHWA guidance, the visual environment is categorized into the following three geographic levels:

a. Regional Landscapes – Regional landscapes are discussed in terms of landform, topography and/or land cover components, which include water, vegetation and manmade development.

b. Landscape Units – Landscape units are within the regional landscape and are essentially "outdoor rooms" that often correspond to places or districts that are named (i.e. downtown). Landscape units are usually enclosed by clear landform or land cover boundaries.

c. Visual Survey Locations – Visual survey locations are locations of specific interest to persons within the larger regional landscape and landscape unit. Attributes of visual survey locations are described in terms of visual character, visual quality and visually sensitive resources.

   - Visual character is defined by the landform, water, vegetation, and manmade development attributes found within the visual survey location.
   - Visual quality is discussed in terms of vividness, intactness, and unity. An individual high rating of any one of these attributes does not connote high visual quality. Rather, all three must be highly rated to indicate high quality:
     - Vividness is defined as the memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.
     - Intactness is defined as the integrity of visual order in the natural and man-built landscape, and the extent to which the landscape is free from visual encroachment.
     - Unity is defined as the degree to which the visual resources of the landscape join to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or compatibility between landscape elements.

- Visually sensitive resources are those that are noted because of their potential to be important for scenic, historic or recreational reasons.

Assumptions

The proposed improvements would occur primarily within UPRR's ROW and:

- The rail service on existing rail lines was not assessed because it includes no increase in the number of Amtrak trains; the project would shift trains to a new second track; and the duration or frequency of the added trips would not be notable to visual receptors along the corridor.
- The speed Amtrak trains would increase from 79 mph to 110 mph in the project corridor. However, freight train speeds on this section of line would not increase due to this work and continue to operate at 60 mph. The increase in Amtrak train speed would not be notable to visual receptors along the corridor.
- No new stations, facilities or other structures are discussed in terms of: changes to the design or size of existing structures; changes in site lighting or vegetation; and increase in use that may result in impacts to local visual receptors.
- Within the 2nd mainline track project corridor, there is one large culvert at MP 38.8 and bridges at MP 42.6 and 44.4 where the rail line crosses waterways. These would be modified with the addition of a second track.
- Within the Mazonia siding track corridor, there is one culvert at MP 55.5 where the rail line crosses a waterway. This would be modified with the addition of a siding track west of the existing mainline.

Application of FHWA Guidance

The FHWA geographic levels of regional landscape and landscape unit are generally used for projects that are contiguous in nature. Because the project includes three structures distributed over the corridor, and the locations are disjunctive in nature, these geographic levels were not used. Instead, each culvert/bridge site was assessed alone in terms of visual quality and potential for impact as the result of project construction and operation. The structures are not eligible for inclusion in the National Register of Historic Places under Criterion C (see State Historic Preservation Office [SHPO] letter dated April 28th, 2010 in Appendix B).

A conceptual drawing of the proposed replacement structures has been prepared by the UPRR and is included in Appendix E.

3.1.4.2 Potential Impacts

110 mph Project Corridor between MP 36.7 and 72.8

Track and signal improvements for 110 mph service would occur within the existing UPPR ROW. Temporary easements would need to be obtained by UPRR for construction access

and to stage materials; however, these easements will not require the relocation of residences, or permanently impact visual receptors. Construction noise will be temporary and confined to the hours between 7 a.m. and 6 p.m.

2nd Mainline Tract Project between MP 36.7 and MP 44.69

Structure at MP 38.8

This site includes an operating single track crossing the Jackson Creek located at the margin of the Joliet urban residential area between industrial uses to the west and an inactive quarry to the east. There are no residences or existing buildings near the site. As result, there are no clear views of the structure. The structure to be widened, at MP 38.8, is an extension of an existing arch top culvert to accommodate the proposed additional track. Because of the lack of residential receptors at this site, and because the project proposes to extend the existing culvert and there is no temporary or infrequent visual change to residential viewers, no visual impacts would occur.

Structure at MP 42.6

The second structure to be widened, at MP 42.6, has a span of 11 feet over the Cedar Run Creek. The current structure is nearly 90 years old and is located in an agricultural area. The current structure is not considered an historic bridge by State Historic Preservation Officer (SHPO).

The nearest residences are located approximately 1800 feet to the northeast and north of Millsdale Road. To avoid construction or longer-term impacts on this waterway, the railroad has indicated that they are considering the installation of two 20-foot spans. The structure extension would be a concrete box culvert similar in design to the existing structure. Because visual resource impacts to these receptors are not anticipated, no visual impacts would occur.

Structure at MP 44.4

The third structure to be replaced, at MP 44.4, consists of two spans – one with a 42-foot length, the other being 56 feet long, for an overall length of 98 feet. The current structure is 104 years old and is not considered an historic bridge by the SHPO.

A single-family subdivision is located southeast (Meadowbrick) and northeast (Wooded Cove Estates) of the Jackson Creek Crossing at MP 44.4. One residence lies east and three residences west of the railroad ROW. These single-family houses are located on the north bank of Jackson Creek approximately 400 to 500 feet from the bridge. However, the train tracks and bridge are located beyond the view of these residential receptors due to trees or distance.

The proposed new bridge would be a pre-cast concrete structure with a center pier. Visual impacts are not anticipated because the project proposes only to replace the existing bridge with a similar structure.

Mazonia Siding Track between MP 55.0 and MP 57.13

The nearest residences are located in the City of Braidwood along North Washington Street approximately 200 feet to the west of the UPRR ROW. These multi-family houses have views of the existing mainline track. The siding track allows a location to store trains off the mainline track during periods of incidents while other train traffic can pass by. The siding track will also act as a passing lane that will allow for a freight train (slower train traffic) to pull over onto the siding while Amtrak traffic can move through the area quickly using the existing mainline track. The proposed siding track will not increase the number of trains or the regulated speed of trains throughout this area; thus, visual receptor impacts will not be increased from the existing condition.

Temporary easements would need to be obtained by UPRR for construction access and to stage materials; however, these easements will not require the relocation of residences, or permanently impact visual receptors. Construction noise will be temporary and confined to the hours between 7 a.m. and 6 p.m.

3.1.4.3 Mitigation

Impacts to visual resources would be negligible. As a result, mitigation is not required.

3.1.5 Agriculture

3.1.5.1 Existing Conditions

Outside the urbanized area of Joliet, agriculture is the primary land use in the project corridor. Along the project corridor, the main agricultural crops are row crops, primarily corn and soybeans. However, many agricultural parcels are proposed for future development along the 2nd mainline track due to the opening of the UPRR CenterPointe Joliet Intermodal Center. No agricultural lands are located along the Mazonia siding project corridor.

3.1.5.2 Potential Impacts

Proposed improvements are planned to occur primarily within or adjacent to existing railroad right-of-way. As a result, no impacts to agricultural areas are anticipated along the project corridor between MP 36.7 to 72.8.

As discussed in more detail in Section 3.2, numerous soil types located within the project corridor are identified as farmland of statewide importance; however, none of these would be affected by the project, since the project would occur primarily in existing railroad ROW and the soils in these areas are already disturbed.

3.1.5.3 Mitigation

No impacts to agriculture are anticipated. As a result, mitigation is not required.

3.1.6 Tree Resources

3.1.6.1 Existing Conditions

A screening evaluation of forest and tree resources was conducted for the Joliet to Dwight project corridor. As the proposed improvements are located primarily within the existing railroad ROW, with the exception of the three new bridge crossings, there are limited trees that would potentially be impacted. The forested areas are generally located within creek crossings or existing wetlands and are dominated by common floodplain species. The general condition of the forested areas located within the project corridor was determined during multiple field visits in 2010 in the areas of Jackson Creek, Sugar Run, Cedar Creek, and the Mazonia siding. In addition, a screening for the entire project area was completed during a high-rail field review on March 24th, 2011.

The majority of the project area contains scattered trees associated with fence-rows or developed areas. Small stands of high quality trees such as oaks are generally located in residential yards. Larger stands of trees are primarily associated with wetlands and streams. These areas are dominated by Eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), silver maple (*Acer saccharinum*), box elder (*Acer negundo*), and green ash (*Fraxinus pennsylvanica subintegerrima*).

2nd Mainline Tract Project between MP 36.7 and MP 44.69

Sugar Run Creek MP 38.8

The trees at milepost MP 38.8 near Sugar Run are primarily second growth, adventive species that includes box elder (*Acer negundo*), eastern cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica subintegerrima*), and white mulberry (*Morus alba*). The understory consists of aggressive non-native shrub species of buckthorn (*Rhamnus cathartica*) and honeysuckle (*Lonicera tatarica*). A portion of this area contains abandoned equipment/building foundations from an abandoned railyard.

Cedar Creek MP 42.6

Only a few scattered trees occur along the banks of Cedar Creek at MP 42.6. A few small white mulberry trees and small box elders are present, all less than 6 inches in diameter at breast height (DBH). One dead eastern cottonwood is also present.

Jackson Creek MP 44.4

The forested area associated with Jackson Creek includes the only high-quality native forest within the project limits. The area on the northwest side of Jackson Creek/UPRR ROW (MP 44.4) is comprised of a mature oak-hickory forest, dominated by the following species: red oak (*Quercus rubra*), white oak (*Quercus alba*), and shagbark hickory (*Carya ovata*). Additional tree species present include black cherry (*Prunus serotina*), black walnut (*Juglans nigra*), American elm, silver maple, and hackberry (*Celtis occidentalis*).

The northeast portion of MP 44.4 is mainly a manicured landscaped residential area, with ash, silver maple, black cherry, American elm, and basswood (*Tilia americana*) species.

The southeast side of MP 44.4 is dominated by a few large Eastern cottonwoods, white mulberry, Siberian elm (*Ulmus pumila*), and black cherry. The understory is comprised of thick honeysuckle. The southwest side is comprised of box elder, white mulberry, hackberry, silver maple, and black walnut. There are patches of thick honeysuckle within this area as well. Off-road vehicle trails are scattered throughout the forest.

Mazonia Siding Track between MP 55.0 and MP 57.13

The southern portion of this segment contains very few trees in comparison to the northern portion. Woodland areas exist on the northwest side of UPRR ROW between MP 56 (Hole in the Wall Road) and MP 55.6 (Coal City Road). This woodland is dominated by black walnut, green ash, silver maple, box elder, American elm, and eastern cottonwood. Additional tree species present include white mulberry, tree of Heaven (*Ailanthus altissima*), black locust (*Robinia pseudoacacia*), American sycamore (*Platanus occidentalis*), Siberian elm (*Ulmus pumilia*), and honey locust (*Gleditsia triacanthos*). The understory consists of mostly aggressive non-native shrub species of buckthorn and honeysuckle.

3.1.6.2 Potential Impacts

Proposed improvements are planned to occur primarily within or adjacent to existing railroad right-of-way. As a result, tree impacts as a result of the proposed project are anticipated to be minimal.

3.1.6.3 Mitigation

Tree impacts can be mitigated by replacing trees that are unavoidable and minimizing impacts to the mature forested areas.

3.2 Ecological Systems

This section describes the ecological systems to be served or affected by the proposed project. Included in this section is a discussion of the anticipated wetlands, water quality and resources, and threatened and endangered species and special lands effects of the Preferred Alternative. Where appropriate, mitigation measures are identified.

3.2.1 Wetlands and Waters of the US

Wetlands are defined by the USACE and the USEPA as:

> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Title 33 *Code of Federal Regulations* Section 328.3 (b) and Section 404 of the Clean Water Act).

Executive Order 11990, "Protection of Wetlands", requires federal agencies to avoid, to the extent practicable, short and long-term impacts associated with the destruction or modification of wetlands. More specifically, it directs federal agencies to avoid new

construction in wetlands unless there is no practical alternative. In addition, it states that where wetlands cannot be avoided, the proposed action must include all practical measures to minimize harm to the wetlands.

Section 10 of the Rivers and Harbors Act of 1899 (Title 33 United States Code [USC] Section 403) and Section 404 of the Clean Water Act (Title 33 USC Section 1344) authorize permits for placement of structures, dredged, or fill material into the "waters of the U.S." All public and private projects must obtain permits. The most likely types of these permits in the study area would be for filling wetlands of streams. Impacts to wetlands and waters of the United States must be replaced. While mitigation requirements under Section 404 and Section 10 are the same for developers and the IDOT regarding wetland loss and replacement, under the Illinois Wetland Protection Act of 1989 (Chapter 415 Illinois Compiled Statutes Section 5), IDOT mitigates for isolated and jurisdictional wetlands.

3.2.1.1 Existing Conditions

Wetlands in the overall project area were identified using the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping combined with aerial photography review and field confirmation via a high-rail review on March 24, 2011. The high-rail review generally consisted evaluating current conditions and did not include delineating any wetlands. All wetlands are located within the Des Plaines River or Illinois River watersheds.

Field conditions at three locations (Jackson Creek bridge, Cedar Creek bridge, and Sugar Run bridge) were delineated in the field during field investigations in 2010. The wetland delineations associated with these locations are contained herein as these are locations with a high potential for right-of-way acquisition and/or work within waters of the U.S. (WOUS) for double track. The limits of these wetlands were determined based on the presence of hydrophytic (adapted to grow in saturated soil) vegetation, hydric (characterized by considerable moisture) soils, and wetland hydrology. These three criteria are used to assess sites as wetlands or non-wetlands. Improvements within the remaining areas of the corridor and not anticipated to include work outside the right-of-way or in areas not already disturbed were evaluated through screening only.

Overall Project Corridor Wetland Screening – Dwight to Joliet

Table 3-9 includes a summary of potential wetlands identified via NWI map review, high-rail screening, and wetland delineations in the Jackson Creek, Cedar Creek, and Sugar Run areas. Locations identified in the field during the high-rail screening but not on the NWI maps have been approximated.

Most of the wetlands in the project corridor are located near or along stream or ditched channels. Major portions of the project area are developed (within the City of Joliet). Agricultural fields are prevalent south of Joliet. There are limited opportunities for isolated

Table 3-9. Summary of Wetland and WOUS Screening by Milepost

Approximate Location (MP)	Environmental Issue	NWI Mapped [1/]	Side of Railroad [2/]
38.2	Hickory Creek (Site 11)*	R2UBHx	East/West
38.8	Sugar Creek (Site 1)*	None	East/West
38.8-39.0	Wetland	PUBFx	East
39.2-39.4	Wetland (Site 4)*	PUBGx	West
39.4-39.5	Wetland (Site 5)*	Not on NWI Maps	West
40.5-40.6	Tributary to Cedar Creek/wetland (Site 6)*	Not on NWI Maps	East/West
41.8	Tributary to Cedar Creek (Site 7)*	Not on NWI Maps	East/West
42.1-42.4	Prairie/wetland	Not on NWI Maps	East
42.6	Cedar Creek	Not on NWI Maps	East/West
44.1	Wetland (Site 8)*	Not on NWI Maps	
44.4	Jackson Creek	PFO1A	East/West
44.4-44.5	Wetland (Site 9)*	Not on NWI Maps	
44.5-44.7	Tributary to Jackson Creek (Site 10)*	Not on NWI Maps	East
45.3-45.4	Wetland	PEMAf	West
46.3-46.6	Tributary to Grant Creek/wetland	Not on NWI Maps	East/West
46.6-46.7	Tributary to Grant Creek/wetland	PFO1A	East/West
47.2-47.3	Grant Creek/ wetlands	PFO1A PFO1A	East West
48.7	Tributary to Prairie Creek	Not on NWI Maps	East/West
49.5	Prairie Creek	Not on NWI Maps	East/West
49.6	Wetland	PUBGx	East
49.9-50.4	Wetland	PEMC	East/West
50.3-50.4	Tributary to Kankakee River/ wetlands	PFO1A PFO1A	East West
50.4-50.8	Wetland	PFO1C	East/West
51.0	Wetland	Not on NWI Maps	West
51.4-51.5	Tributary to Kankakee River/ wetland	PEMAF	East/West
52.4	Forked Creek	Not on NWI Maps	East/West
52.6-52.7	Kankakee River	Not on NWI Maps	East/West
53.0	Wetland	PUBGx	West
53.6-53.9	Wetland	PSS1C	West
54.0-54.1	Wetland	PEMC	West
54.8-55.0	Wetland	PEMC	East/West
55.2	Wetland	Not on NWI Maps	West
55.5	Wetland	Not on NWI Maps	West

Approximate Location (MP)	Environmental Issue	NWI Mapped [1/]	Side of Railroad [2/]
57.8	Wetland	PEMFx	East
60.0-60.2	Jackson Creek/Wetlands	PEMC PSS1C PEM/SS1F PFO1C PEMA PSS1C	West West West East East East
61.5-61.9	Wetland	PUBGx	East
61.9-62.1	Wetland	PUBGx	East
62.3	Tributary to Mazon River	Not on NWI Maps	East/West
62.6-62.7	Wetland	PFO1C	West
62.7	Mazon River	R2UBH	East/West
63.4-63.6	Wetland	PSS1A	West
65.2-65.4	Wetland	PUBGx	West
66.0	Tributary to Mazon River	Not on NWI Maps	East/West
67.1	Tributary to Mazon River	Not on NWI Maps	East/West
67.6	Wetland	PUBGx	East
70.1	Woods Run	Not on NWI Maps	East/West
71.3	Gooseberry Creek Tributary	Not on NWI Maps	East/West
72.4	Gooseberry Creek	Not on NWI Maps	East/West

* Wetlands identified during the wetland delineation in April 2010.

1/ Per USFWS NWI mapping. Designations are defined as:
R – riverine, P – palustrine, FO – forested, SS – scrub-shrub, UB – unconsolidated bottom, 2- lower perennial, A – temporarily flooded, C – seasonally flooded, F – semi-permanently flooded, G - intermittently exposed, H – permanently flooded, 1 – broad-leaved deciduous, f – farmed, x – excavated

2/ Based on 100 foot wide corridor, 50 feet on either side of existing track.

wetlands to develop in these actively used areas. Historically, many agricultural fields in northern Illinois were ditched or tilled, which eliminated wetlands in these areas.

3.2.1.2 Wetland Plant Communities

Four types of wetland plant communities were identified in the project corridor. These include open water, emergent, shrub, and forested. Open water habitats include WOUS. Emergent wetlands were generally herbaceous dominated wetlands in depressional areas or along the banks of the creek. The shrub and forested wetlands are primarily along the banks of creeks. Forested wetlands are dominated by trees and include depressional and riparian areas.

None of the wetlands found along the UPRR tracks are considered to be High Quality Aquatic Resources. Will County has not adopted the USEPA Advanced Identification (ADID) program, which inventories high quality areas. Therefore, no ADID wetlands are located within the project limits.

3.2.1.3 Farmed Wetlands

Farmed wetlands were first defined as a result of the "Swampbuster" provision of the Food Security Act of 1985 (Title 16 *United States Code* Sections 3801-3862). This act regulates the activities of farmers in regards to wetlands. The U.S. Department of Agriculture (USDA) can withhold farm program benefits if a farmer drains, dredges, or manipulates wetlands to increase the potential tillable land. Wetlands altered or manipulated before 1985 are termed "Prior Converted Wetlands" and are exempt from the Swampbuster provision. The Natural Resources Conservation Service (NRCS) has authority over farmed wetlands and the determination of these areas. Since 2005, the NRCS no longer conducts farmed wetland determinations for land that will be converted from agriculture to other uses. In response, the Chicago District of the USACE has issued guidance for the determination of farmed wetlands in their jurisdiction.

There were no areas within the project limits that met the criteria for farmed wetlands. Project limits were determined to be the railroad ROW except for the Jackson Creek, Cedar Creek, and Sugar Run locations.

3.2.1.4 Wetland Functions

Each of the wetland types delineated serve different functions within the landscape. Riparian zones along major creeks and rivers within the project corridor provide the majority of natural cover and habitat in this landscape, which is highly fragmented by agriculture, roads, and development. Animals make use of forested areas (both wetland and non-wetland) as both nesting and foraging habitat. These areas also provide a corridor for use in migration, as well as for local travel.

Farmed wetlands provide little or no habitat functions for plants and animals. These areas may be tilled in drier years and the vegetation communities are completely disturbed, providing little to no habitat. These farmed depressions do serve as storm water storage and toxicant traps and also may act as groundwater recharge areas dependent upon the permeability of the soils.

Project corridor wetlands serve as storm water attenuation features and can serve as sediment/toxicant traps in addition to habitat for wildlife. Furthermore, these areas can serve as groundwater recharge areas. Wetlands adjacent to streams also serve to attenuate flood flows from the channel during high water periods.

Jackson Creek, Cedar Creek, and Sugar Run Wetland Delineations

As of 2008, a series of regional supplements to the 1987 Wetlands Delineation Manual were published which outline updated technical guidelines and procedures for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. This wetland delineation was conducted using methodology presented in the USACE Regional Supplement to the USACE

Wetlands Delineation Manual: Midwest Region (USACE Midwest Region Manual) (USACE, 2008).

Seven jurisdictional wetlands and two "WOUS" were identified in April 2010 within the creek areas. In addition, two wetlands were identified that appear to be isolated. The area of wetland in the vicinity these three areas is approximately 1.28 acres and the area of open water is approximately 0.84 acre. Most of the wetlands are near or along streams. Wet meadows, open water, and forested wetlands comprise the majority of wetlands in number and in total area.

The exhibits in Appendix D depict the wetland areas. Table 3-10 presents the site number, plant community type, NWI classification, dominant vegetation, soil type, hydrologic indicator, size, Floristic Quality Index (FQI), and stream association. Wetlands are assigned a site number during the field delineations and are characterized by plant community and NWI classification. The total size of the wetland is approximated based on available mapping and field surveys. All wetlands within this section are in the Des Plaines River Watershed.

The overall quality of the wetland plant community is indicated by the FQI number calculated for each wetland. The FQI is an index derived from floristic inventory data and calculated from the number of species that occur in the plant community and the species coefficient of conservatism (C). C values are assigned to individual plant species, range from 0 to 10, and represent an estimated probability that a plant is likely to occur in a landscape relatively unaltered from what is believed to be a pre-settlement condition. The aggregate conservatism of all the plants inhabiting a site is used to determine its FQI.

Another indicator, the Wetness Index, is a mean value derived from all wetness values in a floristic inventory. Based solely on the composition of plant species within the community being evaluated, the index characterizes the plant community in terms of hydrological characteristics. Values of -5 to 0 are considered wetlands and values from 0 to +5 are considered non-wetland. Finally, hydrologic connections to adjacent streams also are identified to aid in the jurisdictional determinations.

In Illinois, the FQI is applied to the vegetation of each wetland site. The general interpretation of the FQI value is that sites with values of 20 or more have at least some evidence of native character and may be considered environmental assets. Sites with FQI values between 10 and 20 are considered fair quality, FQI values of less than 10 indicate low natural quality; and FQI values of 5 or less indicate very low quality.

Wetland Site 4 was considered to be fair quality, with an FQI value of 10.5. The remaining wetlands were considered degraded or severely degraded.

Table 3-10. Wetlands and their Characteristics in the Delineated Areas Jackson Creek, Cedar Creek, Sugar Run Areas

Site	Wetland Type [1]	Wetland Area Acres[2]	Dominant Vegetation (all strata)	Native FQI	Native Mean C	Mapped Soil Type	Isolated? Y/N[3]	NWI Classification	Wetness Coefficient[4]
1	Open water Sugar Run (WOUS)	0.11	Tatarian honeysuckle Fowl manna grass Sedges Poison ivy	N/A	N/A	Romeo silt loam (316A) Pits quarry (864)	N	R2UBH	N/A
2	Open water Wet meadow Cedar Creek (WOUS)	0.09	Cockspur hawthorn Elderberry Sandbar willow Reed canary grass Narrow-leaved cattail	7.3	1.8	Elpaso silt loam (356A)	N	None	-2.1
3	Open water Forested Jackson Creek (WOUS)	0.65	Box elder Silver maple Elderberry Reed canary grass Fowl manna grass	8.7	2.6	Lawson silt loam (8451A)	N	PFO1A	-0.9
4	Wet meadow Tributary to Sugar Run (WOUS)	0.54	Gray dogwood Elderberry Common buckthorn Common reed Reed canary grass Riverbank grape	10.5	2.3	St. Clair silty clay loam (560D2)	N	PUBGx	-1.7
5	Forested	0.00	Green ash Box elder Common buckthorn Red hawthorn Wild geranium Common reed Riverbank grape	9.5	3.0	St. Clair silty clay loam (560D2)	Y	None	0.1
6	Open water Wet meadow – Tributary to Cedar Creek (WOUS)	0.29	Eastern cottonwood Reed canary grass Narrow-leaved cattails White mulberry	4.5	2.0	Elpaso silt loam (356A) & Peotone silty clay loam (330A)	N	None	-3.6
7	Wet meadow Forested Tributary to Cedar Creek (WOUS)	0.09	Green ash Reed canary grass Box elder Curly dock	5.1	1.5	Elpaso silt loam (356A)	N	None	-2.0

Site	Wetland Type [1]	Wetland Area Acres[2]	Dominant Vegetation (all strata)	Native FQI	Native Mean C	Mapped Soil Type	Isolated? Y/N[3]	NWI Classification	Wetness Coefficient[4]
8	Wet meadow Shrub	0.08	Sandbar willow Box elder Black willow Reed canary grass	8.0	2.7	Beecher silt loam (298B)	N	None	-3.0
9	Forested	0.05	Box elder Moneywort Reed canary grass Hackberry	4.0	1.3	Camden silt loam (134)	Y	None	-1.2
10	Open water Wet meadow Tributary to Jackson Creek (WOUS)	0.03	Long-bracted tussock sedge Reed canary grass Fowl manna grass Orange jewelweed	9.0	3.0	Ashkum silty clay loam (232A)	N	None	-1.6
11	Open water Hickory Creek (WOUS)	0.19	Eastern cottonwood	N/A	N/A	Lawson silt loam (8451A)	N	R2UBHx	N/A

[1] Wetland type is based on the IDOT definition off the Wetland Impact Evaluation form.

[2] Acreage is within project area only. All wetlands extend off-site.

[3] Isolated is based on professional judgment in the field. The USACE makes all final jurisdictional determinations. Isolated applies to the lack of hydrological connection to a "Waters of the U.S."

[4] R – riverine, P – palustrine, FO – forested, UB – unconsolidated bottom, A – temporarily flooded, F – semi-permanently flooded, G - intermittently exposed, H – permanently flooded, 1 – broad-leaved deciduous, 4 – floating vascular, x – excavated

[5] Wetness Index – The index is a mean derived from all wetness values in a floristic inventory. Based solely on the composition of plant species within the community being evaluated the index characterizes the plant community in terms of hydrological characteristics; values of -5 to 0 are considered wetlands and values from 0 to +5 are non-wetland.

3.2.1.5 Wetlands Affected

The assessment of potential wetland impacts is based upon direct impacts related to the bridge and track construction, which includes areas within the proposed right-of-way and environmental survey limits. Construction would include placement of fill for new bridge abutments or piers and embankment for new track adjacent to the existing tracks. Wetland impacts related to construction would include vegetation removal, placement of clean fill, and changes to the wetland hydrologic regime. Besides the loss of wetland acreage, some wetland functions and values could be affected by the proposed project.

Wetland impacts for the entire project corridor will need to be assessed after wetland delineations can be completed and engineering plans have been developed. Table 3-11 shows anticipated wetland impacts from the proposed improvements near Jackson Creek, Cedar Creek and Sugar Run. Impacts are assumed to occur only in areas where known additional ROW may be necessary (Jackson Creek, Cedar Creek, and Sugar Run bridges). Under the implementing regulations of the Illinois Interagency Wetland Policy Act of 1989 (IWPA), impacts to wetlands having an FQI rating of 20 or greater require 5.5 to 1.0 mitigation ratios. No high quality wetland areas will be directly affected by the proposed project.

Table 3-11. Wetlands Affected and their Characteristics

Site No.	Plant Community	Size acres[1]	Impacted Wetlands, acres	Impacted Open Water, acres	FQI	Stream/ Major Watershed
1	Open water	0.11	0	0.11	N/A	Sugar Run/ Des Plaines
2	Wet meadow	0.09	0.09	0	7.3	Cedar Creek/ Des Plaines
3	Open water Forested	0.65	0.11	0.54	8.7	Jackson Creek/ Des Plaines
4	Wet meadow	0.54	0.54	0	10.5	Tributary to Sugar Run/ Des Plaines
5	Forested	0.00	0	0	9.5	None/ Des Plaines
6	Open water Wet meadow	0.29	0.29	0	4.5	Tributary to Cedar Creek / Des Plaines
7	Wet meadow Forested	0.09	0.09	0	5.1	Tributary to Cedar Creek / Des Plaines
8	Wet meadow Shrub	0.08	0.08	0	8.0	Tributary to Jackson Creek / Des Plaines
9	Open water Wet meadow	0.05	0.05	0	4.0	None / Des Plaines
10	Open water Wet meadow	0.03	0.03	0	9.0	Tributary to Jackson Creek / Des Plaines
11	Open water	0.19	0	0	N/A	Hickory Creek /Des Plaines
Total Impacts			**1.28**	**0.65**		

[1] Acreage within project corridor, t – total wetland acreage, * – large wetland continues beyond the project corridor

Avoidance and Measures to Minimize Harm

Recognizing the conceptual engineering detail of the project, further efforts will be made in future phases of work to avoid and minimize additional wetland impacts beyond the efforts. Avoidance and minimization can be accomplished in the following ways:

- Narrower railroad cross-section with the use of:
  - Retaining walls
  - Steeper embankments
  - Bridging critical wetland resources

Avoiding and minimizing impacts to wetland resources may be constrained by other critical resources or local issues.

Wetland Mitigation

Objectives for mitigation will be established in consultation with regulatory and resource agencies on the following major issues:

- Purchase of mitigation credits from a commercial wetland bank
- Type of compensatory wetland mitigation
- In-kind replacement
- Functional replacement
- Ratio of wetland mitigation replacement
- Location of wetland mitigation replacement

The State of Illinois, in the IWPA, has established compensatory wetland mitigation ratios for all state-funded projects. The established ratios generally are more stringent than those established by the USACE. The highest mitigation ratio of 5.5:1 will apply for wetland impacts in the following cases:

- Alteration of wetlands that contain state- or federal-listed threatened or endangered species
- Wetlands that contain essential habitat for state- or federal-listed species
- Presence of an Illinois Natural Areas Inventory (INAI) site
- A mean C-value of 4.0 or more (Swink and Wilhelm, 1994)
- Individual wetlands with a FQI of 20 or more (Swink and Wilhelm, 1994)

The compensation ratios shown in Table 3-12 represent the current compensation guidelines required for wetland impacts in Illinois by the IWPA. The USACE has identified certain wetland resources (e.g., critical wetlands in DuPage County; High Quality Aquatic Resources, etc.) requiring elevated compensatory wetland mitigation as well. Compensation ratios for impacts to High Quality Aquatic Resources will be developed with the regulatory agencies on a case-by-case basis during permitting.

Table 3-12. Illinois Department of Natural Resources (IDNR) Wetland Compensation Ratios

Degree of Adverse Impact	Onsite	Offsite	Out-of-Basin	Impact [c] Acreage	Required [d] Mitigation
Minimal alteration	1.0:1[a] / 1.5:1[b]	1.5:1	2.0:1	1.28 acres	1.92 acres
Significant alteration	1.5:1	2.0:1	3.0:1	N/A	N/A
Destruction	2.5:1	4.0:1	5.5:1	N/A	N/A

[a] This ratio applies to all other types of wetland vegetation, substrate, or wetland type except those wetlands that have woody vegetation, subject to USACE approval.
[b] This ratio applies if the vegetation of the affected wetland is woody.
[c] Wetland acreage only is included in the impact acreage. Open water areas have been omitted.
[d] Required mitigation assumes minimal alteration with off-site mitigation (1.5:1).

Location of the compensatory wetland mitigation sites would be determined following agreement on the wetland replacement ratio and other mitigation objectives. Appropriate environmental studies would be conducted for the selected mitigation sites, including an evaluation of the environmental features of the site, existing resources, suitability for wetland resource creation and restoration and potential effects of mitigation creation at the selected location. The environmental studies would include historic/archaeological surveys, biological surveys, and potential for threatened and endangered species.

Preferences for mitigation are as follows:

1. Wetland mitigation banking within a USACE approved bank.[1]
2. On-site—within the same hydrologic unit and less than one mile from the project site.[2]
3. Off-site, within basin—the same hydrologic unit but more than one mile from the project site.
4. Off-site, out of basin—compensation not provided within the watershed of affected wetlands.

Mitigation for wetland impacts will coordinate with the IDNR. State mitigation ratios are determined by the size of the impact (over or under 0.5 acres) and the location of the mitigation site (on-site, off-site, out-of-basin). As the project will most likely meet the guidance of a Programmatic Action, the project will not require a wetland compensation plan or coordination with the IDNR. It is anticipated that impacts for this project will be mitigated by the purchase of credits from wetland banks.

[1] The option most preferred is mitigation bank credits. See the *Compensatory Mitigation for Losses of Aquatic Resources; Final Rule* (April 10, 2008).
[2] Mitigation site selection will consider the potential to attract waterfowl and other bird species that might pose a threat to aircraft. FAA Advisory Circular, *Hazardous Wildlife Attractants On or Near Airports*, (Advisory Circular No: 150/5200-33B) recommends that wetland mitigation projects that may attract hazardous wildlife be sited at least 10,000 feet from the air operations area of an airport serving turbine-powered aircraft, 5,000 feet from the air operations of an airport serving piston-powered aircraft, and five statute miles if the attractant may cause hazardous wildlife movement into or across the approach or departure airspace.

The wetland sites occur within the Chicago and Rock Island Districts of the USACE. There are eight existing commercial wetland banks located in the Des Plaines River watershed. These are Redwing Slough, Bank 2, Neal Marsh, Delany Road, Lily Cache, Mink Creek, Des Plaines Towpath, and Cedar Creek. Because of the demand for wetland bank credits in the Chicago area the availability of wetland bank credits varies over short time periods as credits are purchased and new acreage is certified. It is the responsibility of the Union Pacific Railroad to secure all natural resources permits prior to construction. This includes, but is not limited to the Section 404 permit from the USACE, Section 401 Water Quality Certification from the IEPA, or other permits that may be required. Prior to construction and as part of the wetland permitting process, the Union Pacific Railroad will secure the necessary wetland mitigation as required for the Section 404 Permit. As wetland banking is the most efficient manner to provide wetland mitigation, the UP will provide the name of the wetland bank utilized as well as proof of purchase of the required credits.

The use of wetland banks consolidates wetland impacts to larger parcels that have higher functional and ecological value than smaller wetland mitigation areas. Large wetland complexes are also more manageable than numerous, smaller, isolated wetland mitigation areas.

3.2.2 Water Quality and Water Resources

This section provides an overview of surface and groundwater resources and the water quality of those resources along the project corridor. It focuses on those resources with the potential to be affected by the Preferred Alternative.

The project would not impact groundwater and would not be likely to adversely affect surface waters. Appropriate Best Management Practices will be utilized prior to, during, and after construction as part of the Soil Erosion and Sediment Control Plan for the project.

3.2.2.1 Surface Water Resources

Surface Water Characterization

IEPA Use Assessments

The IEPA collects water samples from Ambient Water Quality Monitoring Network (AWQMN) sampling stations as part of an ongoing assessment of water quality. Comparison of collected water quality data to the Illinois water quality standards is used to identify potential water quality concerns. Illinois water quality standards include acceptable limits for general use, public and food processing water supply, and secondary contact and indigenous aquatic life. Based on the comparison, the IEPA annually assesses the use support for aquatic life, fish consumption, public and food processing water supplies, primary contact, secondary contact, and aesthetic quality. The use support classifications are as follows:

- **Full Support** – Water quality meets the needs of all designated uses protected by the applicable water quality standards.

- **Non-support** – Water quality is severely impaired and not capable of supporting the designated use to any degree.

To facilitate reporting these results, IEPA also refers to fully supporting status (for a use) as a *Good* resource quality; non-supporting status is called *Fair* or *Poor* resource quality, depending on the degree to which the use is not attained. Uses determined to be non-supporting are called impaired, and waters that have at least one use assessed as non-supporting are also called impaired. For each impaired use in each assessment unit, the Illinois EPA attempts to identify potential causes and sources of the impairment.

Aquatic life use assessments in streams are typically based on the interpretation of biological information, physicochemical water data and physical-habitat information from the Intensive Basin Survey, AWQMN or Facility-Related Stream Survey programs. The primary biological measures used to determine stream health are the fish Index of Biotic Integrity (IBI), the new macroinvertebrate Index of Biotic Integrity, (mIBI) and the Macroinvertebrate Biotic Index (MBI) (Illinois Environmental Protection Agency, 2010).

IEPA 303d Listed Streams

Section 303d of the Clean Water Act requires states to develop and submit a list of impaired waters to the USEPA for review and approval. This is known as the 303d list. A stream is included on the 303d list if it does not meet applicable water quality standards or fully support its designated use or uses.

Biological Stream Characterization

Biological data can be used to evaluate the overall health of a stream, as biota respond to the physical and chemical characteristics of the system they inhabit. The IDNR developed a rating system to measure the biological diversity and integrity of streams. Two separate ratings characterize each stream using fish, mussel, macroinvertebrate and endangered species data. The IDNR rating system ranges from A (highest) to E (lowest).

Class I Streams

The IDOT and IDNR identify important water resources as Class I streams (IDOT and IDNR 1996). The Class I stream list is comprised of streams that meet any one of the following criteria:

- National Park Service Candidate Wild and Scenic Rivers
- Illinois Natural Areas Inventory (as Aquatic Natural Areas)
- Habitat for listed state or federal species
- IEPA Non-degradation Streams
- High Biological Stream Characterization (BSC) Rating

National Rivers Inventory

National Wild and Scenic River is a designation for protected water resources in the U.S. The goal of this designation is to preserve the river in its free-flowing condition. The Nationwide Rivers Inventory (NRI) is a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance. Rivers included on this list have the potential to be characterized as National Wild and Scenic Rivers. Under a 1979 Presidential directive and related Council on Environmental Quality procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect one or more NRI segments (http://www.nps.gov/ncrc/programs/rtca/nri/**;** accessed 09/11/09).

Navigable Waterways

Navigable waterways are generally all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce. Section 19 or Section 10/404 permits are required for construction activities in these waters. A list of navigable waterways is provided by the USACE. The project corridor is covered by the Chicago District in Will County and by the Rock Island District in Grundy County.

Project Corridor Surface Water

The project is located within three watersheds within Will and Grundy Counties, crossing or adjacent to 12 streams and one lake that are tributaries of the Illinois River, Kankakee River, or Des Plaines River. Table 3-13 summarizes the water resource information and data for each stream. The streams (Figure 3-2) are listed in order of crossings, beginning at the north end with the crossing of Hickory Creek in Joliet, Illinois.

Hickory Creek

The UPRR corridor crosses the Hickory Creek 500 feet south of I-80. Hickory Creek originates in agricultural land in southwest Cook County and has a drainage area of 109 square miles with a total length of 25.3 miles. The creek has a sandy bottom in its eastern segments, with sections of silty bottoms; the creek becomes progressively rockier as it nears Joliet, Illinois.

Hickory Creek, stream segment GG-22, is not supporting for aquatic life and primary contact due to alteration in stream-side littoral vegetative covers, chloride, other flow regime alterations, total suspended solids (TSS), phosphorus (Total), aquatic algae, and fecal coliform. The sources of impairment are listed as discharges, urban runoff/storm sewers, and impacts for hydrostructure flow regulation/modification, site clearance (land development or redevelopment). Hickory Creek has a long history as a diverse aquatic community in pre-urbanization times (Shelford 1978). The IDNR has assessed Hickory Creek as B for diversity and C for integrity. Hickory Creek is a Class I stream in Will County, but is not a potential Wild and Scenic River and is not a navigable waterway.

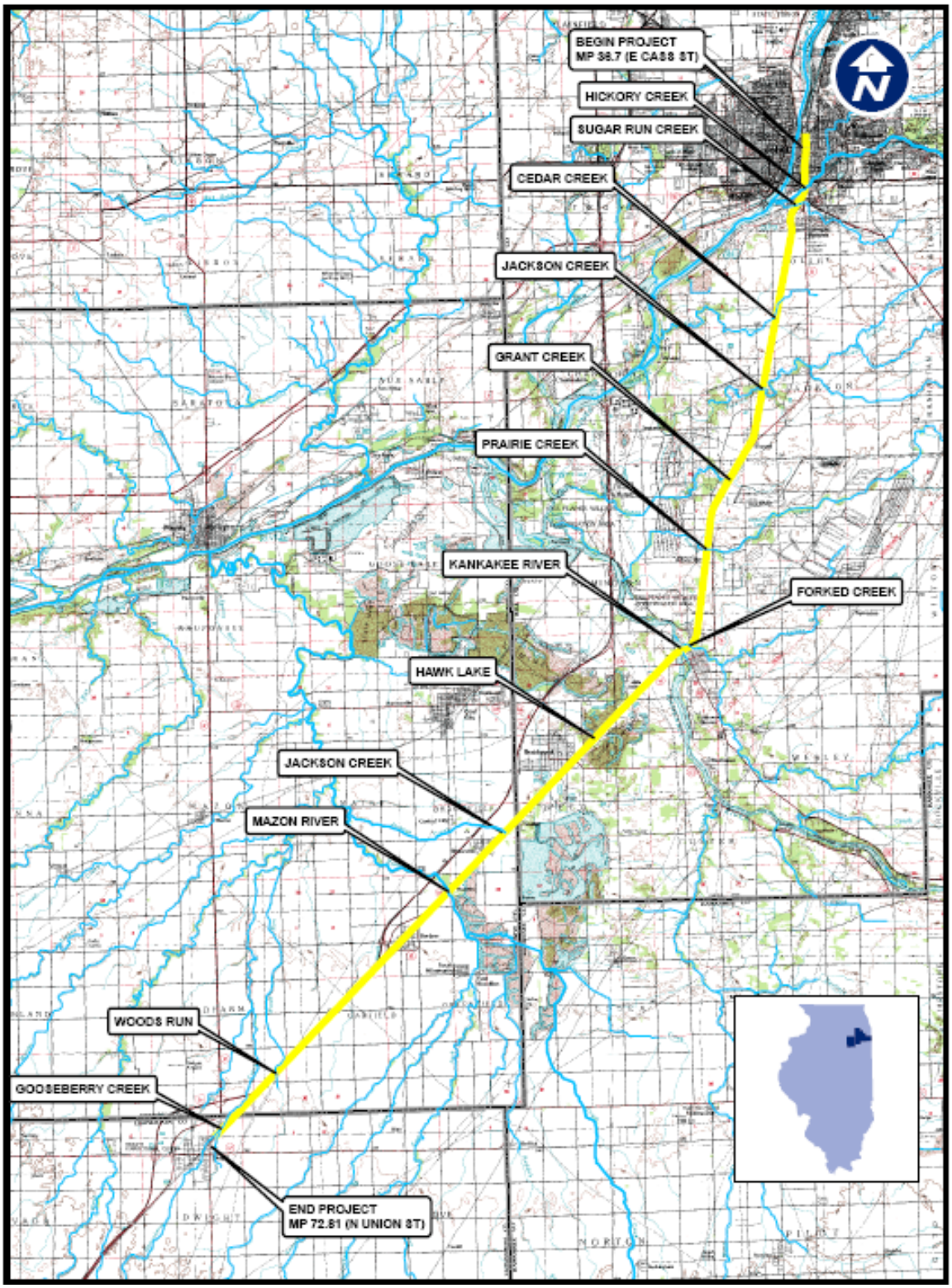
Table 3-13. Project Corridor Water Resources

River Crossing	IEPA Designation	Track Crossing Location	County	IEPA Basin	IEPA Basin [a/]	Total Drainage Area, sq. miles [b/ c/]	Total Length, miles [b/ c/]	2010 IEPA Use Assessment a/						Biologically Significant Stream [d/]	Diversity/Integrity [d/]	Class I Streams [e/]	National Rivers Inventory [f/]	Navigable Waterway [g/]
								Aquatic Life	Fish Consumption	Public and Food Processing Water Supplies	Primary Contact	Secondary Contact	Aesthetic Quality					
Hickory Creek	GG-22	Joliet	Will	2	Des Plaines River	109.0	25.3	N	X	ND	N	X	X	No	B/C	Yes	No	No
Sugar Run	GF-01	Joliet	Will	2	Des Plaines River	14.7	8.3	N	X	ND	X	X	X	No	No	No	No	No
Cedar Creek	GD	North of Elwood	Will	2	Des Plaines River	14.4	8.5	X	X	ND	X	X	X	No	No	No	No	No
Jackson Creek	GC-02	Elwood	Will	2	Des Plaines River	52.7	26.4	F	X	ND	X	X	X	No	C/C	No	No	No
Grant Creek	GA-01	Elwood	Will	2	Des Plaines River	15.9	11.0	N	X	ND	X	X	X	No	No	No	No	No
Prairie Creek	FA-01	North of Wilmington	Will	10	Kankakee River	49.6	27.0	F	X	ND	X	X	X	No	No	No	No	No
Forked Creek	FB-01	Wilmington	Will	10	Kankakee River	137.0	39.8	F	X	ND	X	X	X	No	A/B	No	No	No
Kankakee River	F-16	Wilmington	Will	10	Kankakee River	5165.0	>57.2	F	N	N	F	F	X	Yes	A/B	Yes (W&S)	Yes	Will
Hawk Lake	--	Braidwood	Will	11	Illinois River	ND	ND	ND	ND	ND	ND	ND	ND	No	No	No	No	No
Jackson Creek	--	Northeast of Braceville	Grundy	11	Illinois River	ND	5.1	ND	ND	ND	ND	ND	ND	No	No	No	No	No
Mazon River	DV-06	Southwest of Braceville	Grundy	11	Illinois River	524.0	27.0	F	N	ND	X	X	X	No	A/A	Yes (W&S)	Yes	No
Woods Run	DVEBA	North of Dwight	Grundy	11	Illinois River	ND	9.5	X	X	ND	X	X	X	No	No	No	No	No
Gooseberry Creek	DVEB	Dwight	Grundy	11	Illinois River	ND	25.9	X	X	ND	X	X	X	No	No	No	No	No

* - Miles In Illinois
ND: No Data
F: Full Support, N: Non-Support, X: Not Assessed
NA: Natural Area / W&S: Wild and Scenic
Sources:

a/ Illinois Environmental Protection Agency. 2010. Illinois Integrated Water Quality Report and Section 303(d) List (Draft).
b/ Healy, R.W. 1979. River Mileages and Drainage Areas for Illinois Streams - Volume 2, Illinois River Basin. USGS Water Resources Investigations 79-11.
c/ Healy, R.W. 1979. River Mileages and Drainage Areas for Illinois Streams - Volume 1, Illinois Except Illinois River Basin. USGS Water Resources Investigations 79-11.
d/ IDNR, 2008. Integrating Multiple Taxa in a Biological Stream Rating System.
e/ Illinois Department of Natural Resources and Illinois Department of Transportation. 1996. "Natural Resource Review and Coordination Agreement, Class I Streams." #96-14.
f/ United States Department of Interior. 1982. National Wild and Scenic River System Components. Http://www.rivers.gov/guidelines.html
g/ Illinois Administrative Code. Title 17: Conservation, Chapter I: Department of Natural Resources, Subchapter 11: Water Resources, Section 3704 Appendix A: Public Bodies of Water.

Figure 3-2. Project Corridor Water Resources



Sugar Run

The corridor crosses Sugar Run at MP 38.8. Sugar Run traverses east-west to the Des Plaines River and originates in agricultural land near County Highway 52 north of Spenser Road, Joliet, Illinois. Sugar Run is approximately 8.3 miles long with a total drainage area of 14.7 square miles. It merges with the Des Plaines River near the Brandon Locks south of Joliet, Illinois. The upper portion of the creek is intermittent, narrow and channelized. The lower portion of the creek retains much sinuosity and is located in an urbanized, residential setting of Preston Heights, Illinois. The lowermost section of Sugar Run, downstream of the railroad bridge, has a high gradient and a sand and gravel substrate with large areas of cobble and boulders in the steeper segments.

Sugar Run, stream segment GF-01, is not supporting for aquatic life due to arsenic, manganese, dissolved oxygen, sedimentation/siltation, and pH. The sources of impairment are listed as contaminated sediments, urban runoff/storm sewers, site clearance (land development/redevelopment), crop production (crop land or dry land). Sugar Run is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway.

Cedar Creek

The corridor crosses Cedar Creek at MP 42.6, near West Millsdale Road, within the Des Plaines River Basin. Cedar Creek is a stream that originates in farmland near Illinois Route 53, two miles northeast of the Village of Elwood. Cedar Creek runs approximately 8.5 miles to its confluence with the Des Plaines River, immediately north of Treat Island, with a total drainage area of approximately 14.4 square miles. The creek is channelized in its upper sections but retains much of its sinuosity and is buffered by a timbered riparian zone west of Wilmington Road. Approximately one mile east of the Des Plaines River, the gradient becomes steeper, and the creek bottom is composed of sand gravel cobble and occasional boulders.

Cedar Creek, stream segment GD, has not been assessed by the IEPA for any uses or attainments and is not on the 303(d) list. No impairments or sources of impairment are known for Cedar Creek. No records of fish or native mussels appear in the Illinois Natural History databases. Cedar Creek is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway. Three unnamed tributaries to Cedar Creek cross the corridor.

Jackson Creek

The bridge at MP 44.4 crosses Jackson Creek, near Elwood, Illinois. Jackson Creek originates in the Village of Frankfort at the eastern end of the watershed and flows westerly to the Des Plaines River through New Lenox and the Midewin National Tallgrass Prairie (MNTP). Jackson Creek is approximately 26.4 miles in length with a total drainage area of approximately 52.7 square miles. Jackson Creek merges with the Des Plaines River immediately south of Treat Island. Jackson Creek has been straightened and channelized for agricultural purposes along much of its upper length, while the last quarter of its length

is relatively un-channelized. The upper portions of the creek have bottoms that are comprised of sediment, sand and gravel. The lower portions of the creek contain substrates that are coarser, and are primarily sand, gravel, and cobble.

Four communities reside partially or fully within the watershed including New Lenox, Frankfort, Manhattan, and Elwood. Waste water treatment plants (WWTPs) in three communities discharge effluent into the Jackson Creek system. The discharge for the Village of New Lenox enters Jackson Branch, a tributary to Jackson Creek, south of Laraway Road in Country View Park; the discharge from the Village of Manhattan goes into Manhattan Branch downstream of the community; and discharge from the Village of Elwood enters Jackson Creek approximately 1,000 feet upstream of Baseline Road. In addition to the three municipal facilities, a small WWTP serving the Ranch Oaks subdivision on Jackson Creek is located on the west side of Route 52, north of the Village of Manhattan.

Jackson Creek, stream segment GC-02, has been assessed as fully supporting for aquatic life and is not on the 303(d) list. Jackson Creek has not been assessed for any other use attainment by the IEPA. A fish survey conducted by the IDNR during 2003 rated four stations on Jackson Creek as *Good*, and five stations as *Fair*, (Rung and Pescitelli 2005). One of the highest of the IBI scores for Jackson Creek was at a site in Midewin National Tallgrass Prairie. The IDNR biological diversity rating is C and the biological integrity rating is also C. Jackson Creek is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway.

Grant Creek

The corridor crosses Grant Creek at approximately MP 47.2, southeast of Abraham Lincoln National Cemetery, within the Des Plaines River Basin. Grant Creek originates in farmland east of Illinois Route 53, 1.5 miles southeast of the Village of Elwood. Grant Creek flows 11.0 miles to its confluence with the Des Plaines River, at the Grant Creek Cut-off, with a total drainage area of 15.9 square miles. The creek is channelized in sections but retains much of its sinuosity and is buffered by a timbered riparian zone west Illinois Route 53.

Cedar Creek, stream segment GA-01, has been assessed by the IEPA as fully supporting for aquatic life and is not on the 303(d) list. No impairments or sources of impairment are known for Grant Creek. Grant Creek is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway.

Prairie Creek

The corridor crosses Prairie Creek at approximately MP 49.5, within the MNTP, and the Kankakee River Basin. Prairie Creek originates in farmland west of Illinois Route 19, approximately 2.5 miles south of the Village of Frankfort. Prairie Creek is approximately 27.0 miles in length with a total drainage area of 49.6 square miles. Prairie Creek merges with Kankakee River approximately 3.9 miles south of the corridor crossing. The creek is

channelized in sections but retains much of its sinuosity and is buffered by a timbered riparian zone within the MNTP.

Prairie Creek, stream segment FA-01, has been assessed by the IEPA as fully supporting for aquatic life and is not on the 303(d) list. No impairments or sources of impairment are known for Prairie Creek. Prairie Creek is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway. One unnamed tributary to Prairie Creek crosses the corridor north of the Prairie Creek Crossing.

Forked Creek

The corridor crosses Forked Creek at approximately MP 52.4, in the City of Wilmington, within the Kankakee River Basin. Forked Creek originates in the Village of Monee east of Interstate 55 and flows for 39.4 miles to its confluence with the Kankakee River. Forked Creek is the third largest stream in the project corridor with a total drainage area of 137.0 square miles. The creek is channelized in sections but retains much of its sinuosity and is buffered by a timbered riparian zone within the western half of its reach.

Forked Creek, stream segment FB-01, has been assessed by the IEPA as fully supporting for aquatic life and is not on the 303(d) list. No impairments or sources of impairment are known for Forked Creek. The IDNR has assessed Forked Creek as A for diversity and B for Integrity. Forked Creek is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway.

Kankakee River

The corridor crosses the Kankakee River at approximately MP 52.6, in the City of Wilmington. The Kankakee River originates in St. Joseph County, Indiana. The Kankakee River extends for 57.2 miles in length in Illinois to its confluence with the Illinois River, southwest of the Village of Channahon. The Kankakee River has a total drainage area of 5,165 square miles. The river is channelized in Indiana east of the Indiana-Illinois state boundary; however, it retains much of its sinuosity and is buffered by a timbered riparian zone in Illinois.

The Kankakee River, stream segment F-16, has been assessed by the IEPA as fully supporting for aquatic life, primary contact, and secondary contact, not supporting for fish consumption and public and food processing water supplies, and not assessed for aesthetic quality. No cause or source of impairment has been identified for stream segment F-16. The IDNR has assessed the Kankakee River as a Biologically Significant Stream and as A for diversity and B for integrity. The Kankakee River is a Class I stream, a Wild and Scenic River, and a navigable waterway. One unnamed tributary to the Kankakee River also crosses the corridor north of the City of Wilmington.

Hawk Lake

The corridor parallels Hawk Lake at approximately MP 56.0, in the City of Braidwood, within the Kankakee River Basin. Hawk Lake is a constructed lake within a former mining area. Hawk Lake discharges to Claypool Ditch. Claypool Ditch extends 7.9 miles to its confluence with the Mazon River, north of Illinois Route 113. The total drainage area is approximately 35.3 square miles. The ditch is channelized through the majority of its reach.

Hawk Lake has not been assessed by the IEPA and is not on the 303(d) list. No impairments or sources of impairment are known for Hawk Lake.

Jackson Creek

The corridor is adjacent to the headwaters of Jackson Creek at MP 60.0, northeast of the City of Braceville, within the Upper Illinois River Basin. Jackson Creek originates northeast of the City of Braceville, west of the corridor. Jackson Creek extends approximately 5.1 miles in length to its confluence with the Mazon River, west of the City of Braceville. The creek is channelized.

Jackson Creek has not been assessed by the IEPA and is not on the 303(d) list. Jackson Creek is not a Class I stream, potential Wild and Scenic River, or a navigable waterway.

Mazon River

The corridor crosses the Mazon River at approximately MP 62.7, southwest of the City of Braceville, within the Upper Illinois River Basin. The Mazon River originates in agricultural fields, southeast of the Village of Cabery. The Mazon River extends 27.4 miles in length to its confluence with the Illinois River, within the City of Morris. The Mazon River with a drainage area of 524 square miles, is second in size to the Kankakee River. The river is channelized in sections but retains much of its sinuosity and is buffered by a timbered riparian zone on it northern side within the corridor.

The Mazon River, stream segment DV-06, has been assessed by the IEPA as fully supporting for aquatic life and not supporting for fish consumption due to mercury and polychlorinated biphenols. The sources of impairment include atmospheric deposition – toxics and unknown sources. The IDNR has assessed the Mazon River as A for diversity and A for Integrity. The Mazon River is a Class I stream, a potential Wild and Scenic River, and is not a navigable waterway. One tributary to the Mazon River crosses the corridor south of the Village of Gardner.

Woods Run

The corridor crosses Woods Run at approximately MP 70.1, northeast of the Village of Dwight, within the Upper Illinois River Basin. Woods Run originates in agricultural fields west of the Village of Dwight and flows 9.5 miles to its merger with Gooseberry Creek. The stream is channelized through the corridor.

Woods Run, stream segment DVBA, has not been assessed by the IEPA. No impairments or sources of impairment are known for Woods Run. Woods Run is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway.

Gooseberry Creek

The corridor is adjacent to Gooseberry Creek at approximately MP 72.4, northeast of the Village of Dwight, within the Upper Illinois River Basin. Gooseberry Creek originates in agricultural fields southeast of the Village of Odell and flows 25.9 miles to its confluence with the Mazon River. The stream is channelized throughout the majority of its reach.

Gooseberry Creek, stream segment DVB, has not been assessed by the IEPA. No impairments or sources of impairment are known for Gooseberry Creek. Gooseberry Creek is not a Class I stream, a potential Wild and Scenic River, or a navigable waterway.

3.2.2.2 Potential Impacts

The No-Build Alternative would not impact waterways or water quality. The Preferred Alternative is not anticipated to permanently impact waterways or water quality. Some stream substrate may be permanently removed to accommodate the culvert extensions and bridge construction at Sugar Run, Cedar Creek, and Jackson Creek. Temporary impacts due to instream streambank work would cease immediately after the activity is completed. Some specific minor construction impacts cannot be estimated at this time because they depend on several factors that would be determined either during final design or by the contractor before or during construction. Construction impacts would be minimized and mitigated using Best Management Practices.

3.2.2.3 Mitigation

To comply with Section 404 of the Clean Water Act, waterways within or immediately adjacent to the project area will be identified. Impacts to waterway(s) will be assessed and necessary permits will be obtained from the USACE prior to construction. All attempts will be made to avoid waterways. If avoidance is not possible, impacts will be minimized to the greatest extent possible. In the Chicago District (that oversees the regulatory program in the six-county Chicago metropolitan area including Will County), Regional Permit 3 applies to linear transportation projects. This regional permit requires that cumulative impacts cannot exceed 1.0 acre, and no single crossing may impact more than 0.25 acre. All of the conditions and requirements of Nationwide Permit 14 and Regional Permit 3 will be followed. It is anticipated that Section 401 Water Quality Certification will not need to be obtained separately. The IEPA has conditional Section 401 Water Quality Certification applicable to Nationwide Permit 14 and Regional Permit 3.

3.2.2.2 Groundwater Resources

Groundwater quality is dependent in large part on the physical and chemical composition of overlying geologic materials. Overall groundwater quality in the project area is good. The risk for groundwater contamination through the corridor is low to moderate except

where the corridor crosses alluvial deposits. In such alluvial formations the potential for groundwater contamination is rated as high (Berg and Kempton, 1984).

Groundwater occurs in water-bearing units called aquifers. In Illinois, aquifers are classified as sand-and-gravel aquifers, shallow bedrock aquifers, and deep bedrock aquifers. Within the project areas, the principal shallow sand-and-gravel aquifers in Illinois are found in Will County. There are no sole source aquifers in Illinois. No regulated groundwater recharge areas are within the project area.

A review of data obtained from the Illinois State Geological Survey (ISGS) Wells and Borings Database shows 15 locations with 33 wells or borings within 200 feet of the Union Pacific Railroad's New 2nd Mainline Track from Joliet (MP 36.8) to Dwight (MP 72.8), IL.[3] All of the locations within the corridor are classified as water wells or borings. Four water wells or borings are listed as being in the same location; another site has three and one has two listings. The remaining sites all have one well or boring identified.

The ISGS notes that this data collection includes records dating as far back as 1801, and that most locations of the wells and boring locations have not been verified. Based on the available data, further coordination is necessary with the ISGS to conduct field tests to ensure that any wells or borings (active or inactive) are accounted for and would not be impacted by the construction of the project.

3.2.2.4 Potential Impacts

The No-Build Alternative would not impact groundwater. The Preferred Alternative is not anticipated to impact groundwater.

3.2.2.5 Mitigation

As impacts to groundwater are not anticipated, mitigation is not anticipated.

3.2.3 Threatened and Endangered Species

3.2.3.1 Existing Conditions

The U.S. Endangered Species Act (ESA) of 1973, as amended, provides protection for species that are listed as threatened or endangered under the ESA. The ESA grants the USFWS prime responsibility in administering the species designations and protections granted under the ESA. "Endangered" means that a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means that a species is likely to become endangered in the foreseeable future.

[3] Dated February 21, 1008, http://www.isgs.uiuc.edu/maps-data-pub/wwdb/wwdb.shtml) and accessed through the Illinois Natural Resources Geospatial Data Clearinghouse (http://www.isgs.uiuc.edu/nsdihome/ on May 2, 2010

Threatened and endangered species potentially occurring in the project corridor were identified from information supplied by the Illinois Department of Natural Resources (IDNR, 2011) and the USFWS Section 7 Consultation (USFWS, 2011).

Threatened and Endangered Species

Various species receive federal and state protection to help repair previous damage to populations and to attempt to return the species population to self-sustaining levels. Other species receive state protection if the limits of their distribution ranges are within the particular state of concern or if populations can only exist in a specific but uncommon habitat in these states. Agency records and databases were reviewed to determine if federal or state-listed threatened or endangered species are known to exist in the project area.

Table 3-14 summarizes the USFWS federally endangered and threatened and candidate species by county within the project limits. According to the USFWS, the Candidate Conservation Program assesses species and develops and facilitates the use of voluntary conservation tools for the conservation of candidate and other species-at-risk and their habitats, so that these species do not need the protection of the ESA. The USFWS accomplishes this by working in partnership with public and private landowners.

Table 3-14. USFWS Federally Endangered and Threatened Species List in Project Area

Species	Status	County	Habitat
Indiana bat	Endangered	Grundy & Livingston	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Hine's emerald dragonfly	Endangered	Will	Spring fed wetlands, wet meadows and marshes
Leafy-prairie clover	Endangered	Will	Prairie remnants on thin soil over limestone
Eastern prairie fringed orchid	Threatened	Will, Grundy, & Livingston	Moderate to high quality wetlands, sedge meadow, marsh, and mesic to wet prairie
Lakeside daisy	Threatened	Will	Dry rocky prairies
Mead's milkweed	Threatened	Will	Late successional tallgrass prairie, tallgrass prairie converted to hay meadow, and glades or barrens with thin soil
Sheepnose mussel	Candidate (Proposed as Endangered)	Will	Shallow areas in larger rivers and streams
Snuffbox mussel	Candidate (Proposed as Endangered)	Will	Small to medium-sized creeks and some larger rivers, in areas with a swift current
Eastern massasauga	Candidate	Will	Graminoid dominated plant communities (fens, sedge meadows, peatlands, wet prairies, open woodlands, and shrublands)

According to an on-line review of federally Endangered, Threatened, Proposed, and Candidate Species (USFWS, March 2011), nine species are listed for Will, Grundy, and Livingston Counties, Illinois. Of the nine species, three are listed as endangered:

- Indiana bat (*Myotis sodalis*),
- Hine's emerald dragonfly (*Somatochlora hineana*),
- Leafy-prairie clover (*Dalea foliosa*)

Three species are listed as threatened:

- Eastern prairie fringed orchid (*Platanthera leucophaea*)
- Lakeside daisy (*Hymenoxy acaulis var. glabra*)
- Mead's milkweed (*Asclepias meadii*);

Three species are listed as candidate species:

- Massasauga rattlesnake (*Sistrurus catenatus catenatus*)
- Sheepnose mussel (*Plethobasus cyphyus*)
- Snuffbox mussel (*Epioblasma triquetra*)

In 2007, the USFWS indicated that no Indiana bats were located in the six-county Chicago metropolitan area, based on extensive surveys over two years in various locations. The proposed project will not affect the Indiana bat as this species has not been observed in northeastern Illinois. Prairie habitat is located within and adjacent to the project area. As a result, habitat conditions may be suitable for the leafy prairie clover, eastern prairie fringed orchid, lakeside daisy, Mead's milkweed, and the eastern Massasauga rattlesnake. A review of the Illinois Mollusk Collection Database indicates that the sheepnose mussel has not been identified in streams in the project area. The snuffbox mussel has been identified in the Kankakee River within Will County. Because instream work will be minimal for this project, the proposed action will not affect these mussel species. Spring fed wetlands or other habitat suitable for the Hines emerald dragonfly may be present within the project limits. However, there are no known populations of the Hines emerald dragonfly present within the project limits.

State Listed Species

Utilizing the IDNR's Ecological Compliance Assessment Tool (EcoCAT), a review of the Illinois Natural Heritage Database was conducted for the project corridor on March 29, 2011, for informational purposes (IDNR Project No. 1110629). The IDNR response documentation is included in Appendix D. This information was obtained by IDNR through the Natural Heritage Database.

Utilizing the IDNR's Ecological Compliance Assessment Tool (EcoCAT), a review of the Illinois Natural Heritage Database was conducted for the project corridor. The results identified the potential for the following plant and animal species[4].

Plants:

- Ear-Leafed Foxglove (*Tomanthera auriculata*)-Threatened
- Grass Pink Orchid (*Calopogon tuberosus*)-Endangered
- Large Cranberry (*Vaccinium macrocarpon*)-Endangered
- Oklahoma Grass Pink Orchid (*Calopogon oklahomensis*)-Endangered
- Tubercled Orchid (*Platanthera flava var. herbiola*)-Endangered

Animals:

- Black Sandshell (*Ligumia recta*)-Threatened
- Blanding's Turtle (*Emydoidea blandingii*)-Endangered
- Eryngium Stem Borer (*Papaipema eryngii*)-Endangered
- Loggerhead Shrike (*Lanius ludovicianus*)-Endangered
- Ornate Box Turtle (*Terrapene ornata*)-Threatened
- Pallid Shiner (*Hybopsis amnis*)-Endangered
- River Redhorse (*Moxostoma carinatum*)-Threatened
- Salamander Mussel (*Simpsonaias ambigua*)-Endangered
- Upland Sandpiper (*Bartramia longicauda*)-Endangered
- Western Sand Darter (*Ammocrypta clarum*)-Endangered

3.2.3.2 Potential Impacts

The project would occur primarily within the existing railroad ROW, which has been significantly disturbed in most places. Detailed surveys were not conducted throughout the entire length of the project. Because of the potential presence of small isolated prairie remnants that may still be present, there is the possibility that isolated species could be observed. Potential impacts to sensitive habitat will be evaluated as engineering plans are developed.

3.2.4 Special Lands

Utilizing the IDNR's EcoCAT, a review of the Illinois Natural Heritage Database was conducted for the project corridor. The EcoCAT search identified 16 protected resources in the vicinity of the project area, identified as:

- Markgraf Quarry INAI site
- Braidwood Dunes and Savanna Class III Groundwater Site
- Braceville Railroad Prairie INAI Site

[4] IL Threatened and Endangered checklist 2/22/2011http://www.dnr.state.il.us/ESPB/pdf/2011_Checklist.pdf

- Braidwood Dunes And Savanna INAI Site
- Godley Railroad Prairie INAI Site
- Hitts Siding Prairie INAI Site
- Joliet Army Ammunition Plant INAI Site (located in Midewin National Tallgrass Prairie)
- Kankakee River INAI Site
- Manhattan Creek INAI Site
- Mazon River Bed INAI Site
- Mazonia Railroad Prairie INAI Site
- Wilmington Geological Area INAI Site
- Wilmington Shrub Prairie INAI Site
- Wilmington West Geological Area INAI Site
- Braidwood Dunes And Savanna Nature Preserve
- Hitts Siding Prairie Nature Preserve
- Wilmington Shrub Prairie Nature Preserve

A review of the INAI Sites by county list (December 2010) identified the Markgraf Quarry, Wilmington Geological Area, and Wilmington West Geological Area as Category IV, which defines the INAI site as having outstanding geological features. Manhattan Creek and Mazon River Bed were identified as Category VI, which defines the INAI site has having unusual concentrations of flora or fauna and high quality streams. The Wilmington West Geological Area is located directly adjacent to the railroad. The project would not impact the Markgraf Quarry, Wilmington Geological Area, Wilmington West Geological Area, or Manhattan Creek as the project would occur entirely within the existing railroad ROW. Additionally:

- The project would not impact the Braidwood Dunes and Savanna INAI Site or Braidwood Dunes and Savanna Nature Preserve, as this site is located more than one half mile east of the project corridor.
- The project would not impact the Wilmington Shrub Prairie INAI Site or Wilmington Shrub Prairie Nature Preserve, as this site is located more than one half mile east of the project corridor.

The Godley Railroad Prairie, Mazon River Bed, Mazonia Railroad Prairie, Braceville Railroad Prairie, Hitts Sidding Prairie, Kankakee River, and Joliet Army Ammunition Plant INAI Site are located directly adjacent to the railroad ROW.

There are no public or private parks within the project corridor. As such, there are no lands affected by the build alternative that involve use of lands that have Land and Water Conservation Act (LAWCON) of 1965 (Title 16 *United State Code* Section 460l-4) funds or Open Space Lands Acquisition and Development (OSLAD) Act (Chapter 525 *Illinois Complied Statutes* 35/) funds involved in their purchase or development.

The majority of the project area is contained within UPRR ROW except for the structures at the stream crossings.

3.2.5 4(f) Properties

An inventory of 4(f) properties within 1000 feet of the project corridor was conducted. Parks in the vicinity of the project area include a park administered by the Joliet Park District, approximately 1,100 feet to the east (east of Illinois Route 53) of the culvert proposed at MP 38.8. For the bridge at MP 42.6, there are no parks, although there is zoning for a future facility, located approximately 1,900 feet northeast of the bridge location. Lastly, for the bridge at MP 44.4, there is one park, administered by the Village of Elwood, slightly more than 680 feet to the southwest of the bridge. The MNTP, administered by the U.S. Forest Service, is located directly adjacent to the project corridor. The Godley Railroad Prairie, Mazonia Railroad Prairie, Braceville Railroad Prairie, and Hitts Sidding Prairie are located directly adjacent to the project corridor. The Mazon River Bed and the Kankakee River are INAI Sites located within the Mazon River and the Kankakee River, respectively, within the project corridor.

The review identified six potential 4(f) properties in the vicinity of the project area and one 4(f) property (MNTP) adjacent to the project corridor, as identified in Table 3-15.

Table 3-15. 4(f) Properties

Project Component		4(f) Property	Location	Distance from UPPR ROW (feet)	Uses Section 4(f) Land
110 mph Project Corridor	**2nd Mainline Track**	Joliet Union Station (Amtrak)	West of track - 50 East Jefferson Street, Joliet	Next to track	Existing elevated double track -No 4(f) land used
		East Side National Register District	East of track – Between E. Clinton and E. Jefferson Street	500 +	
		Nowell Park	East of track – South Chicago Street	400 +	
		Osgood Park	East of track – South E. Osgood Street	Next to track	
		Village of Elwood Park	East of track	600+	
	110 mph improvements	Midewin National Tallgrass Prairie	Former Joliet Arsenal Site	Several miles east and west of the project corridor	Existing ROW – No 4(f) land used
		Abraham Lincoln National Cemetery	West of track -Former Joliet Arsenal Site	Property next to UPRR ROW	
	Mazonia Siding	No 4(f) properties within 1000 feet of track	N/A	N/A	N/A

The MNTP is located in part of the former Joliet Army Ammunition Plant in Elwood between Hoff Road (MP 46.4) and Arsenal Road (MP 50.7). Midewin was established in 1996 as the first national tallgrass prairie in the United States under the Illinois Land Conservation Act (ILCA) and includes 19,000 acres, which is the largest prairie restoration project east of Mississippi River. The ILCA of 1994 (P.L. 104-106) (Sec 2915(a)), the legislation that established Midewin, included a prohibition against the construction of new through roads. This section did grant authorization of rights-of-way for utilities. However, railroads are not recognized as utilities.

The Abraham Lincoln National Cemetery lies in the northwestern area of the former Joliet Army Ammunition Plant, west of the project corridor and is consider a public park. There are several active prairie restoration project areas immediately adjacent to the rail corridor. On the west side of the existing UPRR corridor, a 66-foot utility right-of-way has been previously granted to NICOR Gas Company that is protected under the ILCA act.

The project would not impact MNTP or the Lincoln Cemetery as construction would occur entirely within the existing UPRR ROW. Therefore, the project will not use lands subject to the requirements of Section 4(f) of the Department of Transportation Act of 1966.

There are no section 4(f) properties located within the vicinity of the Mazonia siding project corridor, therefore, the project will not use lands subject to the requirements of Section 4(f) of the Department of Transportation Act of 1966.

3.3 Human Environment

The purpose of this section is to describe the characteristics of the Human Environment within the area that is to be served or affected by the proposed project. Included in this section is a discussion of the anticipated transportation, socioeconomic, environmental justice, public health and safety, hazardous materials, and cultural resource effects of the Preferred Alternative. Where appropriate, mitigation measures are identified.

Agencies Involved in Transportation and Planning

The Policy Committee of the Chicago Metropolitan Agency for Planning (CMAP) is the designated Metropolitan Planning Organization for the northeastern Illinois region, which includes Will County. CMAP was formed in 2005 by combining the region's two previously separate transportation and land-use planning organizations – the Chicago Area Transportation Study (CATS) and the Northeastern Illinois Planning Commission (NIPC) -- into a single agency. The CMAP Go To 2040 Comprehensive Plan was adopted on October 13, 2010. GO TO 2040 is the long-range comprehensive plan for the Chicago region that includes Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will counties.

The Regional Transportation Authority (RTA) is a fiscal oversight agency responsible for the overall budgets and financial condition of the three operating agencies or "service boards"—Chicago Transit Authority (CTA), Metropolitan Rail Corporation (Metra), and Pace. Other agencies, such as the Illinois Department of Transportation, and the Will County Department of

Highways (WCDH) have transportation planning responsibilities in the study area. The Will County 2030 Transportation Plan was recently completed and adopted by the Will County Board in April 2009.

Grundy and Livingston County are designated a non-metropolitan area and are primarily rural. The Grundy County Expanded Area Transit System provides on-call shuttle service to the communities located within the project area located in Grundy County. Livingston County is included within a Small Urban Service Area that includes McLean, Ford and Iroquois Counties. IDOT coordinates transportation planning activities with local agencies in Grundy and Livingston County. The Illinois State Transportation Plan was completed in December 2007.

Table 3-16 lists the regional, agency and municipal plans that were considered in this EA.

Table 3-16. Completed Agency and Municipal Plans

County	Project	Agency/Municipality	Name of Plan	Adoption Date
Will	**110 mph Service** **2nd Mainline Track**	City of Joliet	South Side Comprehensive Plan	March 6, 2007
		Chicago Metropolitan Agency for Planning	2030 Regional transportation Plan	October 9, 2008
		Joliet Arsenal Development Authority	Joliet Arsenal Long-Range Transportation Plan	April 2004
		Pace Bus	Vision 2020	December 21, 2001
		U.S. Department of Agriculture Forest Service	Midewin Prairie Plan (FEIS)	2002, amended 6/26/08
		Will County	Land Resource Management Plan	April 18, 2002
		Will County	2030 Transportation Plan	April 2009
		Village of Elwood	Comprehensive Plan	September 2, 2003
		City of Wilmington	Comprehensive Plan	September 16, 2008
	110 mph Service **Mazonia Siding**	City of Braidwood	Comprehensive Plan	December 2004
	110 mph Service	Village of Godley*	Comprehensive Plan	2006
Grundy	**110 mph Service**	Grundy County	Grundy County Draft Comprehensive Economic Development Strategy 2011 - 2016	January 2011
		Village of Braceville	Comprehensive Plan	April 2006
		Village of Gardner	Comprehensive Plan	2006
Livingston		Village of Dwight	Comprehensive Plan	1998

* Village of Godley is located in Will and Grundy County

2nd Mainline Tract Project between MP 36.7 and MP 44.69

A number of local municipal and agency plans have also been prepared previously addressing various components of the project area. Joliet and Elwood have both prepared comprehensive plans with a transportation and land use component. However, the Joliet South Side Comprehensive Plan, adopted March 6, 2007, does reflect many of the recent land use changes in the project area due to the recent construction of the Joliet Intermodal Yard and CenterPoint Industrial Park. The plan does provide an inventory of demographics, land use, community facilities and natural resources in area surrounding the project corridor. Based on a discussion with the City of Joliet the plan polices do not reflect current market conditions and are not in effect at this time.

The Joliet Arsenal Development Authority has prepared the Joliet Arsenal Long Range Transportation Plan (2004) and is currently updating this plan. This document is a subarea plan to the Will County 2030 Transportation Plan and recommends transportation strategies for a study area bounded by I-80 to the north; Wilmington-Peotone Road to the south; I-55 to the west; and Cedar road to the east.

The Joliet Arsenal is a converted army ammunition plant and is in the process of being converted into the MNTP, National Veterans Cemetery (Abraham Lincoln National Cemetery), the Center Point Intermodal Center, and Prairie View Business Park. The overall purpose of the Joliet Arsenal plan is to identify, evaluate, and recommend the transportation strategies required to serve existing and planned development in the area. The recommendations include improvements to the roadway facilities in the near the project corridor.

Mazonia Siding Track between MP 55.0 and MP 57.13

Parcels west of the UPRR ROW are within the municipal limits of the City of Braidwood. Between east 1st Street and Coal City Road, the area is residential. Commercial land uses and downtown Braidwood is located south of east 1st Street. The Braidwood Recreation Club (private club within unincorporated Will County) is located east of the UPRR ROW between 1st Street and Coal City Road. Commercial land uses and downtown Braidwood are located south of east 1st Street.

While these plans show improvements to the local system, some of the plans also reflect desired enhancements to the county, state, and other regional systems serving their municipality and surrounding areas.

3.3.1 Transportation

This section summarizes the transportation impacts expected under the No-Build and Preferred alternatives. Under the current schedules, there are about 15 trains per day operating over this section of line, including 10 Amtrak trains (including the two long distance "Texas Eagle" trains) and five UPRR freights (a combination of local and through trains).

3.3.1.1 Projected Ridership

This project would benefit existing medium- and long-distance Amtrak service including the Lincoln Service between Chicago and St. Louis; the Kansas City Mule and Ann Rutledge trains between St. Louis and Kansas City, MO; and the Texas Eagle, providing service between Chicago and St. Louis, and then southwest to Little Rock, AR, Dallas/Ft. Worth, TX, and other points west to Los Angeles, CA. These trains serve one suburban Chicago stop and eight intermediate stops between Chicago and St. Louis, including Joliet, Bloomington-Normal and Springfield, IL. The proposed project would result in improvements to on-time-performance on the existing Chicago-St. Louis route. Based on Amtrak ridership projections, the project would have an increase ridership of 21,300 riders with a 9-minute running time reduction.

There are no changes proposed in the number of Amtrak trains in the project corridor. As a result, the No-Build and Preferred Alternative are not projected to divert additional travelers from other modes, as both alternatives are a continuation of existing Amtrak service.

For reference purposes only, the ridership for the alternatives reviewed in the Chicago-St. Louis Draft Environmental Impact Statement is presented in Table 3-17.

Table 3-17. Existing and Projected (2010) Annual Person Trips (1,000s) in the Chicago-St. Louis Corridor

	Alternative					
	Existing (1998)		No-Build (2010)		Preferred (2010)	
Mode	Trips	Percent	Trips	Percent	Trips	Percent
Rail	271	0.8	406	0.9	602	1.3
Air	1,109	3.2	1,391	3.1	1,277	2.9
Bus	98	0.3	211	0.5	204	0.5
Auto	33,675	95.8	42,750	95.5	42,685	95.3
TOTAL	35,153	100	44,758	100	44,768	100

Source: Chicago-St. Louis Draft Environmental Impact Statement (2003)

3.3.1.2 Additional Impacts to Rail Operations

The project would result in improvements to on-time-performance on the existing route and provide for shorter trip times; thus, the project would not have a detrimental effect on other railway operations.

Freight Traffic

No-Build Alternative: Under the current schedules, there are about five UPRR freights operating over this section of line (a combination of local and through trains). With the full opening of the Joliet intermodal terminal, existing UP freight operations would increase from 6 to 12 daily trips under the No-Build Alternative.

Preferred Alternative: As part of the FRA Track 1a application process, UPRR's Network Operations personnel estimated that there would be a 10% increase in on-time performance due to the implementation of improvements in the project corridor. However, the actual freight train speeds on this section of line would not increase due to this work – freight trains on the mainline track would continue to operate at 60 mph. The Preferred Alternative will encompass the extension of the 110 mph speed limit for Amtrak trains approximately 36 miles from Dwight to Joliet.

Commuter Rail Service

The Joliet Union Station serves as the terminal station for the Metra's Rock Island service and Heritage Corridor service, as well as serving as an Amtrak station stop. The Metra Rock Island Mainline is a single track east-west mainline that crosses both the Burlington Northern Santa Fe (BNSF) double-track north-south mainline and the UP double-track north-south mainline located east of the BNSF at grade. The Joliet Union Station is located on the northeast quadrant of the interlocking. Amtrak's Texas Eagle and Lincoln Service share the same tracks with Metra Heritage Corridor from Union Station to Joliet.

No-Build Alternative: No changes to existing Metra commuter rail service to the Chicago area would be required with the No-Build Alternative. Future commuter rail service is assumed to be the same as existing service.

Preferred Alternative: The project would not result in changes in the number of commuter trains operating daily, and scheduling modifications are not anticipated. Under the Preferred Alternative, intercity passenger service would operate on the same tracks as the Metra Heritage Corridor Line between Chicago Union Station and Joliet. Through this area existing maximum speeds would be maintained.

Amtrak Rail Service

Joliet is Amtrak's second-busiest station in suburban Chicago with over 34,000 passenger boardings and alightings on an annual basis and ten trains each day on the Chicago/St. Louis corridor, including the Lincoln Service which has seven trains daily and the Texas Eagle which runs two trains daily between Chicago and San Antonio with three weekly connections to New Orleans and Los Angeles. The Lincoln Service also stops in Dwight. The Ann Rutledge Service runs one daily connection through Joliet between Chicago and St. Louis and does not stop in Dwight.

No Build Alternative: Under the No-Build Alternative, no major changes to station access would occur between Joliet and Dwight.

Preferred Alternative: The improvements in the project corridor would decrease travel times and increase operational reliability for Amtrak trains passing through the corridor from Joliet to Dwight. No changes are proposed to the existing Amtrak stations in Joliet.

No-Build Alternative: Under the No-Build Alternative, construction would be limited to those projects included in the 2003 FEIS between Dwight and St. Louis.

Preferred Alternative: In general, construction activities for the 110 mph project corridor including the second mainline track and Mazonia Siding and signal improvements would result in two types of impacts. The first impact would be the requirement to reduce the operating speeds through the construction zones, which would add to rail travel time and, in turn, increased cost. The second impact would be the need to adjust the schedule of existing operations to create windows of opportunity for construction activities that require temporary shutdown of rail operations on selected track sections for a limited time.

Permission from the railroad owners will be required for construction that would take place within the railroad right-of-way. Schedule adjustments will be required when construction activities will directly impact the mainline track, such as when the new turnouts are being placed for the passing sections, or when there is a potential safety risk, such as during the construction of grade crossings. Some of these activities may require up to eight hours of continuous track closure.

Construction activities for the 110 mph passenger service will include use of a Track Renewal Train (TRT) to install new rail and concrete ties along the existing mainline. This work will also include resurfacing of the stone ballast, renewal of crossing surfaces and approaches, and upgrade of the signals and crossing warning systems.

3.3.1.3 Intermodal Connections

The Joliet Station site offers intermodal opportunities for connection to existing transportation services. Amtrak Lincoln Service and Texas Eagle Service currently serve Joliet Union Station. Parking is available at the Joliet Amtrak station. No intermodal services are provided at the Dwight station, which is located south of the project limits.

Metra's Heritage Corridor also provides service to downtown Chicago and other intermediate stations. The Rock Island service also serves downtown Chicago though different intermediate stations along a more easterly route.

Pace Bus Service provides extensive service to the Joliet area, including Pace Route 834 to the Lockport Metra Station on the Heritage Corridor. Pace Routes 501, 504, 505, 507, 508, 509, 511, 832, and 834 currently serve the Joliet Amtrak Station. Pace Bus route 511 operates between Joliet City Center, Elwood and CenterPoint Intermodal Center. Parking is also available at both the Lockport and Joliet Metra Stations.

No Build Alternative: Under the No-Build Alternative, no changes to intermodal connections at the Joliet Union station would occur.

Preferred Alternative: Under the Preferred Alternative, no changes to intermodal connections at the Joliet Union station or the Dwight station would occur.

3.3.1.4 Additional Impacts to Vehicular Operations

Grade Crossings

No-Build Alternative: Under the No-Build Alternative, only planned grade crossing improvements included in the 2003 FEIS would be included between Dwight and St. Louis.

Preferred Alternative: All of the grade crossings from Joliet to Dwight in the project area were evaluated as part of the EA process. Grade crossings could be temporarily impacted by the track upgrades from 110 mph service as well as by the construction of the second mainline track and crossovers.

The UP mainline from Joliet to Dwight crosses through areas of different land use. Starting at MP 36.7, the mainline is in an urbanized setting in the City of Joliet. As the mainline progresses southward it crosses through suburban and into rural areas. Vehicular crossings are mainly underpasses of the mainline in the urbanized and suburban areas. Once in the less developed rural areas, the crossings become at-grade. Each at-grade crossing is outlined in Table 3-18. A detailed summary of the grade crossing diagnostic evaluation can be found in Appendix G.

All public grade crossings located within the project corridor will be upgraded from the existing warning devices to four-quadrant gates with vehicle detection equipment.

By agreement with the Illinois Commerce Commission (ICC) and the FRA-Office of Safety, the private at-grade crossings will also be required to have four-quadrant gate installations and vehicle detection equipment.

For private crossings located on farming property, the crossing is primarily used to move farming equipment from one field to another on farms that are bisected by a rail line. In this situation, the crossing is proposed to receive a Field-to-Field Treatment that will incorporate a locked, reduced-access gate system. Both the land owner and Emergency Medical Services will have access to release this locked system when no trains are within the approach circuits.

In addition to the crossing upgrades, signals along the project corridor would be upgraded to Centralized Traffic Control which would allow for safer train movements through these grade crossings as well as the railroad network.

These upgrades will allow for efficient train movements in this area and, therefore, the grade crossings would not be adversely impacted. These improvements may serve to reduce the traffic delay at these crossings as well as adjacent crossings. At this time no increase in the number of passenger trains or operating speed of freight trains are planned in the project area.

Table 3-18. At-Grade Rail Crossings

Dot No.	Street	City	County	Existing Warning Device	Proposed Warning Device
289760S	Jackson St	Joliet	Will	Gates	Four Quad Gates
289771E	Laraway Rd	Joliet	Will	Gates	Four Quad Gates
290484N	Schweitzer Rd	Elwood	Will	Gates	Four Quad Gates
290486C	Millsdale Rd	Elwood	Will	Gates	Four Quad Gates
290487J	Manhattan Rd	Elwood	Will	Gates	Four Quad Gates
290490S	Mississippi Rd	Elwood	Will	Gates	Four Quad Gates
922023D	Walter Strawn Dr	Elwood	Will	Gates	Four Quad Gates
290492F	Hoff Rd	Elwood	Will	Gates	Four Quad Gates
290493M	Private Crossing	Elwood	Will	Stop Sign	Locked Gate System (Field-to-Field Treatment)
290494U	Private Crossing	Elwood	Will	Gates	Four Quad Gates
290496H	Prairie Creek Rd – Private Crossing	Wilmington	Will	Stop Sign – soon to be upgraded to gates	Four Quad Gates
290497P	River Rd	Wilmington	Will	Gates	Four Quad Gates
290498W	Kankakee River Dr	Wilmington	Will	Flash Lights (mast)	Four Quad Gates
290499D	Private Crossing	Wilmington	Will	Stop Sign	Four Quad Gates
290500V	Kankakee St	Wilmington	Will	Gates	Four Quad Gates
290502J	First St	Wilmington	Will	Flash Lights (mast)	Four Quad Gates
290503R	Stripmine Rd	Wilmington	Will	Gates	Four Quad Gates
290505E	Coal City Rd	Wilmington	Will	Gates	Four Quad Gates
290506L	Main St	Braidwood	Will	AFLS-Gates-Cant-over	Four Quad Gates
290507T	Center St	Braidwood	Will	Gates	Four Quad Gates
290508A	Division St	Braidwood	Will	Flash Lights (mast)	Four Quad Gates
290509G	County Line Rd	Godley	Will	Gates	Four Quad Gates
290513W	Main St	Braceville	Grundy	Flash Lights (mast)	Four Quad Gates
290514D	Mitchell St	Braceville	Grundy	Gates	Four Quad Gates
290517Y	Carbon Hill Rd	Gardner	Grundy	Four Quad Gates	
290518F	Washington St	Gardner	Grundy	Four Quad Gates	
290519M	Division St	Gardner	Grundy	Four Quad Gates	
290521N	Jackson St	Gardner	Grundy	Four Quad Gates	
290522V	Main St	Gardner	Grundy	Four Quad Gates	
290525R	Maher Rd	Gardner	Grundy	Four Quad Gates	
290527E	Gorman Rd	Gardner	Grundy	Four Quad Gates	
290529T	Scully Rd – Private Crossing	Gardner	Grundy	Gates	Four Quad Gates
290530M	Filman Rd	Gardner	Grundy	Gates	Locked Gate System (Field-to-Field Treatment)
290531U	Stonewall Rd	Dwight	Grundy	Four Quad Gates	
290532B	Gantzert Rd	Dwight	Grundy	Crossbucks	Locked Gate System (Field-to-Field Treatment)
290533H	E Scully Rd	Dwight	Grundy	Four Quad Gates	
290534P	Mazon Rd	Dwight	Grundy	Four Quad Gates	
290535W	Livingston Rd	Dwight	Livingston	Four Quad Gates	

Source: ICC

Federal Highway and State, and Local Roads

The FHWA has reviewed the project and determined there would no impact to the interstate system for 2nd Mainline Track Project and Mazonia Siding Project. The review letter from FHWA is located in Appendix B. The FHWA is currently reviewing the proposed 110 mph service between Joliet and Dwight

Existing Traffic Volumes

Because rail crossings in the urbanized areas are grade separated, average daily traffic on roads that cross the mainline was collected only for roads that have at-grade crossings. The average daily traffic (ADT) data is shown in Table 3-19.

The most heavily travelled roadway in the vicinity of the mainline in the rural area south of Joliet to Elwood is Illinois Route 53 (IL 53). IL 53 runs north to south just east of the UPRR tracks and is the main N/S highway between Dwight and Joliet serving as a collector for the local roads that intersect it. Illinois 53 has several businesses and residences located along the facility as well as a major special trip generator in the Chicago Speedway, which has impacts on the level of traffic only during certain times of the year. The next major north/south road east of IL 53 is US 52 and the next major N/S road to the west is I-55.

IL 53 features a four-lane divided highway south of Joliet and a four-lane arterial in Joliet. The facility includes dedicated turning lanes at several intersections in Joliet and in rural areas. Traffic signals are present at several intersections along the corridor in Joliet with few to none once the route leaves the city limits. There are many access points to IL 53 from residences and businesses as well as the intersecting east/west local roads.

Land development along the railroad ROW would normally lead to vehicular impacts at grade crossings. However, in downtown Joliet and south of Joliet, there are existing overpasses and underpasses of the UPRR track. Once south of the city, the area surrounding the mainline is largely agricultural. In addition the area west of the mainline north of Manhattan Road to the Des Plaines River has limited access because of the river. Because of the limited access it is assumed that these roads only serve local traffic and have no through traffic between IL 53 and the river.

The higher ADT on Laraway Road is most likely due to the proximity of the count location to the elementary school located near the Laraway Road rail crossing, therefore being subject to trips to and from the school. The higher ADT on Manhattan Road can be attributed to the facility being a Will County Highway (Highway 17) and a link between IL 53 and I-55.

Hoff Road in Elwood provides access to an industrial area of the Village. Several warehouses can be accessed from Hoff Road. Automobile and truck volumes were high near this crossing. Prairie Creek Grain Company in Elwood generates substantial truck traffic. This facility is located off IL 53 between Elwood and Wilmington. River Road in Wilmington is a two-lane county highway and also generates a larger quantity of both

Table 3-19. ADT of Roads within or near Project Corridor

Dot No.	Street	City	Location	ADT	Trucks
289760S	Jackson St	Joliet	Jackson at N Scott St	8,100	
			N Scott at Jackson	7,200	650
			Jackson at N State St	16,000	
289771E	Laraway Rd	Joliet	Laraway at S Chicago St	4,250	
			S Chicago St at Laraway	12,900	2,600
290484N	Schweitzer Rd	Elwood	Schweitzer at S Chicago St	300	
			S Chicago St at Schweitzer		2,100
290486C	Millsdale Rd	Elwood	S Brandon Rd at Millsdale	2,000	
290487J	Manhattan Rd	Elwood	Manhattan at S Brandon Rd	2,350	
			S Brandon at Manhattan	1,150	
			Manhattan at S Bush Rd	2,900	
290492F	Hoff Rd	Elwood	State Route 53 at Hoff	9,100	2,050
290497P	River Rd	Wilmington	State Route 53 at River	8,900	1,550
290498W	Kankakee River Dr	Wilmington	Kankakee at State Route 53	850	
			State Route 53 at Kankakee	7,400	900
290502J	First St	Wilmington	First at Davy Ln	900	
290503R	Stripmine Rd	Wilmington	Stripmine at First	8,100	1,050
290505E	Coal City Rd	Wilmington	Coal City at State Route 53	3,250	
			State Route 53 at Coal City	3,500	350
290506L	Main St	Braidwood	Main at Front St	5,200	3,325
290507T	Center St	Braidwood	Center at Front St	1,350	
290508A	Division St	Braidwood	Division at Front St	700	
			S Washington at Division	1,850	
			S Front at Division	2,800	
290509G	County Line Rd	Godley	State Route 129 at County Line	2,100	
			State Route 53 at County Line	1,350	260
290513W	Main St	Braceville	State Route 53 at Main	1,250	
290514D	Mitchell St	Braceville	State Route 53 at Mitchell	1,250	175
290517Y	Carbon Hill Rd	Gardner	State Route 53 at Carbon Hill	1,650	175
290525R	Maher Rd	Gardner	Old US 66 at Maher	850	
			Maher at Old US 66	50	
290527E	Gorman Rd	Gardner	Gorman at Old US 66	25	
290531U	Stonewall Rd	Dwight	Stonewall at Old US 66	125	
290532B	Gantzert Rd	Dwight			
290533H	E Scully Rd	Dwight	Scully at Old US 66	50	
290534P	Mazon Rd	Dwight	Mazon at Old US 66	25	
			Old US 66 at Mazon	850	
290535W	Livingston Rd	Dwight	Livingston off Old US 66	100	

Source: IDOT

automobile and truck traffic. This highway intersects with IL 53 to the east and US 55 to the west.

Coal City Road is a rural two-lane roadway approximately halfway between Wilmington and Braidwood. There are no businesses or residence located near the UPRR grade crossing. Main Street is a local two-lane roadway (east-west) through the City of Braidwood.

Construction Related Impacts on Vehicular Traffic

No-Build Alternative: Under the No-Build Alternative, construction would be limited to regular maintenance activities. Therefore, impacts to vehicular traffic would be minimal.

Preferred Alternative: Under the Preferred Alternative, vehicular traffic would be temporarily impacted to varying degrees at locations where grade crossings would be modified or improved. The grade crossing improvements would, at a minimum, require traffic to slow down as it passes through the construction zone while new warning devices and other improvements would be installed. In some cases, temporary diversion of traffic to adjacent crossings could be required.

These impacts to vehicular traffic could affect emergency services, schools, businesses, local festivals, and other activities requiring vehicular access. However, all of the construction related impacts on vehicular traffic would be temporary and are considered minor.

3.3.1.5 Parking

No changes to related parking are proposed under the project.

3.3.1.6 Safety

Proposed upgrades to the signals and crossing warning systems are intended to provide a safer corridor for both vehicular and rail traffic.

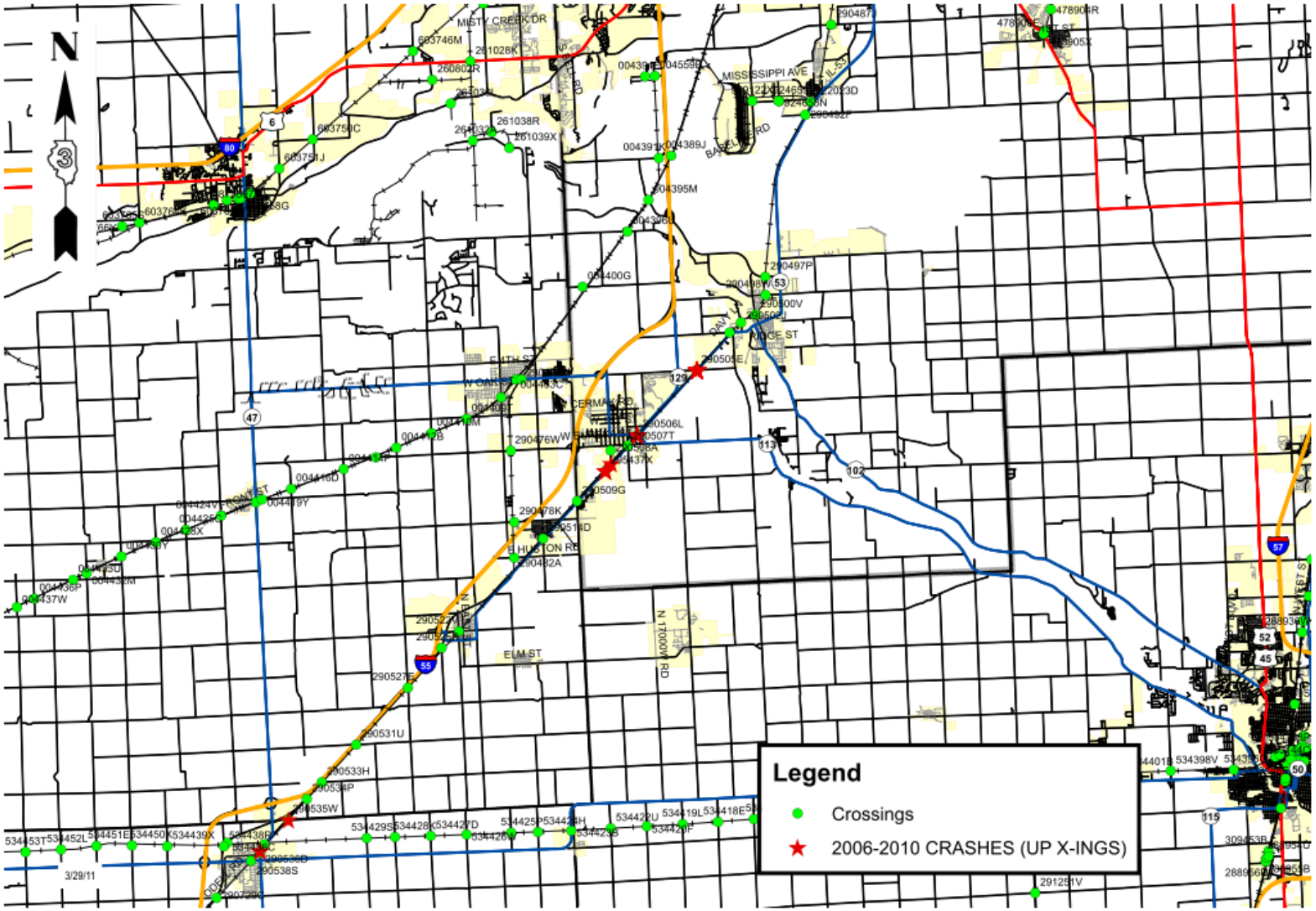
A review of IDOT grade crossing accident data from 2006 to 2010 found a total of 31 reported accidents within the project corridor during that five year duration. Of those accidents, there were zero fatalities. Two of the 31 accidents were train related.

Figure 3-3 shows 2006 to 2010 IDOT crash data for the area within the project corridor. Figure 3-4 shows a summary of the collision type for each of those accidents.

3.3.1.7 Impacts to Operations on Navigable Waters

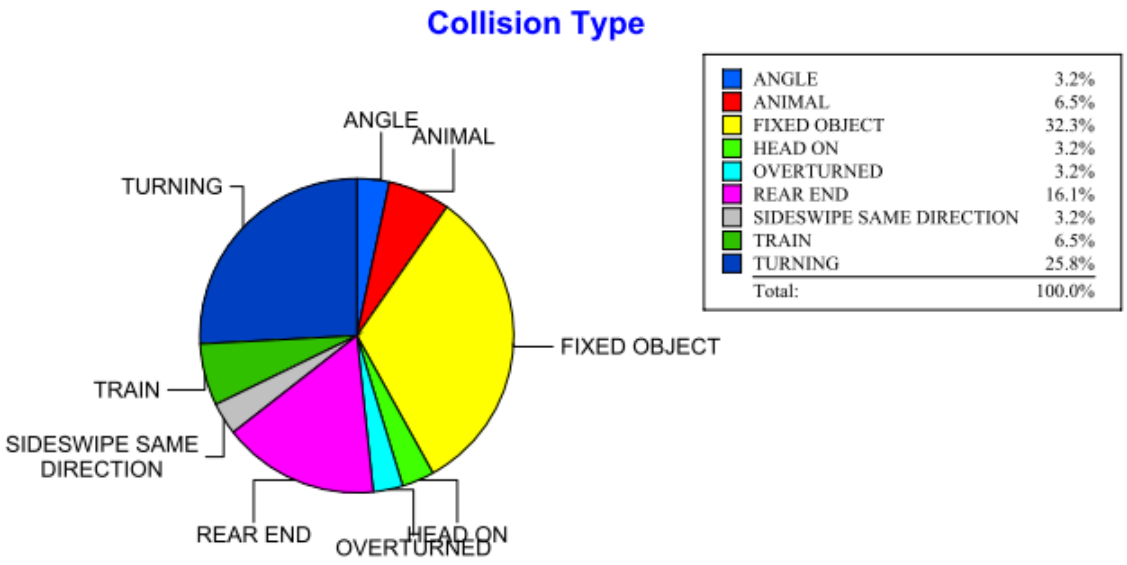
There are no crossings of navigable waters within the project corridor.

Figure 3-3. 2006 to 2010 IDOT Crash Data for Crossings from Joliet to Dwight



Source: IDOT, District 3

Figure 3-4. 2006 to 2010 IDOT Crash Data for Crossings from Joliet to Dwight – Collision Type



Source: IDOT, District 3

3.3.2 Socioeconomics and Land Use

3.3.2.1 Relocations

No relocations would be acquired. Construction at project sites could require temporary road closures. Temporary easements or purchase of ROW may need to be obtained by UPRR for construction access and to stage materials; however, these easements would not require the relocation of businesses or residences. ROW purchases will be conducted following the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Uniform Relocation Act) (Title 42 *United States Code* Sections 4601-4655), as amended applies to all federal or federally assisted activities that involve the acquisition of real property or the displacement of residences or businesses. The IDOT will implement the provisions of the State of Illinois Relocation Assistance Plan in accordance Uniform Relocation Act.

3.3.2.2 Community Services and Facilities

Schools, medical centers, and fire and police stations serve the daily needs of residents along the corridor for the Preferred Alternative. The project corridor provides access to and from educational and medical facilities and plays a critical role in providing these services, and in serving the health, safety and general welfare of those who use them. Within the project corridor, public service districts typically overlap the railroad.

2nd Mainline Track Project between MP 36.7 and MP 44.69

The project corridor is located within the municipal boundary limits for Joliet and Elwood. Jurisdictionally, the City of Joliet currently has pertinent boundary agreements with the Village of Elwood to the South. The municipal boundary between Joliet and Elwood is located at Noel Road. Along the UPRR corridor, the boundary extends further south to behind the parcels along the north side of the Manhattan Road corridor. Existing land between Downtown Joliet and the Village of Elwood is primarily agricultural and rural single-family.

Joliet and Elwood are served by municipal police and fire departments. In times of emergency, fire district teams from adjacent jurisdictions share equipment and personnel. Private ambulance companies also operate in communities along the corridor. Health care facilities are generally located in Joliet. Emergency routes for fire, police and ambulance services provide direct access to these medical facilities. Similar to school bus routes, emergency routes typically incorporate section line roads in this area. There is one elementary school adjacent to the project corridor at Laraway Road.

110 mph Project Corridor between MP 44.69 and MP 55.0

Between Elwood and Wilmington there is one grain elevator operation along the project corridor with a private grade crossing near MP 49.7. The Prairie Creek Grain Company is located at 29400 S. Route 53 and the property contains grain silos and buildings east and west of track. This area of project corridor is also located near the MNTP. The Midewin park offices is located at 30239 S. State Route 53. South of Midewin, the project corridor traverses southwest through Wilmington and the Kankakee River Valley. West of Wilmington, the corridor runs parallel to Route 53.

Mazonia Siding Track between MP 55.0 and MP 57.13

The project corridor is predominantly located within the municipal boundary limits of the City of Braidwood. Approximately .75 miles of the project area east of the URRR ROW is located within unincorporated Will County. However, the City of Wilmington boundary extends southwest along the UPRR ROW in this area. Existing land is primarily rural single-family residential and private outdoor recreation area.

Braidwood was a center of the coal mining industry in the late 1860's into the 1970's. Strip mining east and west of the UPRR Corridor began in the early 1900's and lasted until 1970. The strip mined areas became private recreational areas and housing developments. The area southeast of the project corridor is located adjacent to the Braidwood Recreation Club. The Braidwood Recreation Club is a non-profit private outdoor recreation club. A 9-hole golf course lies adjacent to along the southeast boundary of the UPRR ROW. The land area on the west side of the UPRR ROW is located within the Shadow Lakes Resort. This development is also a reclaimed strip coal mine.

110 mph Project Corridor between MP 57.13 and MP 72.8

This section of the 110 mph project corridor runs southwest and parallel to IL Route 53 through Briadwood, Godley, Bracville, and Gardner. The project terminates at MP 72.8 on the northeast side of Dwight.

No-Build Alternative: Under the No-Build Alternative and Preferred Alternative, construction would be limited to regular maintenance activities. Therefore, impacts to community facilities would be minimal.

Preferred Alternative: Under the 2nd Mainline Tract Project , the Laraway Elementary School would be temporarily impacted to varying degrees at the Laraway road grade crossing. The grade crossing improvements would, at a minimum, require traffic to slow down as it passes through the construction zone while new warning devices and other improvements are installed. In some cases, temporary diversion of traffic to adjacent crossings might be required.

Under the 110 mph project corridor between Elwood and Wilmington, grade crossings are located at County Highway 44, Kankakee River Drive, N. Kankakee Street, North 1st Street and West Strip Mine Road. In some cases, temporary diversion of traffic to adjacent crossings might be required. Route 53 or West Baltimore Street provides the only bridge over the Kankakee River in Willmington. The next nearest crossing is Il-55, which is located more than five miles northwest of the Route 53 bridge.

Under the Mazonia siding project, grade crossings at Coal City Road and Main Street would be temporarily impacted to varying degrees. The grade crossing improvements would, at a minimum, require traffic to slow down as it passes through the construction zone while new warning devices and other improvements are installed. In some cases, temporary diversion of traffic to adjacent crossings might be required. At Main Street the nearest crossing is located 0.4 mile south at South Center Street. Coal City Road is located 2.5 miles north of Main Street. West Strip Mine Road is located 1.4 miles north of Coal City Road.

Under the 110 mph project corridor between Mazonia Siding and Dwight, grade crossings are located at S. Center Street, S. Division Street, N. Kankakee Road, N. Mitchell Street, S. Carbon Hill Road, E. Washington Street, Division Street, N, Jackson Street, County Road 29, S. Maher Road, and Livingston Road.

These impacts to vehicular traffic could affect emergency services, schools, businesses, local festivals, and other activities requiring vehicular access. However, all construction related impacts on vehicular traffic would be temporary and considered minor. Construction phasing will be coordinated with the local governments, school districts and other service providers in order to mitigate any impacts due to temporary road closures. Table 3-20 shows the community facilities located near the project corridor.

Table 3-20. Community Facilities

Project Component		Community Facility	Location	Distance from UPPR ROW (feet)	Impact
110 mph Project Corridor	**2nd Mainline Track**	Prince of Peace Church	East of track - E. Cass Street, Joliet	250	Existing elevated double track -No impact No impact
		Silver Cross Baseball Stadium	East of track – Between E. Clinton and E. Jefferson Street	75	
		Joliet Amtrak Station	East of track – south of E. Jefferson Street	Next to track	
		Joliet Metra Station	West of track – north Scott Street	Next to track	
		Nowell Park	East of track – South Chicago Street	400 +	
		Osgood Park	East of track – South E. Osgood Street	Next to track	
		Laraway Elementary School	East of track – Laraway Road	Property next to UPRR ROW	Temporary grade crossing closure during construction
	110 mph improvements	Midewin Park Office	30239 S. State Route 53	Several miles east and west of the project corridor	No impact
		Prairie Creek Grain Company	East and West of track at MP 49.6	Property next to UPRR ROW	Temporary grade crossing closure during construction
		Abraham Lincoln National Cemetery	West of track –W. Hoff Road	Property next to UPRR ROW	Temporary grade crossing closure during construction
		Riverside Medical Center	East of track – W. Baltimore Road	.25 miles	Temporary grade crossing closure during construction
	Mazonia Siding	Shadow Lakes (private development)	East of track	Property next to UPRR ROW	No impact
		Braidwood Recreation Club (private non-profit development)	West of track	Property next to UPRR ROW	No impact
	110 mph improvements	North Wilmington	East and West of track	No community facilities next to track	No impact
		Downtown Braidwood	East and West of track	No community facilities next to track	Temporary grade crossing closure during construction
		Braidwood Nuclear Power Plant	West of track and IL 53	100	Temporary grade crossing closure during construction
		Village of Godley	East of track and IL 53	100	Temporary grade crossing closure during construction

Project Component		Community Facility	Location	Distance from UPPR ROW (feet)	Impact
		Village of Braceville	West of track and IL 129	100	Temporary grade crossing closure during construction
		Village of Gardner	East and West of track	100	Temporary grade crossing closure during construction
		Village of Dwight	East and West of track	100	Temporary grade crossing closure during construction

3.3.3 Demographics

The Joliet to Dwight track project begins in downtown Joliet, at E. Jackson Street (MP 36.7) approximately one block south of State Highway 63, and generally extends in a southwest direction through the Village of Elwood, City of Wilmington, City of Braidwood and the Village of Godley in Will County. In Grundy County, the project corridor travels primarily through unincorporated areas and the Villages of Braceville and Gardner. The project corridor terminates within Livingston County, north of the Village of Dwight, at North Union Street (MP 72.8).

A buffer extending 1,000 feet east and west from the UPRR ROW was used to inventory demographic characteristics of the Joliet to Dwight project corridor. The buffer was then subdivided into five sections in order to summarize the demographic data.

1. Downtown Joliet (MP 36.8 to E. Washington Street)
2. South Joliet Area 1 (E. Washington Street to (S. Chicago Street)
3. South Joliet Area 2 (S. Chicago Street to Laraway Road)
4. Joliet/Elwood (Laraway Road to MP 44.69)
5. Elwood to Dwight (MP 44.69 to MP 72.8)

3.3.3.1 Population and Households

The 110 mph project corridor is approximately 36 miles long and has an estimated 2010 population of 7,910 within the buffer along the rail between Joliet and Dwight (Table 3-17). Approximately 50 percent (3,236) of the corridor population and 33 percent of the households (911) are located within Joliet and along the area for the 2nd Mainline Track project.

2nd Mainline Tract Project between MP 36.7 and MP 44.69

The 2nd mainline track project corridor is approximately eight miles long and has an estimated 2010 population of 3,236 within the buffer along the rail between Joliet and Elwood (Table 3-21). As of 2010, the estimated population was 140,449 in the City of Joliet and 712,697 in Will County, making it one of the fastest growing counties in Illinois and the

United States. Will County, once a predominantly agricultural area, is becoming increasingly urbanized, with an estimated 2010 population density of 857 persons per square mile. Population concentrations adjacent to the proposed project are found in

Table 3-21. Population and Households within 1,000 feet of Project Sites 2000 Census and 2010 (Estimated)

Community / Corridor-Section	Population			Households		
	2000 Census	2010 Estimated	Percent Change (2000-2010)	2000 Census	2010 Estimated	Percent Change (2000-2010)
State of Illinois	12,419,293	13,089,726	5.4%	4,591,779	4,843,349	5.5%
Will County	502,266	712,697	41.9%	167,542	236,966	41.4%
City of Joliet	106,221	140,449	32.2%	36,182	46,907	29.6%
Village of Elwood	1,620	2,076	28.1%	637	819	28.6%
City of Wilmington	5,134	6,023	17.3%	1,991	2,359	18.5%
City of Braidwood	5,203	6,563	26.1%	1,843	2,326	26.2%
Village of Godley	594	597	0.5%	200	199	-0.5%
Village of Braceville	792	942	18.9%	284	345	21.5%
Village of Gardner	1,406	1,540	9.5%	558	623	11.6%
Village of Dwight	4,363	4,340	-0.5%	1,667	1,680	0.8%
110 mph Service (1000 feet buffer)						
Joliet to Dwight (MP 36.7 to 72.8)	7,137	7,910	10.8%	2,442	2,733	11.9%
2nd Mainline Track (1000 feet buffer)						
A. Downtown Joliet (MP 36.8 to E. Washington Street)	941	1,010	7.3%	288	317	10.1%
B. South Joliet Area 1 (E. Washington Street to (S. Chicago Street)	1,729	1,802	4.2%	417	429	2.9%
C. South Joliet Area 2 (S. Chicago Street to Laraway Road)	222	229	3.2%	93	96	3.2%
D. Joliet/Elwood (Laraway Road to MP 44.69)	161	195	21.1%	57	69	21.1%
Total (A-D)	3,053	3,236	6.0%	855	911	6.5%
Mazonia Siding (1000 feet buffer)						
Mazonia Siding Buffer (MP 55.0 to 57.13)	345	366	6.1%	117	120	2.6%

Source: Census 2000, 2010 Estimate ESRI Business Analyst Online 03/23/11 http://bao.esri.com/

downtown Joliet (shown as A in Table 3-21) and in the neighborhoods directly south of the downtown (shown as B in Table 3-21). This area accounts for an estimated 87 percent of population (2,812) along the project corridor in 2010. The surrounding land use at the northern end of the project within the city limits of Joliet is a densely developed urban environment consisting of a mixture of retail and commercial uses with some industries,

public facilities, and residences. In 2010, there are an estimated 1,010 people and 317 households along the corridor in downtown Joliet.

Downtown Joliet is an older part of the City of Joliet, and some historic buildings are located in the vicinity of the project. However, the rail ROW is located on an embankment and surrounding commercial buildings are set back 100 feet or more from the railroad ROW. The East Side Historic District lies within a half-block of the existing tracks at one point. Most of the land use immediately adjacent to the rail lines consists of vacant ground, parking lots, and commercial facilities. A small neighborhood park, Osgood Park, is located nearby, and an Amtrak commuter parking lot is located to the east of the tracks. South of E. Washington Street (B in Table 3-21), the downtown area transitions to single family residential neighborhoods. In 2010, the estimated downtown population is 1,802 persons and 429 households. Since 2000, the downtown population and south Joliet neighborhoods have increased 5.3 percent or 142 people.

On the south side of Joliet from S. Chicago Street to Laraway Road (shown as C in Table 3-17), the surrounding land transitions to industrial use, including individual rock quarry operations owned by Chicago Street CCDD LLC (near MP 38.8) and Vulcan Materials (Zurich Road). This area includes lower-income residences, including a mobile-home park located on Zurich Road, but few residences are located near the train track. A new Dollar Tree distribution center and the Laraway Public School facility are located on the east side of the existing track at the Laraway Road Crossing. In 2010, the estimated population of the Area C is 229 and the number of households is 96. This area increased an estimated 3.2 percent in population between 2000 and 2010.

Further to the south the land use changes mostly to cultivated agriculture fields growing row crops, mostly corn and soybeans. There is very little open natural space in this agricultural landscape, and residences consist of farmsteads and to a lesser extent, residential properties on large acreage parcels. The southern end of the project area is within the Village of Elwood. These developments are single family homes and townhomes, generally with values of $250,000 and more within new housing subdivisions. However, the area to the west of the railroad corridor is part of the former Joliet Arsenal and under redevelopment for the CenterPoint Intermodal Center. One of the largest private developments ever undertaken in the United States, CenterPoint encompasses 2,200 acres with a total investment approaching $1 billion. In 2010, the estimated population of Elwood within the project area is 195 and the number households is 69. The Elwood area increased an estimated 34 people in population between 2000 and 2010. Population growth is expected to increase further as new homes are constructed in the subdivision.

Population and Households at MP 38.8, 42.6 and 44.69

Within the project corridor, there are two bridges and one large culvert where the rail line crosses waterways. These structures will be modified with the addition of a second track. Temporary easement or ROW acquisition may be required at the stream crossings of Sugar

Run Creek at MP 38.8, Cedar Creek at MP 42.6 and Jackson Creek at MP 44.4 in Will County. Work on these structures would be limited to extending the culvert at MP 38.8 to the east, extending the bridge at MP 42.6 to the east and replacement of the one track bridge at MP 44.4 with a double track bridge. For these crossings, no existing buildings or residences would be impacted.

Structure Improvement – MP 38.8

The site is located in a historically industrial area south of downtown Joliet. The land use west of the project site is the former American Cyanamid-Cytek industries site and railroad uses. To the east, there is an inactive quarry. There are no roadways, residences or business located adjacent the site.

Structure Improvement – MP 42.6

The second structure to be widened, at MP 42.6, has no residences within 1,000 feet of the construction area. There is a small rural subdivision located .50 mile east on Millsdale Road. This site is located in Joliet jurisdictional planning area and is largely undeveloped at this time.

Structure Improvement – MP 44.4

This site is located within the Elwood jurisdictional limits. A single-family subdivision is located southeast (Meadowbrick) and northeast (Wooded Cove Estates) of the Jackson Creek Crossing at MP 44.4. One residence lies east and three residences west of the railroad ROW. These single-family houses are located on the north bank of Jackson Creek approximately 400 to 500 feet from the bridge. The surrounding area to the southeast and southwest is in transition from agricultural land to residential development. The downtown area of Elwood is located one mile south of MP 44.4.

Mazonia Siding Track between MP 55.0 and MP 57.13

The Mazonia siding project corridor is approximately two miles long and has an estimated 2010 population of 366 within the buffer along the rail between Coal City Road and East Main Street in Braidwood (Table 3-21). As of 2010, the estimated population was 6,563 in the City of Braidwood. The majority of households are located along North Washington Street in the Shadow Lakes development (west of the project corridor).

Racial/Ethnic Composition

Table 3-22 shows that minority populations in Will County are primarily concentrated within the Joliet urban area. The racial composition of population within the 2nd Mainline Track project corridor is predominantly African American, with a substantial Hispanic or Latino minority. This population is primarily located in the City of Joliet and the South Joliet Area 1 neighborhoods (Table 3-22). In general, residences in this area have backyards and/or garages adjacent to UPRR ROW. Since there is an existing second track in this area, there would be no major construction activities that would result in impacts to the neighborhoods along the project corridor in Joliet. The estimated African American

population represents 23 percent (1,823) of the population along Joliet to Dwight project corridor. The Hispanic or Latino population is approximately 18 percent (1,457).

Table 3-22. Population by Race and Ethnicity 2010 (Estimated)

Area / Corridor-Section	White	African American	Am. Indian and Alaska Native	Asian	Pacific Islander	Other	Two or More Races	Hispanic or Latino (of any race)
State of Illinois	9,332,121	1,867,843	40,280	567,972	6,312	964,565	310,633	2,106,372
Will County	540,868	77,081	2,087	28,666	272	46,531	17,192	114,896
City of Joliet	92,187	22,369	516	2,695	31	18,759	3,892	38,610
Village of Elwood	1,969	8	18	16	2	17	47	209
City of Wilmington	5,674	75	32	33	2	108	99	325
City of Braidwood	6,190	41	9	36	0	178	109	541
Village of Godley	560	2	1	5	0	16	13	54
Village of Braceville	928	0	2	0	0	2	10	21
Village of Gardner	1,497	1	2	5	0	23	12	74
Village of Dwight	4,163	41	2	16	0	67	51	170
	110 mph Service (1000 foot buffer)							
Joliet to Dwight (MP 36.7 to 72.8)	5,251	1,823	26	35	2	633	141	1,457
	2nd Mainline Track (1000 feet buffer)							
Downtown Joliet (MP 36.8 to Washington Street)	336	324	3	1	0	319	27	610
South Joliet Area 1 (E. Washington Street to (S. Chicago Street)	340	1,296	4	3	0	130	30	352
South Joliet Area 2 (S. Chicago Street to Laraway Road)	39	167	3	0	0	15	5	22
Elwood (Laraway Road to MP 44.69)	182	4	1	2	0	2	3	18
Total (A-D)	896	1,791	12	6	0	466	65	1,002
	Mazonia Siding (1000 feet buffer)							
Mazonia Siding Buffer (MP 55.0 to 57.13)	341	2	1	3	0	11	9	35

Census 2010 Estimate ESRI Business Analyst Online 03/23/11 http://bao.esri.com/

There are no concentrations of minority populations near the three structure improvement sites at MP 38.8, 42.6 and 44.4. There are no concentrations of minority populations near Mazonia siding project corridor.

3.3.3.2 Economics and Employment

Will County is located within the Chicago metropolitan area and has a diversified economic base. The project corridor between Joliet and Dwight passes through urban, suburban and rural areas, where population, labor force and employment vary dramatically. The Joliet Elwood area is rapidly becoming part of the fringe of the Joliet area with the construction of the CenterPointe (CIC) intermodal facilities in Joilet and Elwood on the former Joliet Arsenal site. The redevelopment of this property brought together virtually all levels of government, more than a dozen public agencies, and private industry to benefit the community under a common plan. Combined, CIC-Joliet and CIC-Elwood will create the nation's largest inland port with more than 6,000 acres, multiple 1,000-acre Class I railroad intermodal yards, container/equipment management yards and more than 30 million square feet of industrial facilities. Upon build out, the project is expected to create 14,000 new jobs according to project data by CenterPointe Properties[5].

Other industries along project corridor include a large inactive limestone quarry located west of MP 38.8 in the Joliet. Access to this site is from Chicago Street which has a north-south alignment parallel to the rail corridor. Access to the quarry would not be impacted by the extension of the culvert at MP 38.8. Presently, this quarry has limited activity.

There is a large active quarry, Vulcan Materials, located directly west of the project corridor between Zurich and Laraway Roads. Presently, there are no businesses or areas of major employment adjacent to the culvert and bridge expansion sites at MP 44.4 and 46.2.

The Prairie Creek Grain Company is located south of Elwood along IL Route 53. Prairie Creek silos and buildings are located east and west of the UPRR tracks. A private grade crossing provides truck access on the property. Prairie Creek is also a wholesale distributor of fertilizer.

The Willimington, Braidwood and Dwight economies are based on area services and manufacturing, and on the agricultural industry. The recreation economy is seasonally prominent, with thousands of visitors who enjoy camping, fishing and hunting in the region. The area is also prominent for its history and tourism related to the US Route 66 corridor which follows IL Route 53 between Joliet and Dwight. A major area employer is Exelon's nuclear power plant, situated immediately southwest of Braidwood. No industry or commercial business would be relocated by the siding improvement. Construction impacts would be limited to the temporary closing of grade crossings.

The project promotes both the short- and long-term creation and preservation of jobs while promoting new opportunities during construction of the project. Approximately $280 million (Fiscal Year 2011 dollars) will be invested in construction and construction-related activities for the 110 mph service track and signal improvements, 2nd mainline track and Mazonia siding. New and expanded business opportunities will be indirectly created by

[5] CenterPointe Properties, http://www.centerpoint-prop.com, accessed on March 25, 2011.

enhancing the capacity and increasing the fluidity of freight rail operations on the UPRR Joliet Subdivision in the line section between Joliet and Dwight.

3.3.3.3 Income and Wages

Table 3-23 shows 1999 (from Census 2000) and estimated 2010 median household incomes for areas along the project corridor. Generally, the Joliet neighborhoods have the lowest median income. In comparison, the project corridor median income is lower than the statewide, Will County, Joliet or Elwood medians.

Table 3-23. Median Household Income, 1999 (Census 2000) and 2010 (Estimated)

Area / Corridor-Section	Median Household Income		
	1999 (2000 Census)	2010 Estimated	Percent Change (1999-2010)
State of Illinois	$46,635	$60,254	22.6%
Will County	$62,221	$78,621	20.9%
City of Joliet	$47,611	$63,591	25.1%
Village of Elwood	$52,995	$65,953	19.6%
City of Wilmington	$45,866	$57,014	19.6%
City of Braidwood	$52,515	$65,466	19.8%
Village of Godley	$41,932	$56,061	25.2%
Village of Braceville	$47,752	$65,247	26.8%
Village of Gardner	$41,952	$52,696	20.4%
Village of Dwight	$40,063	$48,566	17.5%
110 mph Service (1000 foot buffer)			
Joliet to Dwight (MP 36.7 to 72.8)	$40,275	$49,956	19.4%
2nd Mainline Track (1000 foot buffer)			
Downtown Joliet (MP 36.8 to E. Washington Street)	$23,666	$25,215	6.1%
South Joliet Area 1 (E. Washington Street to (S. Chicago Street)	$35,329	$39,420	10.4%
South Joliet Area 2 (S. Chicago Street to Laraway Road)	$31,740	$35,368	10.3%
Elwood (Laraway Road to MP 44.69)	$61,130	$69,186	11.6%
Project Corridor (MP 36.8 to MP 44.69)	$30,794	$34,889	18.6%
Mazonia Siding (1000 foot buffer)			
Mazonia Siding Buffer (MP 55.0 to 57.13)	$48,400	$55,068	11.6%

Census 2010 Estimate ESRI Business Analyst Online 03/23/11 http://bao.esri.com/

3.3.4 Environmental Justice and Title VI

Title VI of the Civil Rights Act of 1964 addresses discrimination issues associated with federally funded projects. No groups or individuals have been or will be excluded from participation in public involvement activities, denied the benefit of the project or subjected to discrimination in any way on the basis of race, color, age, sex, national origin, disability or religion.

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (EO 1994), directs federal agencies to "promote nondiscrimination in federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public participation in matters relating to human health or the environment." The EO directs agencies to use existing laws to ensure that when they act:

- They do not discriminate on the basis of race, color, or national origin;
- They identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income communities; and
- They provide opportunities for community input during the NEPA process, including input on potential effects and mitigation measures.

EO 12898 does not define the terms "minority" or "low-income." However, guidance provided by the Council on Environmental Quality (CEQ) describes these terms in the context of an environmental justice (EJ) analysis. These definitions are unique to EJ analysis and are the basis for the methodology that follows:

- Minority Individual - A minority individual is classified by the US Census Bureau as belonging to one of the following groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black (not of Hispanic Origin), and Hispanic.
- Minority Populations - According to the CEQ Guidelines, minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.
- Low-income Population - Low-income populations are identified where individuals have incomes below the U.S. Department of Health and Human Services poverty guidelines. A low-income population is either a group of low-income individuals living in proximity to one another or a set of individuals who share common conditions of environmental exposure or effect.
- The Health and Human Services 2011 poverty guideline for a family of four is $22,350.

Detailed information regarding minority and low-income populations for the project corridor was compiled from 2010 estimates developed by ESRI based on US Census data.

2nd Mainline Track Project

A review of these data within a 1,000-foot buffer along the project corridor indicates a potential concentration of low income or minority populations in downtown Joliet and the neighborhoods of south Joliet. The project area at MP 38.8 and 42.6 has no population or

houses near the culvert and bridge extension sites. There are four houses within 500 feet of MP 44.4.

Mazonia Siding Track between MP 55.0 and MP 57.13

There are no concentrations of low income or minority populations along the project corridor.

Conclusions

The No-build Alternative would not have disproportionate adverse impacts on minority or low impact populations. However, the No-build Alternative would not encourage or provide increased public transportation improvements that may be of value to low-income residents who may not be able to afford reliable personal transportation to travel to employment opportunities.

The Preferred Alternative would not result in property acquisitions or relocations in the City of Joliet or other communities along the project corridor nor result in disproportionately adverse impacts to minority or low-income residents or populations. Improvements in these areas would be constructed within existing UPRR ROW between Joliet and Dwight.

3.3.5 Public Health and Safety

Specifically, this assessment considers the impact on fire, police and medical response time due to the proposed 2nd mainline track and siding track affecting cross-community access at the at-grade road rail crossings.

The 2nd mainline track corridor crosses 31 public and 7 private grade crossings as shown previously in Table 3-18. In Joliet, ten crossings are grade separated along the existing double-track section (MP 36.8 to 38.5). A crossing at Sharp Road is closed. The remaining four crossings are located in unincorporated Will County and have various forms of control, from actively protected grade crossing gates and flashing light signals to passively lights and bells-only crossing signals. The Mazonia siding track would not cross any existing grade crossings.

The No-build Alternative would not impact public health and safety. Fire, police and medical response time would not be affected as the grade-crossing signals would not be relocated for construction of a new 2nd track.

The Preferred Alternative would not have an appreciable negative impact on public health and safety by the project. Fire, police and medical response times would be temporally impacted due to construction of new double-track grade crossings at four locations. However, all construction related impacts would be temporary and considered minor. All measures would be taken during the construction phase to coordinate with emergency service providers in order to mitigate any impacts due to temporary road closures.

3.3.6 Hazardous Materials

Potential hazardous material affected sites near the project corridor were identified. Environmental Data Resources (EDR) performed an electronic search of local, state and federal environmental databases along the corridor and provided an associated report of their findings. The databases and search distances were in accordance with U.S. USEPA's All Appropriate Inquiries (AAI) regulations and American Society for Testing and Materials (ASTM) 1527-05. Numerous sites were identified along the corridor (see Appendix A). Using the information in the EDR report, the sites within critical databases that were proximate to the project corridor were identified.

Sites selected for evaluation primarily focused on those included in the EDR report in Appendix A. Although EDR's report identifies all the sites within the distances required by the All Appropriate Inquiries and ASTM standards, the evaluation was narrowed for some databases so that it focused on facilities within reduced distances that better reflect the common extent of contaminant movement associated with the likely contaminants. National Priority List (NPL) sites were identified within a 1-mile buffer of the project corridor; Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites were identified within 0.5 mile; and all other databases that were evaluated were identified within 500 feet of the corridor. Table 3-24 shows the number of facilities identified within each database for the 2nd mainline track Mazonia Siding, and the additional segments of the project corridor that will be constructed for high speed rail.

The EDR Report summarizes the facility name, location, and environmental databases that were evaluated for those facilities in proximity to the project corridor. Each facility has an EDR map identification number that is referenced to the attached EDR report.

3.3.6.1 Findings for the Proposed 2nd Mainline Track

The EDR report (Appendix A) detailed the presence of 20 leaking underground storage tank (LUST) sites, seven of which are located within 500 feet of the project corridor. The active LUST sites include a 1998 diesel release at the Burlington Northern & Santa Fe railyard alongside the railroad at Columbia Street in Joliet, a 1990 gasoline release at the Joliet Union Station, a used oil release at Rendel's GMC, released gasoline at the Speedway Station at 160 South Chicago Street in Joliet (approximately two blocks west of the railroad), a diesel release at the Joliet Mass Transit District facility, and released gasoline and diesel at the Joliet Township Road District, southwest of the Chicago Street / I-80 interchange. Included in the orphan summary is property at 1214 New Street, Joliet, which is a city-owned parking lot immediately west of the railroad, at which a fuel oil release was reported in 2009. Many of the LUST sites identified in the database are too far away from the corridor to have impacted either soil or groundwater.

Table 3-24. Sites Selected for Hazardous Materials Evaluation by Database

Database	2nd Mainline Track				Mazonia Siding	110 mph Service (all other areas)
	Total 2nd Mainline Track	Culvert MP 38.8	Bridge MP 42.6	Bridge MP 44.4		
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	4	1	0	0	0	1
US EPA's National Priority List (NPL)	2	0	0	0	0	0
Underground Storage Tank sites (UST)	32	0	0	0	5	28
Leaking Underground Storage Tank sites (LUST)	20	1	0	0	4	29
Drycleaner sites (DRYCLEANER)	1	0	0	0	0	0
Solid Waste Facilities/Landfill Sites (SWF/LF) (IL NIPC)	3	1	0	0	2	3
Institutional Control sites, state and U.S. (INST CONTROL)	2	0	0	0	1	0
Illinois Statewide inventory of industrial, municipal, mining, oil & gas , and large agricultural impoundment (IMPDMENT)	2	2	0	0	0	3
Manufactured gas plant sites (MGP)	2	0	0	0	0	0
Engineering Control sites, State and U.S. (ENG CONTROLS)	2	0	0	0	1	0
Superfund Consent Decrees (CONSENT)	0	0	0	0	0	0
Illinois Site Remediation Program (SRP) Voluntary Cleanup Program (VCP) sites	7	1	0	0	1	3
State Hazardous Waste Sites (SHWS)	1	0	0	0	0	1
Illinois Category List (CAT)	2	0	0	0	0	0
Section 7 Tracking Systems; pesticide production sites (SSTS)	0	0	0	0	0	0
Records of Decision sites (ROD)	2	1	1	1	0	0
RCRA Treatment, Storage, and Disposal Facilities (TSDF)	2	0	0	0	0	0
Brownfields, state and U.S. (BROWNFIELD)	0	0	0	0	1	0
Corrective Action Report (CORRACTS)	6	0	0	0	0	1
Formerly Used Defense Sites (FUDS)	0	0	0	0	0	0

Source: EDR DataMap™ Corridor Study for 2nd Mainline Track, 4/7/2010
EDR DataMap™ Corridor Study for UPRR MP 55.0 to 57.13 (Mazonia Siding), 7/27/2010
EDR DataMap™ Environmental Atlas™ Joliet-Dwight, IL, March 17, 2011

The EDR database listed 32 Underground Storage Tank (UST) facilities, of which only six were close to the railroad corridor. The database includes five gasoline tanks at the Union Station at Jefferson and Scott Streets in Joliet, and indicates that the tanks were last used in the early 1950s. Diesel, fuel oil, dry cleaning solvents and other potential contaminants are stored in the other tanks alongside the corridor.

The EDR database identifies seven facilities in Illinois EPA's Site Remediation Program (SRP). The SRP database identifies properties which are contaminated by general commercial or industrial contaminants such as solvents or heavy metals requiring remediation. These sites include the Joliet Post Office at 158 North Scott Street in Joliet, and the American Cyanamid-Cytec Industries site at 1306 McKinley Avenue in Joliet.

The EDR database identifies 41 Resource Conservation and Recovery Act (RCRA) generators. The RCRA databases also contain sites formerly classified as generators but which no longer generate or store hazardous waste. Most are small quantity generators in Joliet; however, other facilities that generate hazardous waste exist along much of the route. The listing of a site as a small quantity hazardous waste generator alone does not suggest that contamination is present.

One facility, the "ESL Incorporated" at the intersection of West Laraway Road and South Patterson Road in Elwood, is classified as a TSD (Treatment, Storage, and Disposal Facility) and large quantity generator. The location of the facility was ascertained, and found to be approximately 7,500 feet from the railroad corridor.

Two manufactured gas plants were identified in the EDR report, however, both plants are located on the west side of the river, thus contaminants from these sites are unlikely to have migrated into the corridor.

EDR identified one dry cleaner, Ajax Cleaners (also known as "Oriental Cleaners"), through its database search. The location of the dry cleaner appears to be approximately 300 feet west of the railroad corridor. The Des Plaines River is dammed south of Joliet, and throughout the center of the city the river is constrained by dikes. PB expects that groundwater in shallow aquifers within central Joliet is mounded, and that groundwater flows away from the river. Accordingly, Ajax Cleaners is likely upgradient of the HSR corridor. The chemicals commonly used at dry cleaners, tetrachloroethylene and trichloroethylene, have high mobility in soil and groundwater, thus the migration of these substances below the corridor is likely.

Two CERCLIS sites were identified in the database: the American Cyanamid-Cytec Industries facility, which is directly west of the railroad corridor at the south edge of Joliet, and the Matheson Gas Products facility, also south of Joliet, but approximately 3,600 feet east of the corridor. The Cytec facility is no longer in operation. In 2007, the Illinois Department of Public Health (IDPH) evaluated the potential risks to the public posed by

known contamination in soil, groundwater and sediments on the Cytec facility and in the surrounding area. The Illinois Department of Public Health (IDPH) concluded:

> "*Currently the American Cyanamid-Cytec Industries site poses no apparent public health hazard. Limited data do not suggest that people near the site are being exposed to site-related contaminants at levels that would cause adverse health effects. Levels of chemicals in on site soil are not at levels that would be expected to cause adverse health effects. Exposure to chemicals in private wells and on- and off-site surface soil would not pose a health hazard. Exposure to contaminated sediments or surface water probably would be occasional, resulting in negligible exposure."*[6]

The northern portion of the project corridor passes through industrial, commercial, residential, and suburban areas of Joliet, Illinois. The areas adjacent to the existing railroad tracks generally include roadways, parking lots, and residential yards.

The southern portion of the project passes through agricultural areas. Properties adjacent to the tracks are for the most part undeveloped. Vegetation along the tracks and adjacent properties did not appear stressed.

Findings for Culvert MP 38.8

At mile marker 38.8, the railroad passes over Sugar Run Creek. Sugar Run Creek begins several miles east of the culvert, and flows through and alongside several residential, commercial and light industrial areas. Approximately 1,500 feet upstream of the culvert below the railroad bed, the creek is confined to a channel that diverts it around a large open-pit limestone mine. Mine dewatering pumps discharge water from the pit into Sugar Run Creek, approximately 100 feet upstream of the culvert.

Northwest of the culvert is a pond used by the Illinois Central Gulf Railroad to hold and remove oil from runoff water. The EDR report identifies this pond as a permitted industrial impoundment structure. Current Will County Assessor records show that this property is now owned by the Illinois Department of Transportation, District 1.

Approximately 1,400 feet southwest of the culvert is the American Cyanamid-Cytec facility, a former chemical manufacturing company that is included on the USEPA's CERCLIS (Superfund) list. In 2007, the IDPH evaluated the potential risks to the public posed by known contamination in soil, groundwater and sediments on the facility and in the surrounding area (see above section).

The presence of the open-pit limestone mine is expected to significantly control deep groundwater movement. A confining layer appears to exist in the area of the culvert which

[6] Illinois Department of Public Health, Health Consultation American Cyanamid-Cytec Industries Joliet, Will County Illinois EPA Facility ID: ILD000675264, October 16, 2007

prevents water in the creek from draining to deeper water-bearing zones. This same confining layer would also help prevent the vertical movement of any contaminants that might be present. Based on the anticipated direction of groundwater flow and the contaminants that could be present on surrounding properties, the potential that contaminated materials will be found in the area of the culvert is small.

Findings for Bridge MP 42.6

The railroad crosses Cedar Creek at MP 42.6, approximately 420 feet south of West Millsdale Road in Elwood. Cedar Creek is shown on U.S. Geological Survey (USGS) maps as beginning only about one mile east of the crossing in rural farmland south of a relatively new subdivision. At the crossing, the USGS mapped the stream as being intermittent. Although the ESL Corporation property, a Superfund facility, is shown in the EDR report as being in close proximity to the crossing, further research including contact made with Waste Management, the successor owner of ESL, showed that the ESL facility was incorrectly mapped and is actually three miles north-northwest at the intersection of West Laraway Road and South Patterson Road in Elwood.

Findings for Bridge MP 44.4

At mile marker 44.4, the railroad crosses Jackson Creek, which begins several miles east of the culvert, and flows through agricultural fields and scattered rural residential subdivisions. The EDR report does not identify any likely sources for contamination upstream or near the bridge.

3.3.6.2 Findings for the Mazonia Siding Track

Table 3-24 above shows the number of facilities identified within each relevant database from the Mazonia Siding track project in Braidwood, Illinois. The EDR database report identified two IL NIPC sites approximately one-half mile northwest of the proposed siding track near the intersection of Novy and Cemak Roads. NIPC is an inventory of active and inactive solid waste disposal sites. The two NIPC sites are likely the same facility and essentially no information regarding these sites is provided in the EDR report. Four LUST sites were identified near the southern end of the proposed siding track, in the vicinity of State Highway 53 (Front Street) and State Highway 113 (Main Street). The former *Bergman's Bait and Pet Shop* at 108 N. Front Street, near the southern end of the proposed siding track, was listed in several databases in the EDR report including SPILLS, ENG CONTROLS, INST CONTROLS, SRP, and BROWNFIELDS. Based on the findings in the EDR report, the City of Braidwood obtained a grant under the brownfield program to conduct corrective action at the site. The property has a land use restriction, groundwater use restriction, and must maintain an asphalt pavement barrier to restrict exposure to subsurface contaminants. This indicates that residual soil and groundwater contamination remains at the site. The IEPA issued a No Further Action/ Remediation (NFA/NFR) letter in March 2006 indicating that no further corrective action is necessary.

3.3.6.3 Potential Effects

2nd Mainline Track Project between MP 36.7 and MP 44.69

The addition of a second track to the railroad right-of-way, which would include construction of new crossings over Sugar Run Creek, Cedar Creek and Jackson Creek, would not be expected to introduce new contaminants to the environment.

Mazonia Siding Track between MP 55.0 and MP 57.31

The addition of a siding track in the railroad ROW, would not be expected to introduce new contaminants to the environment.

Furthermore, if contaminants do exist in soil or groundwater along the corridor or on other properties, no change in the movement of contaminants would be expected. The project would not affect nor be affected by hazardous materials; however, wastes from unknown sites could be found and may need to be addressed in accordance with Federal and State laws and regulations.

If regulated solid or hazardous wastes are found unexpectedly during construction activities, work will cease at the suspect site and the construction inspector will contact the appropriate environmental agencies. The environmental agency, UPRR, and the contractor will develop a plan for sampling, remediation if necessary, and continuing project construction.

3.3.6.4 Findings for the 110mph Service

The EDR report (Appendix A) detailed the presence of 29 LUST sites, six of which are located within 500 feet of the project corridor (between MP 44.69 to MP 55.0 and MP 57.31 to MP 72.91). The Phibro-Tech and United State Cold Storage facility in Wilmington, which border the east side of the railroad are open LUST sites.

Two LUST locations are situated at the south end of the 110 mph Service area as it passes through Wilmington, and near to the planned Mazonia Siding. One of these locations is a Circle K gas station. The second location is poorly identified, but may be a motor oil change facility.

The EDR database identifies three facilities in the Site Remediation Program (IEPA's SRP). The SRP database identifies properties which are contaminated by general commercial or industrial contaminants such as solvents or heavy metals requiring remediation. These sites include the Wilmington Cleaners property in Wilmington.

To supplement the information in the EDR Report, PB viewed current and historic aerial photographs of the area around Gardner, which are available through Google Earth Pro. These aerial photographs show that one historic and three current gas stations are located within approximately 250 feet of the Main Street railroad crossing in Gardner, but only two of them are identified in the LUST list. "No Further Action" letters have been issued for

these two stations. Additional LUST sites identified in the database are believed to be too far away from the corridor to have impacted either soil or groundwater.

3.3.7 Cultural Resources

This section provides an evaluation of historic architectural and archeological resources within UPRR ROW.

3.3.7.1 Existing Conditions

Regulatory Environment

Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) requires federal agencies to consider the impacts of their project undertakings on historic architectural and archeological resources that are either listed in or have been determined eligible for listing in the National Register of Historic Places (NRHP) (36 CFR 800). If projects are federally permitted, licensed, funded, or partially funded, the project must comply with Section 106. Under Section 106, federal agencies are required to provide the public with information about a proposed project and its effect on historic properties and to seek public comment and input, except where confidentiality is considered necessary (as specified in 36 CFR Parts 800.2 and 800.3).

Tribal Consultation

The 1992 amendments to the NHPA require all federal agencies to consult with Indian Tribes or Native Hawaiian organizations for undertakings that may affect properties of traditional religious and cultural significance. Section 36 CFR 800.2(c) (2)(ii)(A) states that "the agency official shall ensure that consultation in the Section 106 process provides the Indian Tribe or Native Hawaiian organization a reasonable opportunity to identify its concerns about historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects."

The current version of the regulations implementing Section 106 of the NHPA, effective August 5, 2004, reflects this approach and requires federal agencies to consult with any tribe that may attach religious and cultural significance to resources affected by an agency action, whether those resources are on or off tribal lands.

Illinois does not have resident federally recognized tribes, but there are non-resident tribal groups who have formally declared that that they consider specific portions of Illinois to have cultural or historic significance to their group. The 1992 NHPA amendments and subsequent revisions to the regulations by the ACHP incorporate provisions which stipulate that federal agencies, including the FRA, must consult with Federally-recognized American Indian tribes that attach religious and cultural significance to historic properties that may be affected by an undertaking. A Project Notification System (PNS) has been developed and employed by the IDOT, the Illinois SHPO, and the USDOT (with FHWA the lead agency) to

coordinate transportation projects with tribes that have expressed an interest in Illinois. Through the electronic PNS, the tribes contacted are listed in Table 3-25..

Table 3-25. Tribal Groups with an Interest in Will, Grundy and Livingston County, Illinois

Tribe	Contacted
Potawatomi	Yes
Ho Chunk	Yes
Sauk	Yes
Fox	Yes
Kickapoo	Yes
Miami	Yes

Potential Impacts

During the current phase of the project, a review of project data by the IDOT Cultural Resources Unit lead to a determination that no historic properties will be affected by the proposed construction. The Illinois SHPO reviewed this finding and concurred (March 30, 2011), see Appendix B, page B-1 and B-102.

3.4 Construction Impacts

Impacts associated with construction of the improvements would be local and temporary. The most noticeable impacts would likely be noise, vibration, dust, and traffic disruptions. There is also the potential for impacts to streams and wetlands.

These temporary impacts would occur from operation of equipment for installation of additional track, rehabilitation of existing track, and upgrade/installation of bridges and signal devices. Normal traffic may be flagged at various times to allow entry and exit of construction equipment to the project sites via nearby rail/highway grade crossings. Such occurrences are expected to be perceived by motorists as an inconvenience. However, these impacts would be temporary, and existing vehicular travel would be restored after construction has been completed at each site.

The project may require periodic reduction in the operating speed of trains that pass through construction zones. Also, there may be a need to adjust the schedule of rail operations if activities require temporary shutdown of selected track sections. Such schedule and/or operations adjustments would be necessary when there is a potential safety risk due to the proximity of moving trains and construction activities that are incompatible with ongoing train traffic. Such delays or disruptions may be similar to normal maintenance activities under existing conditions.

As with any construction project, an increase in noise is expected at construction sites. However, construction activity would generally occur on weekdays between the hours of 7:00 a.m. and 6:00 p.m. and so would not interfere with normal activities of persons who

may live or work nearby. Construction noise would be reduced to the extent feasible by including specific noise control requirements in the construction contract specifications. The specifications should require contractors to: 1) select the equipment and techniques that generate the lowest noise levels; 2) use equipment with effective mufflers; 3) certify compliance with noise monitoring; 4) select haul routes that minimize truck noise in residential areas; and 5) select air compressors that meet federal noise level standards and locate them away from or shield them from residences and other sensitive noise receptors.

Vibration during construction is generally limited to annoyance effects and not to building damage effects. Vibration impacts could be mitigated by restricting the procedures and time permitted for vibration-intensive activities, such as pile-driving and by requiring vibration monitoring to certify compliance with vibration limits. In addition, an active community liaison program could be implemented to ensure residents are kept informed of construction activities and have a means to register complaints.

For the more vibration-intensive activities, care would be taken to prevent vibration damage to adjacent structures. In areas where vibration is anticipated, surveys could be conducted before construction begins to aid in documenting damage that may occur as a result of construction.

Construction could temporarily impact floodplains, wetlands, streams, and surrounding stream banks. Track improvements would involve replacement of some rail, crossties and track ballast, plus other improvements to trackside equipment. These procedures are primarily restricted to the current right-of-way. Where a new second track is added, extension of culvert or bridge structures are required, with temporary construction impacts where new bridge structures are installed. New track installation would also require subgrade preparation and earthwork.

These potential impacts would be minimized, however, as the contractor would be required to avoid wetlands during the establishment of construction staging areas and other construction activities. In addition, erosion, sedimentation and bank stabilization measures would be employed where construction occurs at or near creeks or creek crossings, consistent with the IDOT Bureau of Design and Environment Manual, and IDOT's Standard Specification for Road and Bridge Construction, January 1, 2007.

3.5 Secondary and Cumulative Impacts

3.5.1 Secondary Impacts

Secondary (indirect) impacts are defined as reasonably foreseeable future consequences to the environment that are caused by the proposed action, but that would occur either in the future (later in time) or near, but not in the same location as, direct impacts associated with implementation of a build alternative. Under the CEQ regulations, indirect impacts are defined as those that are "… caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects would include growth-

inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystem" (40 CFR 1508.8b).

Indirect impacts can be associated with the consequences of land use change and development that would be indirectly supported by changes in local access or mobility. Indirect impacts differ from those directly associated with the construction and operation of a project itself and are often caused by what is commonly referred to as "induced development." Induced development would include a variety of alterations such as changes in land use, economic vitality, property values and/or population density. The potential for secondary impacts to occur is determined in part by local land-use and development-planning objectives and the physical location of a proposed action.

With the No Build Alternative, the existing rail service along the project corridor would continue. Over time, a potential indirect effect could be to bring additional attention to a need for improvements to rail service along the corridor to accommodate additional rail traffic.

The Preferred Alternative would result in indirect impacts as the improved operability of rail traffic could result in further development along the corridor. Local review boards would be responsible for investigating the impacts to water, sewer, traffic and other environmental factors from future development. The 2nd mainline track project area is already planned for future industrial development as part of the redevelopment of the Joliet Arsenal in Elwood. The area surrounding the Mazonia siding project corridor is designated private recreational development and unlikely to change to commercial or industrial uses. Other areas of the Joliet to Dwight corridor are located in rural agricultural areas and approximately 4.0 miles cross the MNTP (formerly Joliet Arsenal) between Elwood and Wilmington and runs parallel to IL Route 53. No additional stations are planned between Joliet and Dwight.

3.5.2 Cumulative Impacts

The consideration of cumulative effects consists of an assessment of the total effect on a resource, ecosystem, or community from past, present, and future actions that have altered the quantity, quality, or context of those resources within a broad geographic scope. Under the CEQ regulations, cumulative effects are defined as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions." Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). The cumulative effects analysis considers the aggregate effects of direct and indirect impacts – from federal, non-federal, public, or private actions – on the quality or quantity of a resource.

The intent of a cumulative-effects analysis is to determine the magnitude and significance of cumulative effects, both beneficial and adverse, and to determine the contribution of the proposed action to those aggregate effects. Contributions to cumulative effects associated with the Preferred Alternative on the resources analyzed would be limited to those derived from the direct and secondary impacts of the action.

The No Build Alternative would have a slight negative contribution to cumulative impacts. The No Build Alternative would not provide any benefits to regional air quality because it would continue the existing recognized rail "choke point" between Joliet and Braceville.

The Preferred Alternative would have slight beneficial contributions to cumulative impacts. The proposed improved operability of freight and passenger rail service is expected to provide an overall benefit to air quality. The improvements are expected to significantly reduce train idling and provide faster Amtrak service to motorists who would otherwise travel between Chicago and St. Louis by motor vehicle. The improvements to the grade crossing treatments will benefit the safety of motorists crossing the railroad.

3.6 Permits

3.6.1 Applicable Regulations and Permits

- Section 404 of the Clean Water Act from the USACE.

  Section 404 of the Federal Clean Water Act regulates the discharge of dredged or fill materials into waters of the U.S., including wetlands. The introduction of fill or other materials (other than pre-cast structures) below the ordinary high water line of surface waters such as rivers, streams, ponds, wetlands, or unavoidable filling of wetlands would require a Section 404 permit.

- Section 401 of the Clean Water Act Water Quality certification from the Illinois Environmental Protection Agency.

  States are granted authority to review activities in waterways and wetlands and to issue water quality certifications under Section 401. The Illinois Environmental Protection Agency (IEPA) issues a Section 401 Water Quality certification for all activities requiring a dredge and fill permit. Under the state's antidegradation policy, individual water quality certifications would be subject to public review. A Section 401 permit is mandatory for all projects requiring a Section 404 permit.

- Section 402 of the Clean Water Act National Pollutant Discharge Elimination System (NPDES) Construction Permit from the IEPA.

  Because the proposed project would potentially disturb 0.4 hectares (1 acre), it would be subject to the requirement for an NPDES permit for stormwater discharges from the construction site(s). Permit coverage would be obtained under the IEPA General Permit for Stormwater Discharges from Construction Site Activities (NPDES Permit No. ILR10).

A Stormwater Pollution Prevention Plan would be prepared and implemented, in accordance with requirements under the NPDES permit(s).

- Construction in Floodways of Rivers, Lakes, and Streams from the Illinois Department of Natural Resources (IDNR), Office of Water Resources.

  The IDNR Office of Water Resources issues permits for work within regulatory floodways or public waters, and for the crossing of streams with more than 259 hectares (640 acres) of drainage area.

- Section 7 of the Endangered Species Act of 1973.

  If endangered species are identified during the project, all activity in the immediate area would cease. Coordination with the U.S. Fish and Wildlife Service would be initiated as required by Section 7, and appropriate state or federal permits would be sought.

  The IDNR issues permits for incidental takes of state-listed threatened or endangered species.

- Air Permits.

  To control local air pollution impacts, a permit may be required for portable bituminous and concrete plants used in project construction.

- IDOT Requirements.

  Prior to construction, erosion control fencing would be placed at the limits of construction. Zones of fill, grading, compaction, or equipment movement would be restricted to areas outside the protective fencing. Impacts from silt and sedimentation would be minimized through adherence to erosion control measures outlined in IDOT's Standard Specification's for Road and Bridge Construction, January 1, 2007.

- Executive Order 11988, Floodplain Management (42 Federal Register [FR 26951)
- Executive Order 11990, Protection of Wetland (42 FR 26961)
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629)
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency (65 FR 50121)
- Federal Railroad Administration Procedures for Considering Environmental Impacts (64 FR 28545 and 49 CFR Part 260.35)
- National Environmental Policy Act of 1969 (42 USC § 4321 et seq., signed January 1, 1970)
- Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500–1508)

- Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC § 303)
- Section 6(f) of the Land and Water Conservation Act of 1965 (16 USC § 460)
- Sections 9 and 10 of the Rivers and Harbors Act of 1899 (33 USC § 401)
- Section 106 of the National Historic Preservation Act, as amended (16 USC § 470)
- Section 404 of the Federal Water Pollution Control Act (33 USC § 1344)
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC § 61)
- Use of Locomotive Horns at Highway-Rail Grade Crossings, Final Rule (40 CFR 222 and 229)

4.0 COORDINATION AND CONSULTATION

Public involvement is an important part of any IDOT project planning process. In addition to working with the requisite federal and state agencies, IDOT efforts for this Environmental Assessment included outreach to a wide variety of stakeholders along the project corridor.

4.1 Meetings

To assist with coordination, two outreach meetings have been held with various stakeholders. The first stakeholder public outreach meeting for the project was held on May 12th, 2010 at the City of Joliet, City Hall to review the 2nd mainline Track EA and a proposed Categorical Exclusion (CE) for the Mazonia Siding Project in Braceville. After the meeting on May 12th, it was determined to include the CE in the EA document. See Appendix B for meeting minutes and comments.

As result of stakeholder comments regarding the location for the Mazonia Siding, an alternative location was determined by the UPRR in July 2010. Discussion with IDOT and FRA determined that the new location should be reviewed as a project component of the EA document.

A second stakeholder outreach meeting was held on March 24th, 2011 to review the upgrade of track from Joliet to Dwight for 110 mile per hour service, as well as the new Mazonia Siding location and the addition of a second mainline track from Joliet to Elwood. This meeting built upon the information provided at the first stakeholder meeting; it also included all of the additional infrastructure requirements to complete the installation of the new 110 mile per hour track.

Additional stakeholder outreach meetings will be scheduled to receive public comments on the Joliet to Dwight Track Improvement options. These meetings will be held pending the final location of the siding track and other issues affecting the decision regarding this project.

4.2 Coordination Letters

Agency coordination is a necessary and crucial component of project development. Agency coordination in this project included working with a wide variety of agencies, including lead, participating, consulting and potentially affected agencies.

4.3 Agencies

The agencies that were engaged in the Environmental Assessment are listed in Chapter 6.0. Letters sent to agencies are shown in Appendix B. Includes letters sent in July 2010 for the 2nd mainline track EA and the Mazonia Siding CE, and letters sent in March 2011 for this EA. All agencies were given the option to review the EA to provide comments. After all comments have been received from the agencies, additional coordination may be necessary

to address issues or concerns with the project. All coordination will be conducted in accordance of FRA procedures.

4.3.1 Letters and Other Contacts

Letters were sent to the agencies informing them of the EA, detailing the history of the project, the project scope, asking for information to complete the EA and any comments the agency representative may have had.

4.3.2 Native American Tribal Consultation

The 1992 National Historic Preservation Act amendments and subsequent revisions to the regulations by the ACHP incorporate provisions which stipulate that federal agencies, including the FRA, must consult with Federally-recognized American Indian tribes that attach religious and cultural significance to historic properties that may be affected by an undertaking. A PNS has been developed and employed by the IDOT, the SHPO, and the USDOT (with FHWA) the lead agency) to coordinate transportation projects with tribes that have expressed an interest in Illinois (there are no tribal lands or resident tribes within Illinois). Through the electronic PNS, the following tribes have been notified concerning the project: Miami, Ho Chunk, Potawatomi, Kickapoo, and the Sauk & Fox.

4.3.3 State Historic Preservation Office (SHPO) Consultation

The SHPO was contacted for this project. A letter of concurrence is included in Appendix B. Includes SHPO concurrence for the 2nd mainline track EA and the Mazonia Siding CE, and SHPO concurrence for this EA. Additional coordination with the SHPO will take place, pending approval of this project.

4.3.4 Illinois Department of Natural Resources (IDNR) Consultation

The IDNR was contacted for this project by using the EcoCAT. The results of the EcoCAT are included in Appendix B. Includes EcoCAT for the 2nd mainline track and the Mazonia Siding from EA prepared in April 2010. A letter from the IDNR terminating consultation under 17 Illinois Administrative Code Part 1075 is shown in Appendix B for the EA prepared in April 2010. Also, included in Appendix B is an EcoCAT for this EA. Additional coordination with the IDNR will take place, pending approval of this project.

5.0 DISTRIBUTION LIST

5.1 Agency Coordination

5.1.1 Federal Agencies

Advisory Council on Historic Preservation
Federal Emergency Management Agency
Federal Highway Administration, Illinois Division
Federal Transit Administration, Region 5
National Park Service
U.S. Army Corps of Engineers, Chicago District
U.S. Coast Guard, Ninth District
U.S. Department of Agriculture
U.S. Department of Agriculture, Forest Service, Eastern Region - R9
U.S. Department of Housing and Urban Development
U.S. Department of the Interior, Fish & Wildlife, Chicago Field Office
U.S. Department of the Interior, Office of Environmental Policy and Compliance
U.S. Environmental Protection Agency, Region 5
U.S. Senator Richard Durbin
U.S. Senator Roland Burris
U.S. Representative, Debbie Halvorsen, District No. 11

5.1.2 State Agencies

Illinois Commerce Commission
Illinois Department of Agriculture
Illinois Department of Commerce and Economic Opportunity
Illinois Department of Natural Resources
Illinois Department of Public Health
Illinois Environmental Protection Agency
Illinois Geological Survey
Illinois Historic Preservation Agency
Illinois Natural History Survey
Illinois Nature Preserves Commission
Illinois State Library
Illinois State Water Survey

5.1.3 Other Agencies and Commissions

Chicago Metropolitan Agency for Planning
Regional Transportation Authority

5.1.4 Counties

Grundy
Livingston
Will

5.1.5 Local Communities and Jurisdictions

Braceville
Braidwood
Dwight
Dwight Township
Gardner
Godley
Goodfarm Township
Elwood
Jackson Township
Joliet
Wilmington

5.1.6 Other Organizations

Center for Neighborhood Technology
Environmental Law and Policy Center
Exelon Corporation (Braidwood Nuclear Generating Station)
Illinois Farm Bureau
National Trust for Historic Preservation (Gaylord Building)
South Suburban Mayors & Managers Association
United Counties Council of Illinois
Will County Governmental League

5.1.7 Railroads

Amtrak
Canadian National Railway
Union Pacific Railroad Company

6.0 REFERENCES

2007 Census of Agriculture, February 2009, updated September 2009. Illinois State and County Data, Volume 1 – Geographic Area Series – Part 13. United States Department of Agriculture.

Chicago-St. Louis High-Speed Rail Project, Final Environmental Impact Statement http://dnr.state.il.us

City of Braidwood Comprehensive Plan, December 2004.

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US Department of the Interior, Fish and Wildlife Service, National Wetland Inventory Map, Elwood, various years.

US Geological Survey, 7.5 Minute Topographic Quadrangles, Elwood, IL. Various years.

US Department of Homeland Security, Federal Emergency Management Agency, Flood Insurance Rate Maps, Will County, various years.

IDOT District 3, Traffic Data

Joliet Arsenal Area Long-Range Transportation Plan, April 2004. Joliet Arsenal Development Authority.

Midewin National Tallgrass Prairie, Final Environmental Impact Statement (2002) amended in 2007 and 2008.

Pescitelli, Stephen M., and Robert C. Rung. 2005. Evaluation of Fish Communities and Stream Quality in the Jackson Creek Watershed (Des Plaines River Basin), September, 2003. Office of Region II Streams Office, Division of Fisheries.

Shelford, Victor E. 1978. Animal Communities in Temperate North America: Illustrated in the Chicago Region in Animal Ecology. Ayer Co. Publishing. 368p.

Will County Depart of Highways 2020 Transportation Plan

Will County Department of Highways 2020 Transportation Plan

Will County Land Resource Management Plan

APPENDIX A
AGENCY COORDINATION

<Signed copies of responses to USDA and USFWS comment letters will be included in the final version>

Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

August 16, 2011

Will, Grundy, and Livingston Counties

Union Pacific Main Line
Improvements to Address Deficiencies in Existing Tracks
In Selected Areas Between Joliet to Dwight (MP 36.7 to MP 72.8)
Improvements Encompass 15.5 Acres of New ROW

IDOT Seq# 15866B
ISAS# 11053

FEDERAL 106 PROJECT

NO HISTORIC PROPERTIES AFFECTED

Ms. Anne Haaker
Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency
Springfield, Illinois 62701

Dear Ms. Haaker:

The Illinois Department of Transportation recently prepared an Environmental Assessment (EA) for improvements to the Union Pacific Railroad (UPRR) track from Joliet to Dwight, IL. This project was recently selected for funding under the Federal Railroad Administration's (FRA) High-Speed and Intercity Passenger Rail (HSIPR) grant program. Since the EA, the project has been revised to include the acquisition of additional right-of-way (ROW) for the second mainline track and improvements to the existing siding in Dwight. These improvements and the associated environment effects will be documented in FRA's Finding of No Significant Impact (FONSI) document. The action proposed between Joliet and Dwight, Illinois includes the following components: 1) track upgrades from Joliet (MP 36.7) to Dwight (MP 72.8) to allow 110-mph trains where safe and practical, 2) a new second mainline track along the UPRR from Joliet (MP 36.7) to Elwood (MP 44.69), and 3) a freight siding between MP 55.0 to MP 57.13. It is important to note that these improvements will improve the reliability of the existing passenger rail service.

A separate study for the Chicago-St. Louis High-Speed Rail project, to be prepared as a Tier 1 Environmental Impact Statement (EIS), was initiated with publication of a Notice of Intent on February 14, 2011. This study will analyze a range of reasonable corridor-level route alternatives between Chicago and Joliet, and will examine additional improvements between Joliet and St. Louis to support additional passenger trains. The request outlined below is not intended to address

any of the issues or concerns that you may have related to the Tier 1 EIS that was recently initiated; the request is strictly related to the Track Improvement Project addendum from Joliet to Dwight, Illinois. We look forward to working with you on the Tier 1 EIS as it moves through the environmental process.

Attached is the Environmental Survey Request form and location maps for the above referenced project addendum. This addendum covers 15.5 acres of additional ROW that parallels existing ROW. These areas of new ROW and easement are needed to address deficiencies in the existing tracks stemming from conflicts between passenger and freight trains in the area between Joliet and Dwight. These new areas primarily fall within previously disturbed parcels. Cultural resource surveys conducted in and around these new areas did not identify archaeological or architectural resources that warranted National Register consideration (report title pages attached).

This project addendum covers an extension of planned improvements previously reviewed and cleared by your office for cultural resources. (See attached concurrence letters dated April 28, 2010 and March 28, 2011.)

In accordance with the established procedure for coordination of Illinois Department of Transportation projects, we request the concurrence of the State Historic Preservation Officer in our determination that no historic properties subject to protection under Section 106 of the National Historic Preservation Act of 1966, as amended, will be affected by this proposed project.

Very truly yours,

John A. Walthall, PhD
Cultural Resources Unit

CONCUR

By: Anne E. Haaker
Deputy State Historic Preservation Officer

Date: 8·16·11

Huff & Huff incorporated

FIGURE 1A
NOISE RECEPTOR LOCATION MAP
ILLINOIS HIGH SPEED INTERCITY PASSENGER RAIL
GRUNDY AND WILL COUNTY, ILLINOIS

AERIAL SOURCE: USGS HIGH RESOLUTION ORTHOIMAGERY
FOR THE CHICAGO, IL URBAN AREA
U.S. GEOLOGICAL SURVEY

CADFILE: P:\IHSIP\R\NOISE

APPENDIX B
PHYSICAL ENVIRONMENT

Since the publication of the Environmental Assessment (EA) minor changes to the proposed action have resulted in additional analysis being needed for Noise and Vibration and Tree Resources. The additional information and analysis gathered for these project changes is reported below. No additional analysis was needed for Air Quality and Energy, Floodplains, Visual Resources, and Agriculture.

Noise and Vibration

Noise Evaluation

The FRA screening procedure identifies a screening distance for both obstructed and unobstructed urban conditions and for quiet suburban/rural areas. Given the generally rural nature of the corridor, the quiet suburban/rural area screening distance of 500 feet was used to screen the project corridor. Sensitive receptors were identified along the length of the Dwight Siding and include two single-family residences (SFR), depicted in Figure 1A. This includes receptor R1 that was originally included in the analysis and a new receptor (R_{DS}) to assess the residence on the siding side of the track corridor.

Along the length of the Dwight Siding, there are two public at-grade railroad crossings. Both of these at-grade crossings are not within a 24-hour quiet zone and therefore train operators are required to use train horns on approach to the crossing. Both of the receptors are within ¼ mile of the crossings and therefore the evaluation includes horn noise in the assessment for these receptors.

Based on the train traffic volumes and characteristics used in the April 2011 EA, the existing and build noise levels were predicted for the two receptors along the Dwight Siding. Table 1 summarizes the results of this analysis.

Table 1. General Assessment Noise Analysis Results

Receptor Number	Dist. to Ex. Main Track, ft.	Horn Noise Included	Receptor Type	Noise Metric	Project Noise Levels, dB(A)		Build Incr. Over Exist., dB(A)	Allowed Increase (Moderate Impact)	Impact
					Existing/ No-Build	Build			
R1	118	Yes	SFR	Ldn	79	79	0	0	No Impact
R_{DS}	223	Yes	SFR	Ldn	77	77	0	0	No Impact

As noted in Table 1, noise impacts associated with changes to this element of the proposed project are not anticipated. A detailed noise analysis and a noise abatement evaluation are, therefore, not warranted as no impacts have been identified. The overall general assessment for

the entire project limits has not changed, as there were no noise impacts identified along the corridor.

Vibration Evaluation

The screening assessment for potential vibration effects was based on land use coupled with an appropriately conservative screening distance obtained from the FRA guidance manual. The screening distance for residential land uses with infrequent events along a corridor with speeds between 100 mph and 200 mph is 100 feet. There are no sensitive receptors identified within this screening distance, therefore, a vibration evaluation is not required for the Dwight Siding.

Tree Resources

The following summarizes the results of the additional investigations on tree resources performed since publication of the EA.

North of Gardner between MP 58.0 and MP 60.0

A few scattered stands of red oak (*Quercus rubra*) and black oak (*Quercus velutina*) are located within the UPRR right-of-way on the west side of the UPRR, north of Kankakee Road, and continuing north to Division Street. Other tree species present in this area include: Russian olive (*Elaeagnus angustifolia*), glossy buckthorn (*Rhamnus frangula*), green ash (*Fraxinus pennsylvanica subintegerrima*), peach-leaved willow (*Salix amygdaloides*), and Siberian elm (*Ulmus pumila*).

Dwight to Gardner between MP 66.0 and MP 70.0

Dominant trees species located between Dwight and Gardner include: eastern cottonwood (*Populus deltoides*), autumn olive (*Elaeagnus umbellata*), common buckthorn (*Rhamnus cathartica*), eastern red cedar (*Juniperus virginiana*), white mulberry (*Morus alba*), green ash, and slippery elm (*Ulmus rubra*).

Dwight Siding Track between MP 70.18 and MP 72.78

The area on the west side of the UPRR right-of-way within the Dwight Siding track area is comprised of few small, scattered trees. The following trees species were present in this area: eastern cottonwood, autumn olive, common buckthorn, eastern red cedar, white mulberry, green ash, and slippery elm.

Tree impacts as a result of the proposed project are anticipated to be minimal. Tree impacts can be mitigated by replacing trees that cannot be avoided and minimizing impacts to the mature forested areas.

APPENDIX C
ECOLOGICAL SYSTEMS

Since the publication of the Environmental Assessment (EA), minor changes to the proposed action have resulted in additional analysis being needed for Wetlands and Waters of the U.S. and Threatened and Endangered Species. The additional information and analysis gathered for these project changes is reported below. No additional analysis was needed for Water Quality and Water Resources or Special Lands.

Wetlands and Waters of the U.S.

Wetlands in the project corridor were identified using U.S. Fish & Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping data, aerial photography, high-rail surveys conducted on March 24, 2011, and on-the-ground surveys conducted in the southern portion of the project corridor on July 25, 2011. On-the-ground surveys and high-rail surveys included an evaluation of wetlands onsite and did not include wetland delineations. The on-the-ground surveys conducted in July 2011 assessed the general quality of the wetlands and their approximate locations and included non-wetland Waters of the US (WOUS). Wetlands were delineated at four locations (Jackson Creek Bridge, Cedar Creek Bridge, Sugar Run Bridge, and a section near Mazonia) during field investigations in 2010. The wetland delineations for the above mentioned bridges are provided in the EA.

All wetlands within the project area are within the Des Plaines River or the Kankakee River watersheds. Additional wetlands may be present within the project corridor and will be delineated during the permitting process.

Overall Project Corridor Wetland Screening – Joliet to Dwight

A summary of wetlands identified via NWI map review as well as the results from the high-rail wetland survey and wetland delineations conducted at the UPRR crossing of Jackson Creek, Cedar Creek, and Sugar Run, and a portion of the Mazonia areas is provided in the EA. Additional wetland areas may be present within the project corridor. Prior to construction, wetland delineations will be completed and permits will be obtained, if necessary.

The majority of wetlands in the project corridor are located near or along stream or ditched channels. In addition, there are patchy wet prairies located in swales along the railroad. Major portions of the project area are developed (within the City of Joliet). Agricultural fields are prevalent south of Joliet. There are limited opportunities for isolated wetlands to develop in areas with agricultural fields since historically, many agricultural fields in northern Illinois were ditched or tiled, which eliminated wetlands in these areas. The general locations and quality of potential wetland areas are summarized by sections of the corridor.

Joliet to Elwood (MP 38.0 to MP 46.0)

Wetlands associated with Sugar Creek, tributaries to Cedar Creek, Cedar Creek and Jackson Creek are located within the Joliet to Elwood section. The majority of this area was delineated and included in the April 2011 EA.

Elwood to Wilmington (MP46.0 to MP 52.0)

Several wet areas are located on the west side of the existing track between Elwood and Wilmington. The majority of the potential wetlands are degraded. Small, moderate quality wet prairies and moderate quality scrub-shrub wet areas are present in this section. Moderate to high quality wet prairie areas adjacent to the railroad right-of-way are located within Midewin National Tallgrass Prairie.

In addition, wetlands may be associated with Grant Creek, Prairie Creek, and an unnamed tributary to the Kankakee River. Several mapped NWI wetlands are located within this section of the project, and are included in Table 3-9 of the EA.

Wilmington to Braidwood (MP52.0 to MP 57.3)

High quality wet remnant prairie, associated with the Hitts Siding Prairie Nature Preserve, is located on the west side of the UPRR, between Coal City Road and West Strip Mine Road, south of Wilmington. The majority of the high quality wet prairie associated with Hitts Siding Prairie Nature Preserve is located just outside of the railroad right-of-way.

A degraded drainage ditch is present on the east side of the tracks from Coal City Road to Illinois Route 129 (IL 129). The drainage ditch is dominated by invasive species, however, high quality species were observed within the ditch as well. Portions of the ditch were scrub-shrub plant communities. A scrub-shrub wetland community is located south of IL 129.

North of East 1st Street to Lighthouse Lane in Wilmington is a mixture of low-quality scrub-shrub plant communities with moderate quality mesic to wet vegetation communities.

In addition, wetlands may be associated with Forked Creek and the Kankakee River. Several mapped NWI wetlands are located within this section of the project, and are included in Table 3-9 in the EA.

Braidwood to Gardner (MP57.3 to MP 65.0)

High quality remnant wet prairie areas are present on the west side of the UPRR, between Mitchell Road and County Road 500 South. There are small patches of degraded wet areas mixed in with the high quality remnant wet prairie areas; however, the overall area identified as both wet prairie and small patches of degraded wetlands would be considered high quality (have an FQI of 20 or greater and/or a native mean C of 4.0 or greater).

A moderate quality ditch is located south of County Road 500 South to the Mazon River.

A ditch and tributary system and adjacent wetland areas associated with the Mazon River are located between Illinois Route 53 (IL 53) and the east side of the UPRR, extending north from the Village of Gardner to the Mazon River. Wetland areas adjacent to the ditch and tributary are degraded with some patches of moderate quality wet remnant prairie.

A degraded drainage ditch is present on the east side of the UPRR from Division Street to South Kankakee Street. A degraded ditch is also present south of Kankakee Street continuing south to the Mazon River. A drainage ditch with scrub-shrub vegetation is present, adjacent to the east side of the UPRR, north of the Mazon River.

In addition, wetlands may be associated with Jackson Creek, an unnamed tributary to Mazon River, and the Mazon River. Several mapped NWI wetlands are located within this section of the project, and are included in Table 3-9 of the EA.

Gardner to Dwight (MP 65.0 to MP 73.0)

High quality remnant wet prairie areas are present on the west side of the UPRR, beginning just south of Gardner and continuing south to Illinois Route 47 (IL 47). There are small patches of degraded wet areas and moderate to high quality upland areas mixed in with the high quality remnant wet prairie areas. The overall area identified as both wet prairie and small patches of degraded wetlands would be considered high quality (have an FQI of 20 or greater and/or a native mean C of 4.0 or greater). The highest quality remnant prairie areas within the project corridor are located in this section.

Between the north end of the proposed Dwight Siding and the Village of Gardner, a drainage ditch with steep side slopes is present along the east side of the UPRR. The majority of the ditch is degraded; however, patches of moderate to high quality mesic/wet prairie remnants are present in this area as well. Moderate to high quality mesic/wet prairie remnants located on the east side of the UPRR, are present adjacent to high quality remnant prairie areas on the west side of the UPRR.

In Dwight, Gooseberry Creek (a Waters of the US – WOUS) has been channelized along the west side of the UPRR tracks. Wetlands may be associated with an unnamed tributary to the Mazon River, Woods Run, and an unnamed tributary to Goose Creek. In addition, multiple NWI mapped wetlands are located within this section of the project and are summarized in Table 3-9 in the April 2011 EA.

Dwight Siding (MP 70.2 to MP 72.3)

The proposed Dwight Siding, located east of the existing tracks, consists of moderate to high quality patches of mesic/wet remnant prairie. Two small un-vegetated drainage ditches are present adjacent to the east side of the UPRR south of Livingston Road and County Road 100 East. Woods Run crosses beneath the UPRR within the Dwight Siding area. Moderate quality

depressional wetlands with patches of high quality remnant prairie are also present between Old Mazon Road and the north end of the proposed siding.

Wetland Plant Communities

Seven (7) types of wetland plant communities were identified in the project corridor. These include open water, marsh, sedge meadow, wet meadow, ditch, wet shrub, and forested.

Open water habitats include WOUS. Marsh wetlands are generally herbaceous dominated wetlands in depressional areas or along the banks of creeks. Sedge meadows and wet meadows within the project corridor are herbaceous dominated wetlands, specifically sedge dominant in sedge meadows, located primarily along both sides of the UPRR, between Braidwood and Gardner, between Gardner and Dwight, and in small areas within Midewin National Tallgrass Prairie. The shrub and forested wetlands are primarily along the banks of creeks and in isolated patches along both sides of the UPRR. Forested wetlands are dominated by trees and include depressional and riparian areas. Mesic to wet prairie remnants may also be present within the corridor. Mesic to wet prairies are dominated by perennial, native grasses and forbs.

Although none of the delineated wetlands found along the UPRR tracks included in the 2010 wetland delineations are considered to be High Quality Aquatic Resources, there are potential high quality wetlands within the corridor. These areas will be evaluated during formal wetland delineations prior to construction. Will County, Grundy County, and Livingston County have not adopted the USEPA Advanced Identification (ADID) program, which inventories high quality wetlands. Therefore, ADID wetlands are not within the project limits.

Farmed Wetlands

A farmed wetland determination has not been completed for the project corridor. The majority of the project area is located within railroad right-of-way, which is not farmed. If farmed areas will be impacted, a farmed wetland determination will be completed prior to permitting.

Wetlands Affected

The assessment of potential wetland impacts is based upon direct impacts related to bridge and track construction, which includes areas within the proposed right-of-way and environmental survey limits. Proposed construction includes placement of fill for new bridge abutments or piers and embankment for new track adjacent to the existing tracks. Wetland impacts related to construction would include vegetation removal, placement of clean fill, and changes to the wetland hydrologic regime. Besides wetland acreage loss, wetland functions and values could be affected by the proposed project.

Wetland impacts for the entire project corridor will need to be assessed after wetland delineations are completed and engineering plans have been developed. Anticipated impacts for the bridge improvements are provided in the April 2011 EA. Under the implementing regulations of the Illinois Interagency Wetland Policy Act (IWPA) of 1989, impacts to wetlands

that have an FQI of 20 or greater require a mitigation ratio of 5.5 to 1.0. High quality areas are present within portions of the project corridor.

Avoidance and Measures to Minimize Harm

Recognizing the conceptual engineering detail of the project, efforts will be made in future phases of work to avoid and minimize additional wetland impacts. Avoidance and minimization can be accomplished in the following ways:

- Narrower railroad cross-section with the use of:
- Retaining walls
- Steeper embankments
- Bridging critical wetland resources

Avoiding and minimizing impacts to wetland resources may be constrained by other critical resources or local issues.

Wetland Mitigation

Objectives for mitigation will be established in consultation with regulatory and resource agencies on the following major issues:

- Purchase of mitigation credits from a commercial wetland bank
- Type of compensatory wetland mitigation
- In-kind replacement
- Functional replacement
- Ratio of wetland mitigation replacement
- Location of wetland mitigation replacement

The State of Illinois, in the IWPA, has established compensatory wetland mitigation ratios for all state-funded projects. The established ratios generally are more stringent than those established by the U.S. Army Corps of Engineers (USACE). The highest mitigation ratio of 5.5:1 will apply for wetland impacts in the following cases:

- Alteration of wetlands that contain state or federal, threatened or endangered species
- Wetlands that contain essential habitat for state or federal listed species
- Presence of an Illinois Natural Areas Inventory (INAI) site
- A mean C-value of 4.0 or more (Swink and Wilhelm, 1994)
- Individual wetlands with a FQI of 20 or more (Swink and Wilhelm, 1994)

Location of the compensatory wetland mitigation sites would be determined following agreement on the wetland replacement ratio and other mitigation objectives. Appropriate environmental studies would be conducted for the selected mitigation sites, including an evaluation of the environmental features of the site, existing resources, suitability for wetland resource creation and restoration and potential effects of mitigation creation at the selected location.

Preferences for mitigation are as follows:

1. Wetland mitigation banking within a USACE approved bank.[1]
2. Onsite, within the same hydrologic unit and less than one mile from the project site.[2]
3. Off-site, within basin—the same hydrologic unit but more than one mile from the project site.
4. Off-site, out of basin—compensation not provided within the watershed of affected wetlands.

State mitigation ratios are determined by the size of the impact (over or under 0.5 acres) and the location of the mitigation site (onsite, off-site, out-of-basin). Since the project will most likely exceed the threshold for a Programmatic Action, the project will require a wetland compensation plan and coordination with the IDNR. The project may not meet Programmatic Action thresholds due to total wetland and WOUS impacts along the entire project and the potential to impact high quality aquatic resources and wetlands that may harbor state listed species. It is anticipated that impacts for this project will be mitigated by the purchase of credits from wetland banks.

Wetland sites occur within the Chicago and Rock Island Districts of the USACE. The UPRR will secure all natural resources permits prior to construction. This includes, but is not limited to the Section 404 permit from the USACE, Section 401 Water Quality Certification from the IEPA, and/or other permits that may be required. Prior to construction and as part of the wetland permitting process, the UPRR will secure the necessary wetland mitigation as required for the Section 404 Permit. As wetland banking is the most efficient manner to provide wetland mitigation, the UPRR will provide the name of the wetland bank utilized as well as proof of purchase of the required credits.

Threatened and Endangered Species

Both federal and state listed threatened and endangered species and special lands occur along the project corridor in Will, Grundy, and Livingston Counties. These are described in detail in the attached EA. The Preferred Alternative is not expected to have significant impacts to these resources. Prior to construction, specific information concerning the presence of state and federal listed species would be obtained. Coordination with U.S. Fish & Wildlife Service (FWS) and Illinois Department of Natural Resources (IDNR) has been initiated concerning the potential for the project to affect federal or state threatened or endangered species. This

[1] The option most preferred is mitigation bank credits. See the *Compensatory Mitigation for Losses of Aquatic Resources; Final Rule* (April 10, 2008).

[2] Mitigation site selection will consider the potential to attract waterfowl and other bird species that might pose a threat to aircraft. FAA Advisory Circular, *Hazardous Wildlife Attractants On or Near Airports*, (Advisory Circular No: 150/5200-33B) recommends that wetland mitigation projects that may attract hazardous wildlife be sited at least 10,000 feet from the air operations area of an airport serving turbine-powered aircraft, 5,000 feet from the air operations of an airport serving piston-powered aircraft, and five statute miles if the attractant may cause hazardous wildlife movement into or across the approach or departure airspace.

coordination and consultation will continue as needed to assure that appropriate mitigation measures are incorporated into the project to minimize or avoid impacts to protected plant and animal species.

A coordination meeting was held with the Chicago Ecological Office of the FWS and the project team on June 21, 2011 (See Appendix A for associated correspondence). FWS determined at this meeting that species-specific surveys should be conducted for two of the federally listed species as suitable habitat is present within the project corridor. Surveys were requested for the eastern prairie fringed orchid (*Platanthera leucophaea,* EPFO) and the leafy prairie clover (*Dalea foliosa*).

FRA has committed to completing the surveys for these species. The survey for the leafy prairie clover will extend past the completion of the FONSI. FRA will forward the findings of the plants surveys that were completed in 2011 upon completion in late summer 2011. If any federally listed species are observed during the surveys, FRA will notify the FWS for compliance with Section 7 consultation.

FRA will commit to coordinate with the IDNR concerning the presence or absence of state listed species. If IDNR requires on the ground surveys for specific species, FRA will commit to completing the surveys prior to construction. If any state listed species are observed during the surveys, the FRA will notify the IDNR for compliance with Illinois State regulations.

Both federal and state listed threatened and endangered species are known to occur within Will, Grundy, and Livingston Counties. The individual species are identified in the EA and were verified in July 2011 on the FWS database. Threatened and endangered species potentially occurring in the project corridor were identified from information supplied by the IDNR (IDNR, 2011) and the FWS Section 7 Consultation (FWS, 2011).

Federally-Listed Species

According to an on-line review of federally Endangered, Threatened, Proposed, and Candidate Species (FWS, July 2011), nine species are listed in Will, Grundy, and Livingston Counties, Illinois. These are identified in the EA.

Prairie remnants inclusive of mesic to wet prairies, dry rocky prairies, and late successional tallgrass prairies are present within and adjacent to the project limits. As a result, habitat conditions are suitable for the Eastern prairie fringed orchid (EPFO) and the leafy prairie clover, which are discussed below.

<u>Eastern Prairie Fringed Orchid</u>

The EPFO has been observed in Illinois at various locations. Habitat for the EPFO includes wet to mesic prairie, wetlands including sedge meadows, fens, marshes, and marsh edges and occasionally sphagnum bogs. It occupies a wide range of moisture regimes. The EPFO prefers full sun conditions and therefore favors marshes and meadows; however, the species may inhabit relic habitat areas which have been subject to degradation from invasive trees and shrubs.

Specific surveys were conducted for the EPFO in moderate to high quality wetlands, sedge meadows, marshes, and mesic to wet prairies within the project corridor. The following summarizes the EPFO survey methodology and results.

Due to the linear nature of the project and the rights-of-way, much of the habitat area was investigated by time meander search within the right-of-way. Time meander surveys were conducted within areas that were determined to be suitable habitat for the EPFO. Surveys were conducted to determine the presence/absence of the orchid. Surveys were conducted for a total of 214.25 field hours, expended on the dates shown in Table 1.

Table 1. Eastern Prairie Fringed Orchid Field Survey Hours

Date (2011)	Survey-Hours
June 30	14.0
July 11	34.75
July 12	35.0
July 13	27.50
July 14	17.25
July 15	32.75
July 19	23.75
July 20	29.25
Total	**214.25**

The EPFO survey was initiated at the macro level, utilizing existing information from as many resources as available to identify potential EPFO habitat within the project corridor. This included, but was not limited to, a review of data from the following sources; the FWS, the IDNR, the Illinois Natural History Survey (INHS), local forest preserve and conservation districts, as well as local conservation groups. Information included both known locations of the EPFO or known suitable habitat sites. These sites were mapped on the aerial photographs which were utilized during the field surveys.

Subsequently, the EPFO survey included general field assessments at the macro level. This included a general assessment of areas identified in the initial study phase, as well as an investigation of potential known siding and ground disturbance areas. This level of survey was conducted through the use of high-rail access. The goal of using high-rail access was to identify the locations of suitable EPFO habitat present along the length of the proposed alternatives. The high-rail survey, conducted on June 29, 2011, focused on the overall composition of the vegetative community and plant associates. Additionally, certain specific areas were investigated in more detail on-foot during the macro-level survey on June 29. The areas determined to be highest potential habitat for the EPFO are described below.

Sharp Road (MP 42.0)
A small, high quality wet to mesic prairie remnant located within the UPRR right-of-way, west of the UPRR, and immediately south of Sharp Road (approximately M.P. 42.0) contains suitable habitat for the EPFO.

Midewin National Tallgrass Prairie (MP 50.0 to MP 51.0)
High quality wet prairie remnant areas located within Midewin National Tallgrass Prairie, outside of the UPRR right-of-way, and west of the UPRR contain suitable habitat for the EPFO.

Wilmington to Braidwood (MP52.0 to MP 57.3)
High quality wet to mesic remnant prairie areas, associated with the Hitts Siding Prairie Nature Preserve, located on the west side of the UPRR, between Coal City Road and West Strip Mine Road, south of Wilmington contain suitable habitat for the EPFO. The majority of the high quality wet to mesic prairie associated with Hitts Siding Prairie Nature Preserve is located just outside of the UPRR right-of-way.

Braidwood to Gardner (MP57.3 to MP 65.0)
High quality wet to mesic remnant prairie areas located within the UPRR right-of-way, west of the UPRR, between Mitchell Road and County Road 500 South, contain suitable habitat for the EPFO.

Gardner to Dwight (MP 65.0 to MP 73.0)
High quality wet to mesic remnant prairie areas located within the UPRR right-of-way, west of the UPRR, beginning just south of Gardner and continuing south to IL 47 contain suitable habitat for the EPFO. The highest potential EPFO habitat within the project corridor is located in this section.

Between the north end of the proposed Dwight Siding and the Village of Gardner, a drainage ditch is present along the east side of the UPRR. The majority of the ditch is degraded; however, patches of moderate to high quality wet to mesic remnant prairie areas are present in this area as well and contain potential EPFO habitat.

Dwight Siding (MP 70.2 to MP 72.3)
The proposed Dwight Siding, located east of the existing tracks, contains high quality patches of wet to mesic remnant prairie. Patches of high quality remnant prairie are also present between Old Mazon Road and the north end of the proposed siding. Both of the above mentioned areas contain suitable habitat for the EPFO.

Survey Results
Temperatures ranged from approximately 77°F to 102°F during the course of the field investigations, with surveys only being conducted on days with partial to full sun. Therefore, weather conditions did not hinder the investigations. EPFO was not found within or adjacent to the proposed project limits during the field investigations; however, suitable habitat for the

EPFO was identified as being within the project corridor.

Habitat types and land use within and adjacent to the proposed project limits include high quality (Floristic Quality Index (FQI) greater than 20), dry/mesic/wet prairie remnants located along the west and east sides of the UPRR line, agricultural fields, mowed turf areas, scrub/shrub wetlands, scrub/shrub uplands, open water wetlands, sedge meadows, forested wetlands, forested uplands, urban, and industrial. Agricultural fields, mowed turf areas, forested uplands, urban, and industrial areas are not conducive to supporting the EPFO. A variety of high quality, wet and mesic remnant prairies were investigated within and adjacent to the southern portion of the proposed project limits. Of the areas identified as suitable habitat for the EPFO, all would be considered high quality (have an FQI of 45.0 or greater and/or a native mean C of 4.0 or greater). Areas determined to be critical habitat for the EPFO are described above.

Survey results indicate that the EPFO does not occur within the project limits.

Based on the review of information provided by the FWS website on June 28, 2011, as well as conditions observed in the field, IDOT has determined that species or critical habitat *is present* within the project area. This project *may affect* critical habitat of the EPFO.

Leafy Prairie Clover

Surveys have been initiated for the leafy prairie clover starting in the first week of August, 2011. The flowering period for the leafy prairie clover ranges from mid to late summer. Surveys are being conducted in the areas previous surveyed for the EPFO since these habitat areas contain mid to high quality wet, wet mesic, mesic, and dry prairie remnants. Survey work of approximate 200 field hours will be needed to document the presence or absence of this species.

Upon completion of the leafy prairie clover surveys, results will be presented to the FWS. If no individuals are observed within the project limits, the FRA will request concurrence from the FWS that no impacts to the leafy prairie clover are anticipated. If the plant is observed within the project limits, the FRA will initiate consultation with the FWS.

State Listed Species

Utilizing the IDNR's Ecological Compliance Assessment Tool (EcoCAT), a review of the Illinois Natural Heritage Database was conducted for the project corridor on August 2, 2011 for review purposes. The IDNR response documentation is included in Appendix A. Since the EA was prepared, one species has been added, forked aster (*Aster furcatus*), which was added as threatened.

Specific surveys were not conducted for the state listed species; however, during on-the-ground time meander surveys conducted for the EPFO, five populations, consisting of 229 individuals of the ear-leaved foxglove were found within the project corridor. All populations of ear-leaved foxglove are located on the west side of the UPRR, within the right-of-way.

Ear-Leaved Foxglove Habitat Characteristics/Natural History

Ear-leaved foxglove is a rare plant that occurs in scattered counties throughout most of Illinois, except the extreme south. Habitats include mesic black soil prairies, thickets containing grasses and occasional shrubs, savannas, woodland borders, abandoned fields, and areas along railroads (particularly where remnant prairies occur). This plant is found in both high quality habitats and somewhat disturbed areas. It is intolerant of frequent mowing or grazing; however an occasional wildfire may improve germination of the seeds, as well as reducing competition from shrubs and other kinds of plants.

Mesic prairies, thickets containing grasses and occasional shrubs, woodland borders, abandoned fields, and remnant prairies along railroads are present within and adjacent to the project limits. As a result, habitat conditions are suitable for the ear-leaved foxglove. As noted previously, specific surveys were not conducted for the ear-leaved foxglove within the project corridor.

Potential Impacts

The project would occur primarily within the existing railroad right-of-way, which has been significantly disturbed in areas north of Wilmington as well as within developed areas which include Braidwood, Gardner, and Dwight. There are large areas of high quality (FQI greater than 45.0) dry/mesic/wet remnant prairies located adjacent to the Hitts Siding Prairie Nature Preserve, located south of Wilmington; in the Braceville vicinity from south of County Road 5000 South (south of Braceville) to West Kennedy Road, as well as along the west side of the UPRR between Gardner and Dwight.

Detailed surveys were not conducted throughout the entire length of the project. Because of the presence of large high quality prairie remnants, there is the possibility that critical habitat as well as threatened and endangered species will be impacted. Potential impacts to critical habitat and identified species that are listed will be evaluated as engineering plans are developed.

Coordination with IDNR has been initiated concerning the ear-leaved foxglove and the Eryngium stem-borer, which has been identified by IDNR as a potentially present species. Prior to construction, FRA will request further consultation with IDNR concerning potential impacts to state listed species.