



Natural Resources Technical Report

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Prepared for:

Federal Transit Administration and Northern Indiana Commuter Transportation District

Prepared by:

AECOM

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Acronyms

BMP	Best Management Practice
CCSMP	Cook County Stormwater Management Plan
Cfs	cubic feet per second
CMAP	Chicago Metropolitan Agency for Planning
CRP	Comprehensive Regional Plan
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DDT	dichlorodiphenyltrichloroethane
DEIS	Draft Environmental Impact Statement
EcoCAT	Ecological Compliance Assessment Tool
EJE	Elgin, Joliet and Eastern Railway
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPDCC	Forest Preserve District of Cook County
FTA	Federal Transit Administration
GIS	geographic information system
HUC	hydrologic unit code
IC	Indiana Code
ICMP	Illinois Coastal Management Program
IDEM	Indiana Department of Environmental Management
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
IHB	Indiana Harbor Belt
ILCS	Illinois Compiled Statutes
INAI	Illinois Natural Area Inventory
INGS	Indiana Geological Survey
INDNR	Indiana Department of Natural Resources
LOMR	Letter of Map Revision
LMCP	Lake Michigan Coastal Program
MED	Metra Electric District
MWRDGC	Metropolitan Water Reclamation District of Greater Chicago
NEPA	National Environmental Policy Act
NICTD	Northern Indiana Commuter Transportation District
NIRPC	Northwest Indiana Regional Planning Commission

NS	Norfolk Southern
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NS	Norfolk Southern
PCB	polychlorinated biphenyl
ROW	right-of-way
SSL	South Shore Line
TMDL	total maximum daily load
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1. INTRODUCTION

The Federal Transit Administration (FTA) and Northern Indiana Commuter Transportation District (NICTD) are conducting the environmental review process for the West Lake Corridor Project (Project) in Lake County, Indiana, and Cook County, Illinois, in accordance with the National Environmental Policy Act (NEPA) and other regulatory requirements. A Draft Environmental Impact Statement (DEIS) is being prepared as part of this process, with the FTA as the Federal Lead Agency and NICTD as the Local Project Sponsor responsible for implementing the Project under NEPA.

1.1 Purpose of Report

The purpose of this report is to provide information on natural resources located within the Study Area, including location and general quality, and to provide a preliminary indication regarding impacts of the various alternatives and design options.

1.2 Project Overview

The environmental review process builds upon NICTD's prior West Lake Corridor studies that examined a broad range of alignments, technologies, and transit modes. The studies concluded that a rail-based service between the Munster/Dyer area and Metra's Millennium Station in downtown Chicago, shown on **Figure 1-1**, would best meet the transportation needs of the Northwest Indiana area. Thus, NICTD advanced a "Commuter Rail" Alternative for more detailed analysis in the DEIS. NEPA also requires consideration of a "No Build" Alternative to provide a basis for comparison to the Commuter Rail Alternative. In addition, a number of design variations are being considered related to alignment, stations, parking, and maintenance and storage facilities (see **Figure 1-2**).

1.2.1 No Build Alternative

The No Build Alternative is defined as the existing transportation system, plus any committed transportation improvements included in the Northwestern Indiana Regional Planning Commission's (NIRPC) *2040 Comprehensive Regional Plan* (CRP) (NIRPC 2011) and Chicago Metropolitan Agency for Planning's (CMAP) *GO TO 2040 Comprehensive Regional Plan* (CMAP 2014) through the planning horizon year 2040. It also includes capacity improvements to the existing Metra Electric District's (MED) line and Millennium Station, documented in NICTD's *20-Year Strategic Business Plan* (NICTD 2014).



Figure 1-1 Regional Setting for West Lake Corridor Project

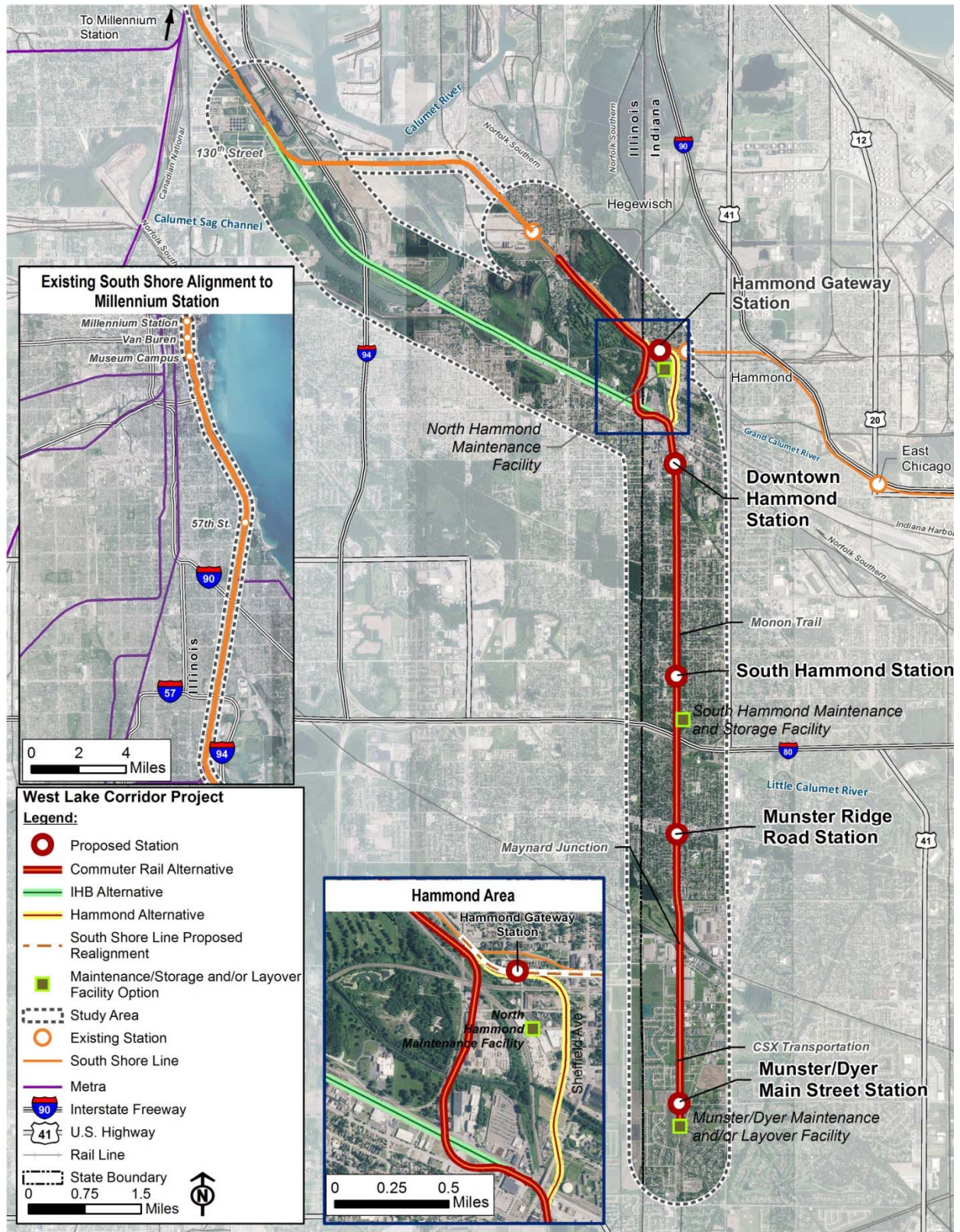


Figure 1-2 West Lake Corridor Project Study Area

1.2.2 Commuter Rail Alternative

The Commuter Rail Alternative would involve commuter rail service using electric-powered trains on an approximate 9-mile southern extension of NICTD's existing South Shore Line (SSL) between Dyer and Hammond, Indiana (see **Figures 1-2 and 1-3**). Heading north from the southern terminus near Main Street at the Munster/Dyer municipal boundary, the Project would include new track on a separate right-of-way (ROW) adjacent to, and east of, the CSX freight line in Munster. North of the proposed elevated crossing over another CSX freight line at the Maynard Junction, the proposed Commuter Rail Alternative alignment would use the publically-owned former Monon Railroad corridor in Munster and Hammond. North of downtown Hammond the track alignment would turn west under Hohman Avenue, and then continue north on new elevated track generally along the Indiana-Illinois state line to connect to the existing SSL southeast of the Hegewisch Station in Chicago. Project trains would operate on the existing MED line for their final 14 miles, terminating at Millennium Station in downtown Chicago. Station locations for the Commuter Rail Alternative would include Munster/Dyer Main Street, Munster Ridge Road, South Hammond, and Downtown Hammond.

Four design options to the Commuter Rail Alternative near the southern Project terminus include:

- **Commuter Rail Alternative Option 1:** Under this design variation, parking for the Munster/Dyer Main Street Station would be located on the east side of the station, and a vehicle maintenance and storage facility would be located south of 173rd Street in Hammond near the South Hammond Station. See **Figure 1-3**.
- **Commuter Rail Alternative Option 2:** Under this design variation, parking for the Munster/Dyer Main Street Station would be located on the west side of the existing CSX freight line. Main Street would be extended west from Sheffield Avenue using an underpass to cross the CSX railroad and Project ROW. The vehicle maintenance and storage facility would be located south of 173rd Street in Hammond near the South Hammond Station. See **Figure 1-3**.
- **Commuter Rail Alternative Option 3:** Under this design variation, the vehicle maintenance and storage facility would be located south of the Munster/Dyer Main Street Station, on the east side of the existing CSX freight line, at Munster/Dyer Main Street Station, instead of south of the South Hammond Station. Parking for the Munster/Dyer Main Street Station would be located on the east side of the station. See **Figure 1-3**.
- **Commuter Rail Alternative Option 4:** Under this design variation, the rail alignment would be routed above the existing CSX freight line at Maynard Junction, to land on the west side of the CSX freight line, and then continue south to the Munster/Dyer Main Street Station area. The Munster/Dyer Main Street Station and parking would be located west of the existing CSX freight line. A Main Street extension west under the CSX freight line and the Project ROW would be required. The vehicle maintenance and storage facility would be located south of 173rd Street in Hammond near the South Hammond Station. See **Figure 1-3**.

There are two design variations to the Commuter Rail Alternative related to the proposed alignment (i.e., the Indiana Harbor Belt [IHB] Alternative and the Hammond Alternative) as follows. See **Figures 1-4, 1-5, and 1-6**.

COMMUTER RAIL ALTERNATIVE

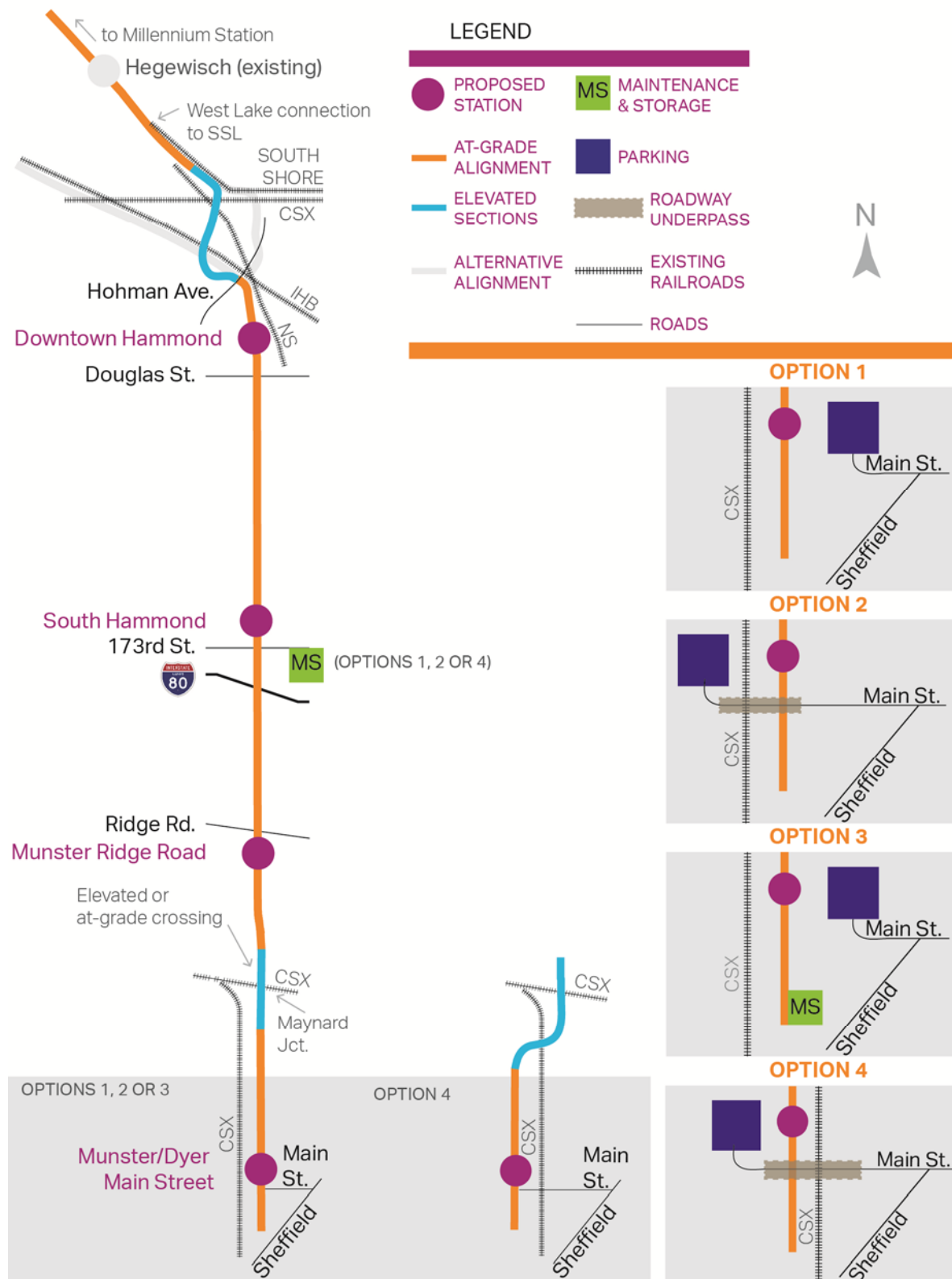


Figure 1-3 Commuter Rail Alternative Options

1.2.3 Indiana Harbor Belt (IHB) Alternative

South of Douglas Street, the IHB Alternative duplicates the Commuter Rail Alternative Options described above. From downtown Hammond north of Douglas Street, the alignment of the IHB Alternative would turn west under Hohman Avenue in Hammond and would be constructed in the IHB freight line ROW west through Calumet City, Burnham, and Chicago, Illinois. West of Burnham Avenue, the IHB Alternative would bridge over the IHB and CSX freight lines, landing in the IHB Kensington Branch freight line ROW, and would include relocating and reconstructing the IHB freight line on a new adjacent track within the existing railroad ROW. The Project would then continue northwest to the proposed connection with the existing SSL near I-94 and 130th Street in Chicago. See **Figure 1-4**.

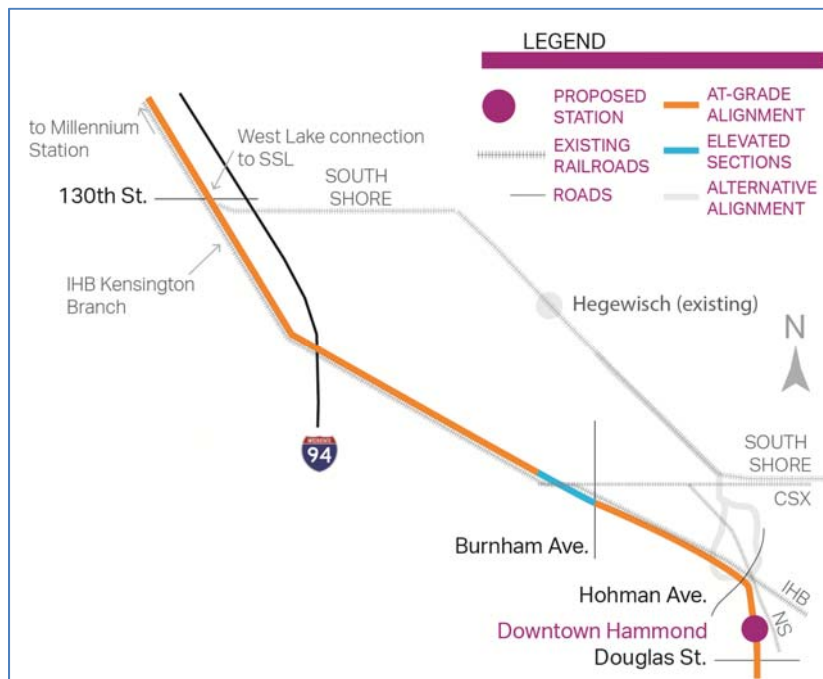


Figure 1-4 Indiana Harbor Belt Alternative

1.2.4 Hammond Alternative

South of Douglas Street, the Hammond Alternative is similar to the Commuter Rail Alternative described above. From downtown Hammond north of Douglas Street, the Hammond Alternative would extend north on embankment and bridges crossing over the IHB and Norfolk Southern freight lines immediately east of the Hohman Avenue overpass. The alignment would then extend northward and cross over Hohman Avenue just south of Michigan Street. The alignment would then continue north and west, crossing over the existing CSX freight line, and connecting with the existing SSL. See **Figure 1-5**.

HAMMOND ALTERNATIVE

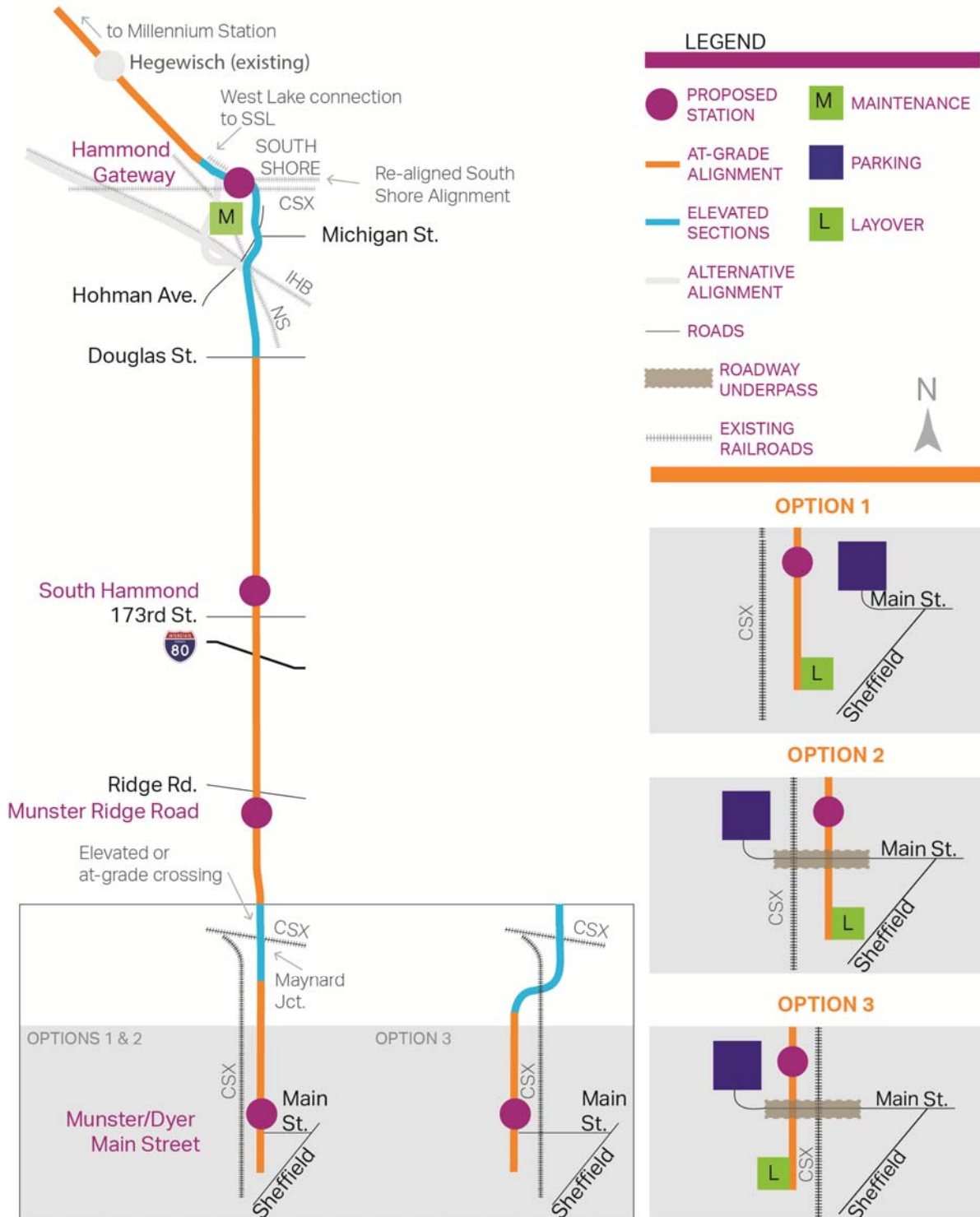


Figure 1-5 Hammond Alternative Options

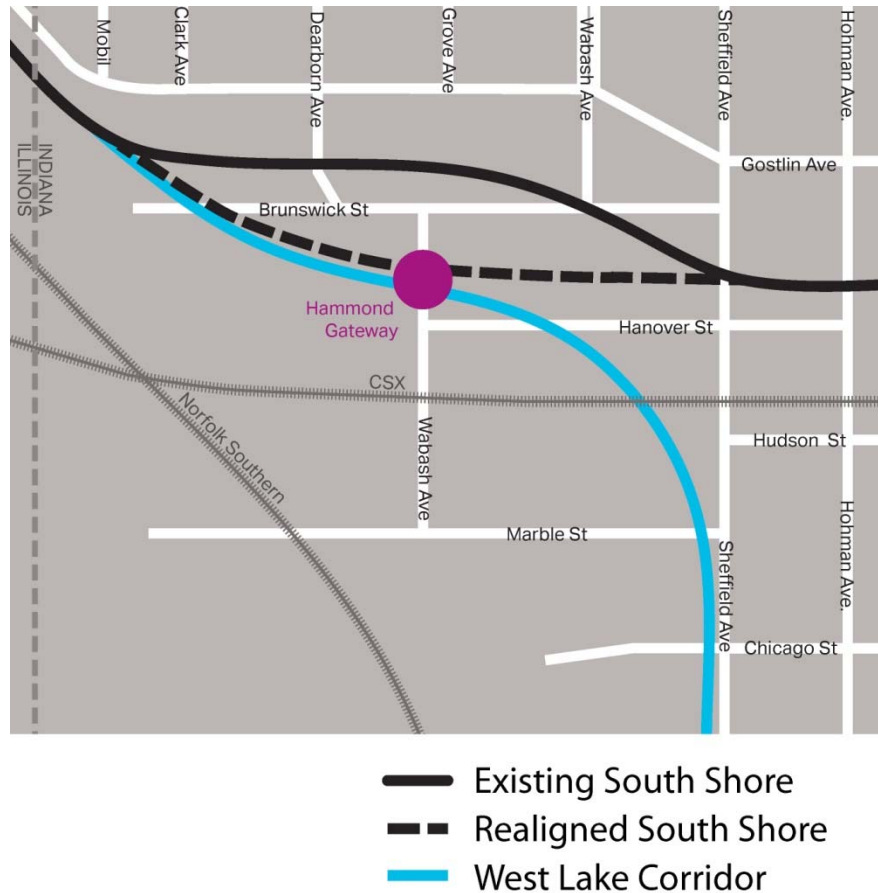


Figure 1-6 South Shore Line Proposed Realignment

Under the Hammond Alternative, the Hammond Gateway Station would be constructed in North Hammond and would replace the existing SSL Hammond Station (see **Figure 1-5**). The Hammond Alternative assumes the existing SSL track would be relocated between the existing SSL Hammond Station and the Indiana-Illinois state line to facilitate a passenger connection between the Project and the SSL at the Hammond Gateway Station on the Hammond Alternative. The alignments of both routes would be adjacent to one another at this location, allowing passengers to transfer at the combined station. During non-peak times, West Lake Corridor Project trains would operate as shuttles between Munster/Dyer Main Street Station and Hammond Gateway Station, making connections with SSL service. **Figure 1-6** illustrates the SSL track relocation.

A maintenance facility would be located immediately south of the Hammond Gateway Station. A separate layover facility at the southern end of the Project corridor, near the Munster/Dyer Main Street Station, would also be constructed, as shown on **Figure 1-5**. There are three design variations on how the layover facility, Munster/Dyer Main Street Station, and parking would be configured under the Hammond Alternative, as follows:

- **Hammond Alternative Option 1:** The Munster/Dyer Main Street Station, layover facility, and parking would be on the east side of the existing CSX freight line. See **Figure 1-5**.
- **Hammond Alternative Option 2:** The Munster/Dyer Main Street Station and layover facility would be on the east side of the existing CSX freight line, and the parking would be west of the CSX freight line. A Main Street extension west under the CSX freight line and Project ROW would be required. See **Figure 1-5**.

- **Hammond Alternative Option 3:** This option would require routing the Project above the existing CSX freight line at Maynard Junction, landing on the west side of the CSX freight line ROW, and continuing south to the Munster/Dyer Main Street area. The Munster/Dyer Main Street Station, layover facility, and parking would be located west of the existing CSX freight line. A Main Street extension west under the CSX freight line and the Project ROW would be required. See **Figure 1-5**.

1.2.5 Maynard Junction Rail Profile Option

One design variation is being considered for each Build Alternative—the Maynard Junction Rail Profile Option. Under this design variation, at Maynard Junction in Munster, the alignment would cross the existing CSX freight line in an at-grade profile instead of an elevated profile. The proposed alignment would remain east of the CSX freight line ROW for the Commuter Rail Alternative Options 1, 2, and 3 (see on **Figure 1-3**), the IHB Alternative Options 1, 2, and 3, and the Hammond Alternative Options 1 and 2 (see **Figure 1-5**).

2. THREATENED AND ENDANGERED SPECIES AND WILDLIFE HABITAT

This section describes the regulatory environment and the methodology used to determine Project impacts on habitat and wildlife. It defines the types of habitat and wildlife found within the Study Area, including forests, specimen trees, terrestrial wildlife, and rare, threatened, and endangered species. It also describes the effects of the Project Alternatives on these resources and discusses minimization strategies that NICTD would undertake to offset any potential impacts.

2.1 Regulatory Setting

The following state or federal regulations apply to natural areas and wildlife habitat, including:

- **Section 7 of the Endangered Species Act of 1973 (16 United States Code [USC] §§ 1531-1544)** - requires that all federal agencies consider and avoid, if possible, adverse impacts to federally listed threatened or endangered species or their critical habitats, that may result from their direct, regulatory, or funding actions. The United States Fish and Wildlife Service (USFWS) is responsible for compiling and maintaining the federal list of threatened and endangered species.
- **Migratory Treaty Bird Act of 1918 (16 USC §§ 703-712)**: Makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such birds except under the terms of a valid permit issued pursuant to federal regulations. USFWS is the lead agency for migratory birds.
- **Bald Eagle and Golden Eagle Protection Act of 1940 (16 USC §§ 668-668d, 54 Stat. 250)**: Prohibits the taking, possession, or commerce of these species.
- **Illinois Endangered Species Protection Act (520 Illinois Compiled Statutes [ILCS] 10)**: Prohibits the transfer, sale, and possession of products or skins of animals in danger of extinction.
- **Illinois Natural Areas Preservation Act (525 ILCS 30)**: Provides for the protection of lands, waters, plants, animals, and cultural resources into natural areas for scientific research, aesthetic enjoyment, and natural plant and animal habitats for present and future generations.
- **Indiana Nongame and Endangered Species Conservation Act (Indiana Code [IC] 14-22-34)**: Charges Wildlife Diversity personnel within the Division of Fish & Wildlife to manage and conserve nongame and endangered species. A nongame species is any wild mammal, bird, amphibian, reptile, fish, mollusk, or crustacean that is not hunted or trapped for sport or commercial use.

2.2 Methodology

The Study Area is defined as an area approximately ½ mile around each of the proposed alignments and associated facilities (maintenance and storage facilities, layover facilities, stations, and parking lots). This distance captures the habitat that is directly adjacent to the Project and the wildlife that could potentially be affected by it. The habitat areas are illustrated in

Appendix A. The methodologies employed for the threatened and endangered species and wildlife habitat analysis are described below.

2.2.1 Threatened and Endangered Species

Information was obtained on species that have the potential to be located within the Study Area. A list of federally protected species was obtained from the USFWS Endangered Species Program website (USFWS 2014). Early coordination was also established with USFWS in order to refine information related to protected species. A letter was received from USFWS dated November 4, 2014 (see **Appendix B**), which provided information on the potential for the presence of federally protected species in Indiana.

Information on the potential presence of Illinois-protected species was obtained from the Illinois Department of Natural Resources (IDNR's) Ecological Compliance Assessment Tool (EcoCAT) database (IDNR 2014a). This website database provided information on the Illinois Natural Area Inventory (INAI) sites in the Study Area, as well as potential protected species that may occur within the Illinois portion of the Study Area. The reports that resulted from this database search can be found in **Appendix B**. Illinois-protected species information was obtained directly from the EcoCAT reports. In addition, follow-up research on the INAI sites identified by the EcoCAT reports identified the potential for additional Illinois-protected species to be present within individual INAI sites. All of the Illinois-protected species, either directly identified by EcoCAT or indirectly via INAI research, were considered.

Information on the potential for the presence of protected species within the Calumet Open Space Reserve was also obtained from breeding bird summaries (Marcisz and Pollock 2013) and personal communications with resource agencies and property owners (Nash 2014).

A request for information related to the potential for state protected species was submitted to the Indiana DNR (INDNR) on October 6, 2014. The INDNR response (see ER-17897 in **Appendix B**) provided information on Indiana-protected species.

Once a list of potential federal and state protected species was developed, habitat and lifecycle needs of these species were determined, and a site reconnaissance was conducted for the purpose of determining the presence of required habitat types adjacent to the proposed alignments. Site reconnaissance was conducted on October 22 and November 3, 2014. Site reconnaissance was augmented by aerial photography. All areas that are not currently developed were assessed for the potential to possess a habitat used by a protected species. No species surveys were conducted. The potential for a particular species presence was based strictly on the presence/absence of appropriate habitat.

2.2.2 Wildlife Habitat

Information on the potential presence of natural areas or wildlife habitat was obtained from aerial photography of the Study Area. Site reconnaissance was conducted on October 22 and November 3, 2014, to evaluate areas identified by the aerial photography as having the potential for floristic quality sufficient to be considered a natural area or to possess wildlife habitat. No formal floristic quality assessments or species surveys were conducted.

Information on the potential presence of natural habitat areas in Illinois was obtained from the IDNR EcoCAT. This website database was referenced in order to identify resources within the Illinois portion of the Study Area. The reports that resulted from this database search can be found in **Appendix B**. Information on the potential presence of natural habitat areas in Indiana

was also obtained through coordination with INDNR. A copy of this coordination can be found in **Appendix B**.

2.3 Affected Environment

2.3.1 Threatened and Endangered Species

Federally Protected Species

In a letter dated November 4, 2014 (see **Appendix B**), USFWS states that Lake County, Indiana is within the range of the Indiana bat, Karner blue butterfly, northern long-eared bat, Pitcher's thistle, and Mead's milkweed. Cook County, Illinois, is within the range of the piping plover, Hine's emerald dragonfly, leafy-prairie clover, northern long-eared bat, prairie bush clover, eastern prairie fringed orchid, Mead's milkweed, the eastern massasauga rattlesnake, and the rattlesnake-master borer moth. Cook County also contains designated Critical Habitat for the Hine's emerald dragonfly. Per the USFWS letter, none of the federally listed species are known to occur within the Study Area.

Per communication from USFWS, Barrington, Illinois, none of the species listed as federally protected in Cook County, Illinois, are known to occur within the Study Area (Nash 2014). USFWS requested that Forest Preserve District of Cook County (FPDCC) be contacted for information on what species may be present on their properties. Per communication with the FPDCC, additional species were identified. **Tables 2-1** and **2-2** contain a summary of the federally protected species that are known to occur in Cook County, Illinois, and Lake County, Indiana, respectively.

Table 2-1 Federal Threatened or Endangered Species, Cook County, Illinois

Species	Status	Required Habitat	Habitat Present/ Location
northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened	Hibernates in caves and mines, swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods	Yes Powderhorn Lake, Flatfoot Lake/ Beaubien Woods
piping plover (<i>Charadrius melodus</i>)	Endangered	Lakeshore beaches	No
eastern massasauga rattlesnake (<i>Sistrurus catenatus</i>)	Candidate	Graminoid dominated plant communities (fens, sedge meadows, peatlands, wet prairies, open woodlands, and shrublands)	Yes Powderhorn Lake, Burnham Prairie, Dolton Prairie, Flatfoot Lake/ Beaubien Woods
Hine's emerald dragonfly (<i>Somatochlora hineana</i>)	Endangered	Spring fed wetlands, wet meadows, marshes	No
Hine's emerald dragonfly (<i>Somatochlora hineana</i>)	Critical Habitat Designated	Location as defined by Federal Register Vol. 75, No. 78 (April 23, 2010)	No
rattlesnake-master borer moth (<i>Papaipema eryngii</i>)	Candidate	Undisturbed prairie and woodland openings that contain their only food plant, rattlesnake-master (<i>Eryngium yuccifolium</i>)	Yes Powderhorn Lake, Calumet City Prairie, Burnham Prairie, Dolton Prairie

Species	Status	Required Habitat	Habitat Present/ Location
eastern prairie fringed orchid (<i>Platanthera leucophaea</i>)	Threatened	Moderate to high quality wetlands, sedge meadow, marsh, and mesic to wet prairie	Yes Powderhorn Lake, Burnham Prairie, Dolton Prairie
leafy-prairie clover (<i>Dalea foliosa</i>)	Endangered	Prairie remnants on thin soil over limestone	No
Mead's milkweed (<i>Asclepias meadii</i>)	Threatened	Late successional tallgrass prairie, tallgrass prairie converted to hay meadow, and glades or barrens with thin soil	Yes Powderhorn Lake, Calumet City Prairie, Burnham Prairie, Dolton Prairie
prairie bush clover (<i>Lespedeza leptostachya</i>)	Threatened	Dry to mesic prairies with gravelly soil	No
red knot (<i>Calidris canutus</i>)	Threatened	Coastal areas or large wetland complexes, found during migratory window of May 1 - September 30	Yes Powderhorn Lake

SOURCE: USFWS Endangered Species Program 2014

Table 2-2 Federal Threatened or Endangered Species, Lake County, Indiana

Species	Status	Required Habitat	Habitat Present/ Location
Indiana bat (<i>Myotis sodalis</i>)	Endangered	Hibernates in caves and mines, swarming in surrounding wooded areas. Summer roosting and foraging habitat occurs in wooded stream corridors and in bottomland and upland forests and woods.	No
northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened	Hibernates in caves and mines, swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods.	No
Karner blue butterfly (<i>Lycaeides melissa samuelis</i>)	Endangered	Pine barrens and oak savannas on sandy soils and containing wild lupines (<i>Lupinus perennis</i>), the only known food plant of larvae.	No
Pitcher's thistle (<i>Cirsium pitcheri</i>)	Threatened	Lakeshores, stabilized dunes and blowout areas	No
Mead's milkweed (<i>Asclepias meadii</i>)	Threatened	Prairies	No

SOURCE: USFWS Endangered Species Program 2014

State Protected Species

The Illinois protected species that are known to occur within the Study Area are summarized in **Table 2-3** and discussed below. INDNR's Early Coordination/Environmental Assessment (DNR number: ER-17897) advised that no plant or animal species listed as state protected have been reported to occur within the Study Area (see **Appendix B**). A historical record of *Lithobates pipiens* (northern leopard frog), a state species of concern, has been documented near the Study Area, between the CN (former Elgin, Joliet and Eastern Railway [EJE]) Railroad and Norfolk Southern (NS) tracks in Dyer, Indiana. Per the Fish and Wildlife Division of INDNR, impacts to the northern leopard frog are not anticipated.

Table 2-3 Illinois Protected Species in the Study Area

Species	Status	Nesting/Present	Known Location
yellow-crowned night heron (<i>Nyctanassa violacea</i>)	State endangered	Breeding and present	Powderhorn Preserve, within the marshes; Calumet Water Reclamation Plant; Lake Calumet INAI site
yellow-crowned night heron (<i>Nyctanassa violacea</i>)	State endangered	Present	Burnham Prairie Nature Preserve; Beaubien Woods/Flatfoot Lake; Calumet Water Reclamation Plant
black-crowned night heron (<i>Nycticorax nycticorax</i>)	State endangered	Present	Lake Calumet INAI site
American bittern (<i>Botaurus lentiginosus</i>)	State endangered	Potentially present	Lake Calumet INAI site
king rail (<i>Rallus elegans</i>)	State endangered	Present	Powderhorn Preserve, within the marshes; Lake Calumet INAI site
common gallinule (<i>Gallinula galeata</i>)	State endangered	Breeding and present	Powderhorn Preserve, within the marshes; Burnham Prairie Nature Preserve
little blue heron (<i>Egretta caerulea</i>)	State endangered	Present	Powderhorn Preserve, within the marshes; Lake Calumet INAI site Burnham Prairie Nature Preserve
northern harrier (<i>Circus cyaneus</i>)	State endangered	Potentially present	Lake Calumet INAI site
common moorhen (<i>Gallinula chloropus</i>)	State endangered	Potentially present within marshes and ponds with tall emergent vegetation	Hegewisch Marsh; Lake Calumet INAI site
yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	State endangered	Potentially present within prairie wetlands, shallow areas of marshes, ponds, and rivers	Hegewisch Marsh; Lake Calumet INAI site Burnham Prairie Nature Preserve
snowy egret (<i>Egretta thula</i>)	State endangered	Prairie wetlands, shallow areas of marshes, ponds, and rivers	Lake Calumet INAI site
black tern (<i>Chlidonias niger</i>)	State endangered	Ponds and rivers	Lake Calumet INAI site
Wilson's phalarope (<i>Phalaropus tricolor</i>)	State endangered	Wetlands, shallow areas of marshes, ponds, and rivers	Lake Calumet INAI site
osprey (<i>Pandion haliaetus</i>)	State threatened	Breeding	Powderhorn Lake
least bittern (<i>Ixobrychus exilis</i>)	State threatened	Breeding and present	Powderhorn Preserve, within the marshes; Lake Calumet INAI site Burnham Prairie Nature Preserve
peregrine falcon (<i>Falco peregrinus</i>)	State threatened	Present	Calumet Water Reclamation Plant; Calumet River at Torrence Avenue

Species	Status	Nesting/Present	Known Location
black-billed cuckoo (<i>Coccyzus erythrophthalmus</i>)	State threatened	Present	Powderhorn Preserve , within the prairie Burnham Prairie Nature Preserve; Beaubien Woods/Flatfoot Lake
piebilled grebe (<i>Podilymbus podiceps</i>)	State threatened	Present	Hegewisch Marsh
willow flycatcher (<i>Empidonax traillii</i>)	Important bird area species	Present, potentially breeding	Powderhorn Preserve , within the prairie; Calumet Water Reclamation Plant Burnham Prairie Nature Preserve; Beaubien Woods/Flatfoot Lake
Blanding's turtle (<i>Emydoidea blandingii</i>)	State endangered	Breeding and Present	Powderhorn Lake and within the marshes Calumet City Prairie; Burnham Prairie Nature Preserve; Beaubien Woods/ Flatfoot Lake
banded killfish (<i>Fundulus diaphanus</i>)	State threatened	Breeding and present	Powderhorn Lake
marsh speedwell (<i>Veronica scutellata</i>)	State threatened	Potentially present within marshes, wet meadows, low areas along springs, low muddy areas along ponds, and swamps	No known location
<u>Franklin's ground squirrel</u> (<i>Spermophilus franklinii</i>)	State threatened	Present	Calumet City Prairie; Burnham Prairie Nature Preserve; Beaubien Woods/Flatfoot Lake
<u>grass pink orchid</u> (<i>Calopogon tuberosus</i>)	State endangered	Present	Calumet City Prairie; Burnham Prairie Nature Preserve; Beaubien Woods/Flatfoot Lake
<u>Richardson's rush</u> (<i>Juncus alpinus</i>)	State endangered	Present	Calumet City Prairie; Burnham Prairie Nature Preserve; Beaubien Woods/Flatfoot Lake
<u>marsh speedwell</u> (<i>Veronica scutellata</i>)	State threatened	Present	Calumet City Prairie; Burnham Prairie Nature Preserve; Beaubien Woods/Flatfoot Lake

SOURCE: Illinois EcoCAT 2014

¹Species/locations noted in bold are confirmed present within the Study Area. Underlined species are known to occur within the Study Area, but locations are not disclosed due to property owners' request for confidentiality.

The natural areas within the Study Area that contain protected species are discussed in **Section 2.3.2.**

2.3.2 Wildlife Habitat

There is no USFWS designated critical habitat within the Study Area. The majority of the Study Area is composed primarily of developed land. Northern portions of the Study Area in Indiana and Illinois also contain significant amounts industrial development. The Illinois portion of the Study Area is highly urbanized with small pockets of open space primarily consisting of mowed

lawn and landscaped trees, particularly within urban parks. Any wildlife or birds associated with these landscaped areas and parks are urban tolerant. Small parcels scattered throughout the Study Area are currently undeveloped and dominated by early successional or invasive species.

In Indiana, the Study Area is urban in nature and most of the land has been developed for residential or commercial uses. Natural areas or wildlife habitat, where present, are scattered and often isolated. This portion of the Study Area is highly urbanized with small pockets of open space primarily consisting of mowed lawn and landscaped trees, particularly within urban parks. Any wildlife or birds associated with these landscaped areas and parks are urban tolerant. Small parcels scattered throughout the Study Area are currently undeveloped and dominated by early successional or invasive species.

Located between 115th Street/Kensington Avenue and Douglas Street is the Calumet Region, which is an ecological transition between the hardwood forests of the eastern United States and the tallgrass prairies of Illinois. This region contains remnant dune and swale habitat created by Lake Michigan, as well as other sensitive habitats. The INAI lists 11 sites that are of statewide significance in the Calumet Region, containing 26 threatened or endangered species and 8 different natural habitat communities. INAI sites are areas identified by IDNR as having the highest quality natural communities in the state.

The Calumet Region contains the Calumet Open Space Reserve, which is a consortium of state and local agencies that was formed to protect and enhance 3,900 acres of important habitat in this area. The Calumet Open Space Reserve includes marshes, prairies, and woodlands; it provides habitat for over 200 species of birds; 20 species of fish; and rare mammals, amphibians, and reptiles. Forty percent of all Illinois threatened or endangered plants can be found within this Reserve. In addition, the Reserve is an important stopover for migratory birds and is anticipated to become a nationally recognized place for habitat restoration and conservation. The Chicago Park District owns 800 of these acres; the rest is split between IDNR and FPDCC. Many of the preserves that are part of the Calumet Open Space Reserve within the Study Area are also INAI sites (Calumet Stewardship Initiative 2014, Chicago Park District 2014).

Species typically found in the Calumet Region include songbirds, such as swallows, wrens, purple martins, yellowthroats, and red-winged blackbirds; waterfowl; shorebirds; rails; and long legged waders. Fourteen species of amphibians have been found in the area, including frogs, toads, and salamanders. Common mammals include squirrels, raccoons, skunks, opossums, bats, and coyotes.

The portion of the Study Area south of Douglas Street is highly urbanized with small pockets of open space primarily consisting of mowed lawn and landscaped trees, particularly within urban parks. Any wildlife or birds associated with these landscaped areas and parks are urban tolerant. Small parcels scattered throughout the Study Area are currently undeveloped and dominated by early successional or invasive species.

Larger parcels of natural habitat contained within this portion of the Study Area are described below. The locations of the natural areas/wildlife habitat in the Study Area are shown on **Figure 2-1**. In addition to these specific sites, there are several other resources within relative proximity to the Study Area, but not within the ½-mile buffer of the studied alignment. Sites outside the ½-mile buffer include Wentworth Prairie INAI site, Hegewisch Marsh/130th Street Marsh INAI site, Big Marsh, Heron Pond, Wolf Lake INAI site, and Indian River Marsh.

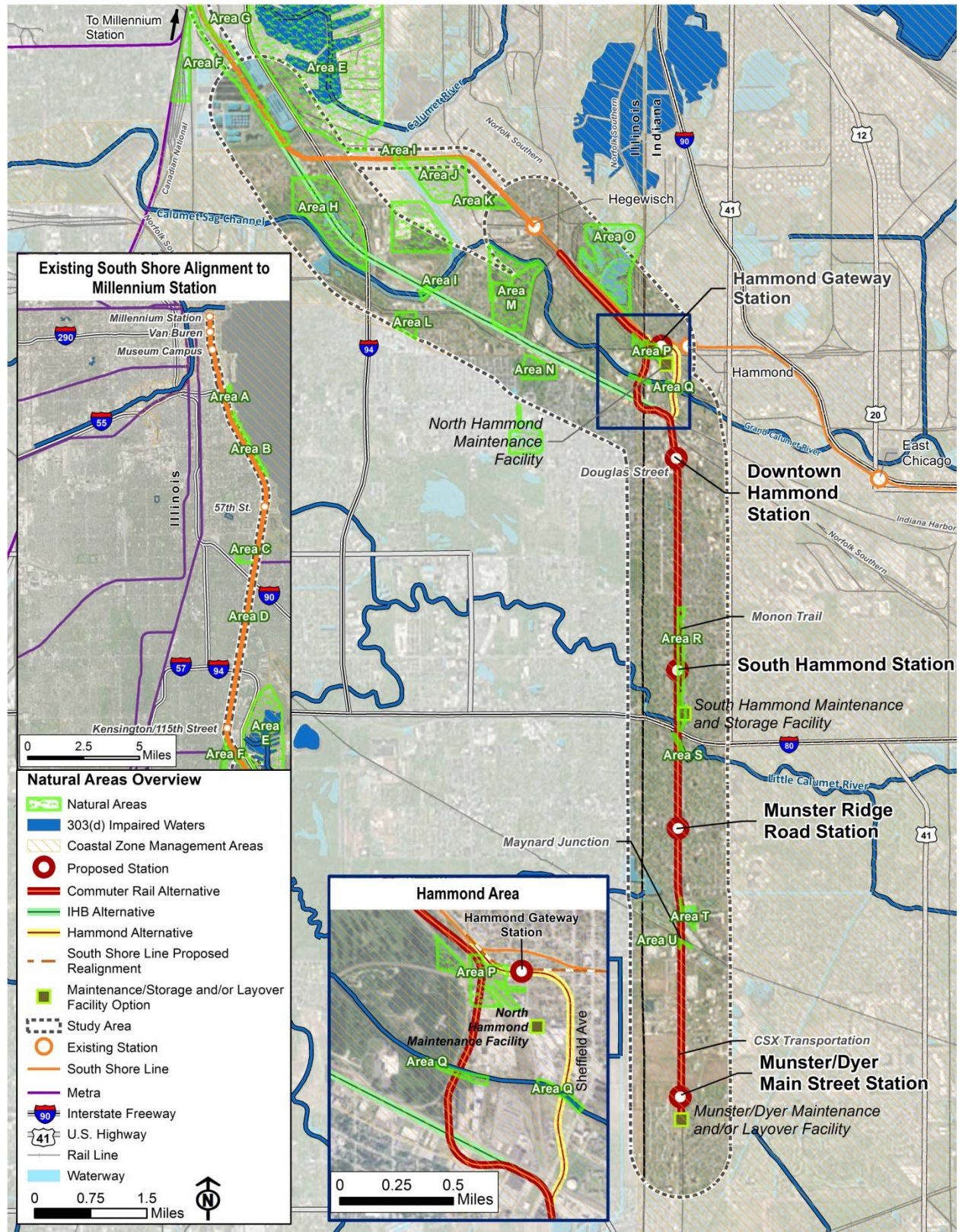


Figure 2-1 Natural Areas in the Study Area

Area A: McCormick Place Bird Sanctuary

McCormick Place Bird Sanctuary is a natural habitat constructed on top of a McCormick Place underground parking garage. Native habitats that have been installed include shortgrass prairie, shrubs, and a pond. The site has been designed to provide habitat for migrating birds that utilize the lakefront. An increase in native birds utilizing this habitat has been noted by the City of Chicago (Chicago Planning and Development 2015).

Area B: Burnham Park Wildlife Corridor

Burnham Park Wildlife Corridor is a 103-acre parcel located between the MED tracks and Lake Shore Drive, as well as between Lake Shore Drive and Lake Michigan, from 31st Street to 47th Street. The property is in the process of being naturalized with native plant species, including oak woodlands, savanna, and prairie. It is designed to be a stopover for the approximately 300 species of migratory birds that utilize the lakefront. Additionally, the Burnham Park Wildlife Corridor is a continuation of and connected to the McCormick Place Bird Sanctuary.

Area C: Oak Woods Cemetery

The Oak Woods Cemetery is located on the west side of the MED tracks between 67th Street and 71st Street. This large cemetery, located adjacent to the railroad tracks, was established in 1853 and has large, mature trees amidst mowed lawn. Due to its size and the presence of mature trees, this cemetery provides habitat for urban tolerant wildlife, such as squirrels, opossums, rabbits, and songbirds.

Area D: East Side of MED Tracks, between 83rd Street and 86th Street

A fairly large wooded parcel exists between 83rd Street and 86th Street, sandwiched between the MED tracks and Avalon Park. This parcel provides habitat for urban tolerant wildlife, such as squirrels, opossums, rabbits, and songbirds. Its association with Avalon Park increases its habitat potential.

Area E: Lake Calumet INAI Site

Lake Calumet is a 3,050-acre INAI site contained within the Calumet Open Space Reserve. It is located east of I-94 and north of 127th Street. Lake Calumet is listed as an INAI site due to the presence of exceptional bird habitat, including habitat for state protected species. It has 11 known state endangered or threatened bird species nesting here and over 200 species of birds occur here, many of which do not nest anywhere else in northeastern Illinois. One of Illinois's largest populations of the state endangered black-crowned night heron inhabits the marshes located on the east side of Lake Calumet. Additionally, bald eagles are known to nest in the northern portion of this site. However, only a very small sliver of the Lake Calumet INAI site extends within the ½-mile buffer of the Study Area. The portion of the Lake Calumet INAI site located closest to the Study Area is dominated by invasive species, primarily common reed.

Area F: Kensington Marsh

Kensington Marsh is located northwest of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) Calumet Water Reclamation Plant. This 15-acre marsh consists of open water, wetlands, and upland habitat. This marsh provides wildlife habitat, particularly for birds. Its habitat value is declining, however, due to the increased invasion of common reed.

Area G: MWRDGC Calumet Water Reclamation Plant

The MWRDGC Calumet Water Reclamation Plant is located north of 130th Street. MWRDGC was constructed the marsh in conjunction with a United States Army Corps of Engineers (USACE) mitigation project. The east bioswales drying site and southern lagoons appear to contain habitat based on aerial photography. The site reconnaissance determined that there is a narrow strip of habitat that exists in association with the existing MED/SSL tracks and MWRDGC. This property was never developed because of the surrounding industrial uses. It contains mixed forest and scrub/shrub habitat and provides a corridor to Kensington Marsh, located west of the Study Area.

Three Illinois protected species of birds are known to inhabit the property. At the location adjacent to the MED/SSL tracks, the vegetation is dominated by common reed and is extremely degraded. Due to the dominance of invasive species in the vicinity of the tracks, this part of the Reclamation Plant is not expected to support state protected species.

Area H: Flatfoot Lake/Beaubien Woods Forest Preserve

Flatfoot Lake, and the surrounding Beaubien Woods Forest Preserve, is part of the Calumet Open Space Reserve. Beaubien Woods is located east of I-94, south of 130th Street. This 279-acre property is owned by FPDCC. It contains prairie, woodland, and wetland habitats; the 19-acre Flatfoot Lake is located in the center of the property. Flatfoot Lake is stocked with catfish and bluegill-sunfish hybrids. The preserve provides habitat for small mammals, such as squirrels, opossums, rabbits, raccoons, and deer; and songbirds, including catbirds, warblers, orioles, and indigo buntings. Occasional coyotes and bald eagles have been identified at the preserve. Roosting habitat for bats is likely present. Three state protected species are known to occur at this preserve (FPDCC 2014).

Area I: Little Calumet River, Calumet City

The Little Calumet River is located near the state line and is crossed by Project Alternatives. The Little Calumet River consists of an oxbow in this location, with the Commuter Rail Alternative Options and the Hammond Alternative Options crossing the River at the northeastern leg of the oxbow just south of 130th Street, and the IHB Alternative Options crossing the river at the southwestern leg of the oxbow near 141st Street. At the northeastern crossing of the River, the Little Calumet River is associated with Hegewisch Marsh on the eastern river bank, described above. There is no natural habitat associated with the western bank in this location. At the southwestern crossing of the River, no natural habitat is associated with either bank; a landfill is located on the northern bank while a boat marina is located on the southern bank. The Little Calumet River may act as a wildlife corridor for waterfowl. The Little Calumet River is again crossed by the Study Area in the southern-most portion of the Project Alternative south of I-80/94 (see Area S). A peregrine falcon (*Falco peregrinus*) is known to nest on the Ford Memorial Bridge over the Little Calumet River at Torrence Avenue. This bridge is outside of the Study Area, approximately 1.9 miles northeast of the proposed alignment. Peregrine falcons (*Falco peregrinus*) have nested on this bridge in 2008, 2010, and 2011.

Area J: Hegewisch Marsh

Hegewisch Marsh is an approximately 126-acre site adjacent to the Little Calumet River, managed by the Chicago Park District. The SSL tracks form the northern boundary of this property. Hegewisch Marsh is a hemi-marsh, which is a mix of open water and vegetation, and the largest wetland within the City of Chicago. It contains a diversity of habitats, including woodland, marsh, and meadows, and is part of the Calumet Open Space Reserve. It provides

habitat for wildlife and migratory birds, such as the yellow headed blackbirds (state endangered), pied-billed grebes (state threatened), and common gallinule (state endangered). It is currently undergoing geomorphic and hydrologic restoration by USACE and IDNR. Located within an urban environment, Hegewisch Marsh provides habitat for wildlife and migratory birds.

Hegewisch Marsh is located 0.10 mile north of Thomas O'Brien Lock Marsh/Park No. 576, which contains Whitford Pond. In 2012, Whitford Pond, although outside the Study Area, was the location of the first bald eagle nest noted in Chicago since the 1880s.

Area K: West of Brainard Avenue, south of 134th Street

Between Torrence Avenue and Brainard Avenue is a small, undeveloped parcel located adjacent to the SSL tracks between a railroad yard and industrial facility. Although small in size, the parcel is a wooded lot with mature cottonwood trees and forms a corridor to Hegewisch Marsh. The parcel most likely supports urban tolerant birds and wildlife.

Area L: Dolton Avenue Prairie

The Dolton Area Prairie in Illinois is a 24-acre INAI site that is part of the Calumet Open Space Reserve. Owned by FPDCC, it is located between State Street and 142nd Street, east of Paxton Avenue. The Dolton Avenue Prairie contains remnant wet prairie habitat.

Area M: Burnham Prairie Nature Preserve

The Burnham Prairie Nature Preserve is a 93-acre remnant ridge and swale complex located immediately adjacent to the north side of the Study Area, west of Burnham Avenue in Burnham, Illinois. This prairie is owned by FPDCC and contains restored marsh, sedge meadow, savanna, and wet prairie. IDNR received a grant in 2010 from USFWS to restore an additional 98 acres of adjacent land; the restoration of this Burnham Prairie Annex will result in the prairie encompassing 191 acres of high quality habitat. The preserve is an INAI site and part of the Calumet Open Space Reserve. Commonly found species include small mammals, such as *Sciurus carolinensis* (gray squirrels), *Didelphis virginiana* (opossums), *Sylvilagus floridanus* (rabbits), *Procyon lotor* (raccoons), *Odocoileus virginianus* (white-tailed deer), *Canis latrans* (coyotes), and songbirds. *Phalacrocorax auritus* (double-crested cormorants), *Ixobrychus exilis* (least bitterns), *Egretta thula* (snowy egrets), *E. caerulea* (little blue herons), *Nyctanassa violacea* (yellow-crowned night herons), *Plegadis falcinellus* (glossy ibis), and *Gallinula chloropus* (common gallinule) are known to frequent the marsh. Burnham Prairie Nature Preserve is an important migratory bird stopover location and provides breeding habitat for several state threatened birds (USACE 2014a, Illinois Birding by County 2015).

Area N: Calumet City Prairie and Marsh Nature Preserve

The Calumet City Prairie and Marsh Nature Preserve is an INAI site and part of the Calumet Open Space Reserve. Located south of State Street and between Burnham Avenue and Burnham Greenway, the 40-acre Calumet City Prairie and Marsh Nature Preserve is owned by FPDCC. It possesses dune and swale topography with high quality prairie and marsh, and supports three Illinois-protected plant species.

Area O: Powderhorn Lake and Powderhorn Prairie and Marsh Nature Preserve

Powderhorn Lake and the associated Prairie and Marsh Nature Preserve is an INAI site and is part of the Calumet Open Space Reserve. The property, owned by FPDCC, is located at the far northern end of the Commuter Rail Alternative Options and Hammond Alternative Options, on

the north side of Brainard Avenue. Powderhorn Lake is located within both the City of Chicago and the Village of Burnham, in Illinois. The 192-acre preserve, of which 130 acres have been dedicated as the Powderhorn Prairie and Marsh Nature Preserve, contains Powderhorn Lake and remnant dune and swale habitat. The 83-acre lake is maintained as a community amenity and provides opportunities for picnicking and fishing. The property provides 59 acres of prairie/savannah and 50 acres of marsh habitat. The preserve contains approximately 250 plant species, including black oak, white oak, pin oak, sassafras, hazelnut, elderberry, buttonbush, prickly pear cactus, nodding wild onion, Indian hemp, partridge pea, purple love grass, cinnamon willow-herb, rough blazingstar, Turk's cap lily, and slender false foxglove. The marshes contained within the preserve also contain habitat for state protected species, particularly birds (Sparks 2014, USACE 2014c).

Area P: Wabash Avenue and Brunswick Street, Hammond

A small prairie is located adjacent to the SSL tracks between Wabash Avenue and Brunswick Street in the northern portion of the Study Area. This small prairie possesses moderate floristic quality with scattered trees. The area most likely provides habitat for urban tolerant wildlife, such as squirrels, opossums, rabbits, and songbirds.

Area Q: Grand Calumet River

Two crossings of the Grand Calumet River were studied; the Commuter Rail Alternative Options would cross near the Indiana-Illinois state line, while the Hammond Alternative Options would cross west of Hohman Avenue in Hammond. Habitat at both crossing locations is similar. The habitat is highly disturbed and dominated by invasive species (reed canary grass and common reed). The Grand Calumet River most likely does not provide habitat opportunities because it is a narrow strip and contains no vegetative diversity, but it may act as a corridor for waterfowl.

Area R: Vine Street to I-80, Hammond

There is a natural area containing wildlife habitat in South Hammond, adjacent to the east side of the proposed alignment, between I-80 and Vine Street. This habitat, which is associated with the Monon Trail, contains a strip of mowed lawn immediately adjacent to the Monon Trail, and then opens to a strip of prairie and woodland. This area contains moderate quality prairie and woods, although it is limited in the amount of habitat it provides because it is a narrow strip. The area most likely provides habitat for urban tolerant wildlife, such as squirrels, opossums, rabbits, and songbirds.

Area S: Little Calumet River, Hammond

The proposed alignment crossing of the Little Calumet River for all alternative options occurs just south of I-80/I-94 at the Munster/Hammond border. The Little Calumet River passes through residential development in this portion of the watershed. Habitat associated with the River at this location is highly disturbed and dominated by invasive species [*Phalaris arundinacea* (reed canary grass)]. Wildlife habitat associated with this River is minimal due to the surrounding residential development. The area provides some habitat for urban tolerant wildlife, such as squirrels, opossums, rabbits, and songbirds.

Area T: South of Fisher Street, east of Pennsy Greenway

There is a natural area containing limited wildlife habitat in an undeveloped parcel south of Fisher Street in Munster. This undeveloped parcel is primarily wetland, but dominated by invasive species [primarily *Phragmites australis* (common reed)]. There are some *Populus*

deltooides (cottonwoods) and *Salix* sp. (willows) present, but they are scattered and intermittent. Wildlife habitat associated with this parcel is minimal due to its small size and the surrounding development. The area provides some habitat for urban tolerant wildlife, such as squirrels, opossums, rabbits, and songbirds.

Area U: North of 45th Street

There is a natural area containing limited wildlife habitat just north of 45th Street in Munster. This habitat is contained within portions of developed parcels associated with commercial and industrial development, adjacent to the CSX freight line and Project tracks. These undeveloped portions contain a mixture of mowed lawn and invasive, weedy shrub and tree species. Wildlife habitat associated with this parcel is very minimal due to its small size and its association with development. The area provides some habitat for urban tolerant wildlife, such as squirrels, opossums, rabbits, and songbirds.

2.4 Environmental Consequences

Table 2-1 summarizes the potential impacts to threatened and endangered species and wildlife and natural areas/habitat as a result of the Project Alternatives. The locations of the potential impacts from the Project are shown in **Appendix A**.

Table 2-4 Summary of Potential Impacts to Threatened and Endangered Species and Wildlife and Natural Areas/Habitat

Alternative	Threatened and Endangered Species	Wildlife	Natural Areas/Habitat (acres)
No Build Alternative	N/A	N/A	0
Commuter Rail Alternative			
Option 1	Negligible	Minimal	31.64
Option 2	Negligible	Minimal	31.64
Option 3	Negligible	Minimal	20.81
Option 4	Negligible	Minimal	31.58
IHB Alternative			
Option 1	Negligible	Avoidance and behavior impacts due to noise/activity, interference with vocalization, animal/train collisions, barriers to movement	43.97
Option 2	Negligible	Same as IHB Alternative Option 1	43.97
Option 3	Negligible	Same as IHB Alternative Option 1	33.14
Option 4	Negligible	Same as IHB Alternative Option 1	43.91
Hammond Alternative			
Option 1	Negligible	Minimal	21.51
Option 2	Negligible	Minimal	20.78
Option 3	Negligible	Minimal	21.48

SOURCE: AECOM 2016

2.4.1 Summary of Potential Impacts

Acresage Loss

The physical loss of natural habitat would occur wherever new components or ROW would be needed, including new tracks, stations, parking, and support facilities. Within Indiana, per the

INDNR (ER-17897), the Project would not impact any INDNR owned nature preserves. A wet-mesic sand prairie is located near the Project between the CN (former EJE Railroad) and NS in Dyer, but the INDNR determined that the Project would not impact this property.

Impacts to Wildlife

All Build Alternative Options would result in impacts to wildlife. These impacts would include avoidance behaviors, wildlife collisions with trains, impacts due to increased noise, and barriers to movement.

Animal avoidance of trains is anticipated to occur as a result of the Project. This avoidance behavior, related to the direct presence of trains, is anticipated to be minor. The Project is proposing 24 trains per day; animal avoidance would occur only when both trains and animals are present, and would be short lived (for the duration of the train's presence). This indirect impact should be intermittent and minimal. Accidental animal/train collisions could occur but are not anticipated to be common due to the fact that animals would be alerted to the presence of any trains by the noise of the train's approach. Impacts to wildlife behavior related to increased noise are expected to occur as a result of the Project. There are few studies related to the ecological impacts of commuter rail lines and data are scarce. Ecological impacts of roadways are better known, and in many instances corresponding impacts from commuter rail lines can be inferred. Based on studies done on the ecological impacts of roads, increased noise results in the avoidance of habitat adjacent to the tracks. These impacts would affect both mammals and birds, but would possibly have a greater effect on birds.

It is not expected that noise impacts would be detrimental since any noise impacts from the commuter train would be periodic and intermittent. It is likely that the noise would result in impacts to birds in the immediate vicinity of the railroad tracks; although, since much of the Project would utilize existing tracks where there is current train traffic, birds may be acclimated to some level of increased noise due to the existing trains. Due to the fact that much of the Project would utilize existing tracks or include new tracks immediately next to existing tracks, barriers to movement already exist for much of the Study Area.

2.4.2 No Build Alternative

The No Build Alternative would have no impact on natural areas, wildlife habitat, or threatened and endangered species. There would be no change to existing conditions, no construction impacts, and no operational impacts.

2.4.3 Commuter Rail Alternative Options

In the area of 115th Street/Kensington Avenue Metra Station to Millennium Station, the existing MED/SSL, there would be no impacts to the following natural or wildlife areas since there would be no new construction or acreage loss as a result of any of the Commuter Rail Alternative Options. These sites include:

- Area A: McCormick Place Bird Sanctuary
- Area B: Burnham Park Wildlife Corridor
- Area C: Oak Woods Cemetery
- Area D: East Side of MED Tracks, between 83rd Street and 86th Street

The small incremental increase of 24 trains per day would not impact wildlife that is already acclimated to the approximately 200 trains per day currently existing in this portion of the Study Area. Impacts to wildlife at the Burnham Park Wildlife Corridor are anticipated to be negligible. The portion of the Burnham Park Wildlife Corridor closest to the existing MED/SSL is heavily wooded. Resident birds are expected to be acclimated to train traffic and noise; migratory birds would either be tolerant or would already be avoiding the area due to existing train traffic.

The following describes the potential impacts to natural areas, wildlife, and protected species in the Study Area from the Commuter Rail Alternative Options. In general, there would be no differences in impacts among the four Commuter Rail Alternative Options in the Study Area.

Area E: Lake Calumet INAI Site: The Commuter Rail Alternative Options would be located approximately 0.10 mile from the closest portion of Lake Calumet INAI Site. The portion of the Lake Calumet INAI site that borders the proposed alignment is dominated by invasive species, primarily common reed. Due to the degraded nature of this portion of the INAI site, no protected species are expected to be utilizing habitat in the vicinity of the tracks. It is therefore anticipated that the proposed Project would have negligible impacts on state protected species or bald eagles. Any wildlife located in this portion of the site would be urban tolerant. The Commuter Rail Alternative Options would not result in any acreage loss at this INAI site, and impacts to wildlife would be minimal due to the urban tolerant nature of any species inhabiting this portion of the INAI site.

Area F: Kensington Marsh: Kensington Marsh is located northwest of MWRDGC's Calumet Water Reclamation Plant. This marsh is of sufficient distance from the existing tracks that there would be no loss of acreage and no impacts to protect species or other wildlife as a result of the Commuter Rail Alternative Options.

Area G: MWRDGC Calumet Water Reclamation Plant: The Commuter Rail Alternative Options would be located on existing tracks adjacent to this natural area. The Calumet Water Reclamation Plant provides habitat for State protected species, but the habitat in the vicinity of the railroad tracks is extremely degraded. Because existing tracks would be utilized, there would be no loss in acreage. Due to the degraded habitat adjacent to the tracks, it is likely that any wildlife utilizing this strip of habitat is urban tolerant and acclimated to railroad noise. The small incremental increase of 24 trains per day would not affected wildlife that is already acclimated to the approximately 50 trains per day currently existing in this portion of the Study Area.

Area I: Little Calumet River, Calumet City: The crossing of the Little Calumet River would occur south of 130th Street. The eastern bank of the river is associated with Hegewisch Marsh. The impacts to this Marsh are described under Area J. There is no natural habitat associated with the western bank or the river in this location. Due to the lack of habitat associated with the Little Calumet River, there would be no impacts from the Commuter Rail Alternative Options.

Area J: Hegewisch Marsh: The northern boundary of Hegewisch Marsh is adjacent to the proposed alignment for the Commuter Rail Alternative Options. These tracks are currently managing approximately 40 commuter trains and 10 freight trains per day. It is likely any wildlife utilizing this portion of the Marsh is urban tolerant and acclimated to railroad noise. The Commuter Rail Alternative Options would not result in the loss of any acreage in this parcel. The small incremental increase of 24 trains per day would not affect wildlife that is already acclimated to the approximately 50 trains per day currently existing in this portion of the Study Area.

There are no state protected plant species known to occur at Hegewisch Marsh, so there would be no direct impacts to plants. Wetland, lake, or marsh habitats, where the common moorhen,

yellow-headed blackbird, or pied billed grebe could be located, are found sufficiently distant from the tracks as to not be affected. Animal/train collisions would be unlikely due to the distance of the lake from the Project. Bald eagle activity is of sufficient distance from the proposed alignment that no impacts are anticipated.

Area K: West of Brainard Avenue, south of 134th Street: This small parcel is located adjacent to the existing tracks, railroad yard, and industrial facility. Due to the industrial nature of the surrounding properties, any wildlife utilizing this parcel is most likely urban tolerant and acclimated to railroad noise. The Commuter Rail Alternative Options would not result in the loss of any acreage in this parcel. The small incremental increase of 24 trains per day would not impact wildlife that is already acclimated to the approximately 50 trains per day currently existing in this portion of the Study Area and additional noise generated by the railroad yard.

Area O: Powderhorn Lake and Powderhorn Prairie and Marsh Nature Preserve: Under the Commuter Rail Alternative Options, new tracks would be installed within existing railroad ROW, located between two sets of existing tracks. No acreage loss would occur to this natural area. The existing tracks, on the west side of Brainard Avenue, would act as a buffer between the commuter rail tracks and Powderhorn Lake. The new tracks would be approximately 0.10 mile away from the lake. Due to the distance and buffering effect provided by the existing tracks and Brainard Avenue, no impacts to wildlife are anticipated.

No direct impacts would occur to protected species. The Project would be constructed on the west side of Brainard Avenue, which would act as a buffer between the tracks and Powderhorn Lake. It is likely any protected bird species utilizing Powderhorn Lake or the associated Preserve would not be associated with the habitat adjacent to the roadway or railroad tracks because these territories are less desirable due to noise and activity. The Project would have negligible indirect impacts on state protected species or bald eagles.

Area P: Wabash Avenue to Brunswick Street, Hammond: The Commuter Rail Alternative Options would traverse this small prairie between Wabash Avenue and Brunswick Street at the northern portion of the Study Area. There is some nearby habitat towards the west associated with the Burnham Woods Golf Course, as well as the surrounding residential neighborhood. It is likely, however, that these habitat areas are already occupied. Some animals would have difficulty finding new territory. Since only urban tolerant wildlife is expected to be impacted, it is not expected that there would be impacts due to increased noise activity or impacts to the populations as a whole.

Area Q: Grand Calumet River: The Commuter Rail Alternative Options would cross the Grand Calumet River on the Illinois side of the Indiana-Illinois state line just north of Plummer Avenue. The Commuter Rail Alternative Options would result in 0.11 acre of loss of the marginal natural habitat associated with the banks of the river. No habitat impacts are expected within this river crossing since any bridges constructed would not place piers or abutments within the Grand Calumet River. Since only urban tolerant wildlife is expected to be affected, it is not expected that there would be impacts to wildlife due to increased noise/activity, or impacts to the populations as a whole.

Area R: Vine Street to I-80, Hammond: Various components related to the South Hammond Station, parking, and South Hammond Maintenance and Storage Facility are proposed to be constructed within this natural area located on the east side of proposed alignment between I-80 and Vine Street. Because the IHB Alternative Options would utilize the same route as the Commuter Rail Alternative Options in this location, IHB Alternative Options impacts to this natural area would be the same. Loss of acreage from the Commuter Rail Alternative Options would include:

- Option 1 28.05 acres
- Option 2 28.05 acres
- Option 3 17.22 acres
- Option 4 28.05 acres

The urban tolerant wildlife that currently utilize this space would be expected to be displaced. There is some nearby habitat towards the south associated with the Little Calumet River, as well as the surrounding residential neighborhood. It is likely, however, that these habitat areas are already occupied. Some individual animals would have difficulty finding new territory. Since only urban tolerant wildlife is expected to be impacted, it is not expected that there would be impacts to the populations as a whole. Impacts to wildlife at this location from 24 trains per day would be negligible; wildlife is expected to be urban tolerant at this location.

Area S: Little Calumet River, Hammond: The crossing of the Little Calumet River occurs near the Indiana-Illinois state line just south of I-80. The Little Calumet River has minimal habitat due to surrounding residential development and a disturbed vegetative community dominated by reed canary grass. The Commuter Rail Alternative Options would result in the loss of 0.35 acre. No habitat impacts are expected within this river crossing since the existing piers would be used for the new railroad bridge and no new components would be placed within the Little Calumet River. Impacts to wildlife at this location from 24 trains per day would be negligible; wildlife is expected to be urban tolerant at this location.

Area T: South of Fisher Street, east of Pennsy Greenway: The natural area South of Fisher Street has minimal habitat due to invasive species. The Commuter Rail Alternative Options would result in the loss of 0.26 acre, regardless of which option is chosen. The urban tolerant wildlife that currently utilize this space would be expected to be displaced. There is some nearby habitat towards the west associated with the Lansing Country Club's golf course, as well as the residential neighborhood towards the north. It is likely, however, that these habitat areas are already occupied. Some individual animals would have difficulty finding new territory. It is not expected that there would be impacts to the populations as a whole. Impacts to wildlife at this location from 24 trains per day would be negligible. Wildlife is expected to be urban tolerant at this location.

Area U: North of 45th Street: The natural area north of 45th Street has minimal habitat due to interspersed development and invasive species. The Commuter Rail Alternative Options would result in the loss of 0.06 acre. The urban tolerant wildlife that currently utilize this space would be expected to be displaced; however, this displacement would be minimal due to the small size of the habitat loss. There is some nearby habitat towards the west associated with the Lansing Country Club's golf course, as well as the residential neighborhood towards the north that wildlife could utilize. Impacts to wildlife at this location from 24 trains per day would be negligible. Wildlife is expected to be urban tolerant at this location.

2.4.4 IHB Alternative Options

The IHB Alternative Options would follow the same route as the Commuter Rail Alternative Options between 115th Street/Kensington Avenue and the MWRDGC Calumet Water Reclamation Plant at 130th Street, diverges from the Commuter Rail Alternative Options at 130th Street, and reconnects to the Commuter Rail Alternative Options in Hammond, Indiana. The IHB Alternative Options would have the same impacts as the Commuter Rail Alternative Options when on the same route, but would traverse and impact entirely different natural areas where

the routes diverge. As with the Commuter Rail Alternative Options, there would be no differences in impacts among the IHB Alternative Options being considered in this portion of the Study Area.

Area E: Lake Calumet INAI Site: Under the IHB Alternative Options, the proposed alignment would end just south of the Lake Calumet INAI site. The Lake Calumet INAI site is not in the immediate vicinity of the IHB Alternative Options, but a small portion of the lake extends within the ½ mile buffer area. Although Lake Calumet contains high quality habitat, including habitat for state protected species, the IHB Alternative Options are not expected to have direct impacts to this habitat due to distance and the buffering effect created by MWRDGC, I-94, and Doty Avenue.

Area F: Kensington Marsh: Kensington Marsh is located northwest of the MWRDGC Calumet Water Reclamation Plant. This marsh is of sufficient distance from the existing tracks that no direct impacts would occur as a result of the IHB Alternative Options.

Area G: MWRDGC's Calumet Water Reclamation Plant: The IHB Alternative Options would be located on existing tracks adjacent to this natural area. Impacts to this natural area are expected to be the same as those created by the Commuter Rail Alternative Options.

Area H: Flatfoot Lake/Beaubien Woods Forest Preserve: The IHB Alternative Options would cross Beaubien Woods and come in close proximity to Flatfoot Lake. New tracks would need to be constructed at this location. Direct impacts to Beaubien Woods Forest Preserve due to track installation would include the loss of 12.19 acres. The wildlife impacts anticipated at Beaubien Woods include barrier to movement impacts, avoidance of trains, avoidance of habitat adjacent to tracks due to noise, interference with bird vocalizations, and animal/train collisions.

Impacts to wildlife would be minimized due to the fact that existing tracks are located within the vicinity, with an average of one train per day. Any barriers to movement already exist and adjacent territories are already experiencing train traffic. Animals inhabiting this area are somewhat habituated to train traffic, and the degree of avoidance would be less than experienced adjacent to roadways due to the short term, intermittent nature of the disturbance. Noise impacts on birds would be short term and intermittent in nature; and animal/train collisions would be minimized by the animals being alerted to the presence of trains by the noise of the train approach.

There would be no direct impacts to state protected species from the IHB Alternative Options. The habitat immediately adjacent to the existing ROW is degraded and does not contain any state protected plant species. Wetland, lake, shrub, or prairie habitats, where the yellow-crowned night herons, willow flycatchers, black billed cuckoos, or Franklin's ground squirrels could be located, are sufficiently distant from the tracks as to not be affected. Indirect impacts would be negligible. In addition, no bald eagles are known to nest in the vicinity of the IHB Alternative Options. The presence of trains and increased noise levels would be intermittent and are not expected to impact roosting within the Beaubien Woods Forest Preserve or feeding from Flatfoot Lake.

Area I: Little Calumet River, Calumet City: The IHB Alternative Options would cross the Little Calumet River north of 142nd Street. The IHB Alternative Options would result in the loss of 0.75 acre associated with the banks of the river. The banks of the river in this location have no natural habitat; the only wildlife value the River possesses here is that of a wildlife corridor for waterfowl. This crossing would affect bald eagles as there are no known eagle nests in the vicinity of this crossing and very limited perches. This crossing is of sufficient distance from the Ford Memorial Bridge that there would be no impacts to peregrine falcons. No acreage impacts

are expected within this river crossing since the existing piers would be used for the new railroad bridge and no new components would be placed within the Little Calumet River.

Area L: Dolton Avenue Prairie: The IHB Alternative Options would be in the vicinity of Dolton Avenue Prairie. In this portion of the Study Area, the commuter trains would utilize existing tracks, although the existing tracks would require rehabilitation. This habitat site is not expected to be impacted because the Dolton Avenue Prairie is located 0.30 mile south of the tracks, and the Prairie is buffered by 142nd Street. Due to the distance and this buffering effect, no direct impacts to this habitat or wildlife are anticipated.

Area M: Burnham Prairie Nature Preserve: The IHB Alternative Options would require new tracks but they would be constructed within the existing ROW. There would, therefore, be no loss of acreage at Burnham Prairie Nature Preserve. The IHB Alternative Options would travel adjacent to the Burnham Prairie Nature Preserve. This remnant ridge and swale complex contains high quality habitat, provides breeding habitat for several state protected species, and is an important migratory stopover. The Burnham Prairie Nature Preserve contains habitat for federally protected species, although no federally protected species are known to occur here. As such, no impacts are expected to federally protected species.

The wildlife impacts anticipated at Burnham Prairie Nature Preserve include avoidance of trains, avoidance of habitat adjacent to tracks due to noise, interference with bird vocalizations, and animal/train collisions. Impacts to wildlife should be minimized since existing tracks are located within the vicinity, with an average of one train per day. Adjacent territories are already experiencing train traffic, animals inhabiting this area are somewhat habituated to train traffic, and the degree of avoidance would be less than experienced adjacent to roadways due to the short term, intermittent nature of the disturbance. Noise impacts on birds would be short term and intermittent in nature; and animal/train collisions would be minimized by the animals alerted to the presence of trains by the noise of the train approach. Barriers to movement are not anticipated because the tracks run adjacent to the Burnham Prairie Nature Preserve, and do not dissect it.

There are no state protected plant species in the immediate vicinity of the tracks, so there would be no direct impacts to plants. Wetland, shrub, woodland, or prairie habitat, where the state protected species would be located, is nonexistent or is of sufficient distant from the tracks that protected species would not be affected. The falcon and harrier are not known to utilize land adjacent to the tracks for nesting and foraging impacts would occur only when a train is present. Indirect impacts would therefore be negligible. Animal/train collisions would be unlikely since the railroad embankment would act as a barrier and animals would be alerted to the presence of trains by the noise of the train approach.

Area N: Calumet City Prairie and Marsh Nature Preserve: The Calumet City Prairie and Marsh Nature Preserve is an INAI site located south of State Street between Burnham Avenue and Burnham Greenway. Under the IHB Alternative Options, new tracks would be required, but they would be constructed within the existing ROW. The existing ROW is approximately 0.10 mile north of the Prairie. There is currently a large industrial warehouse located between the Prairie and the railroad ROW. Due to the distance and buffering effect provided by the existing structure, no loss of acreage or impacts to wildlife or protected species are anticipated.

2.4.5 Hammond Alternative Options

Per a USFWS letter dated November 4, 2014, none of the Lake County, Indiana-listed species are known to occur within the Study Area. The Hammond Alternative Options would have the

same impacts as described for the Commuter Rail Alternative Options at the following locations as follows:

- Area E: Lake Calumet INAI Site
- Area F: Kensington Marsh
- Area G: MWRDGC's Calumet Water Reclamation Plant
- Area I: Little Calumet River, Calumet City
- Area J: Hegewisch Marsh
- Area K: West of Brainard Avenue, south of 134th Street
- Area O: Powderhorn Lake and Powderhorn Prairie and Marsh Nature Preserve

Locations where the impacts from the Hammond Alternative Options would differ from the impacts described for the Commuter Rail Alternative Options include the following locations:

Area P: Wabash Avenue to Brunswick Street, Hammond: The Hammond Alternative Options would traverse this prairie at a slightly different location than the Commuter Rail Alternative Options. The Hammond Alternative Options would result in the loss of 2.02 acres at the northern end of the prairie. The resulting impacts to wildlife would be similar to those of the Commuter Rail Alternative Options.

Area Q: Grand Calumet River: The Hammond Alternative Options would cross the Grand Calumet River on the Indiana side of the Indiana-Illinois state line just north of Michigan Street. Each of the Hammond Alternative Options would result in loss of acreage as follows:

- Option 1 1.60 acres
- Option 2 0.87 acre
- Option 3 1.60 acres

Habitat associated with the Grand Calumet River is marginal and is associated with the banks of the river. No habitat impacts are expected within this river crossing since any bridges constructed would not place piers or abutments within the Grand Calumet River. Since only urban tolerant wildlife is expected to be present, it is not expected that there would be impacts to wildlife due to increased noise/activity, or direct impacts to the populations as a whole.

Area R: Vine Street to I-80, Hammond: The Hammond Alternative Options would result in the loss of 17.22 acres. The resulting impacts to wildlife would be similar to those of the Commuter Rail Alternative Options. Impacts to wildlife at this location from 24 trains per day would be negligible. Wildlife is expected to be urban tolerant at this location.

Area S: Little Calumet River, Hammond: The Hammond Alternative Options would be located on the same tracks in the same location as the Commuter Rail Alternative Options when crossing the Little Calumet River. The Hammond Alternative Options would result in the loss of 0.35 acre. Impacts to wildlife at this location from 24 trains per day would be negligible. Wildlife is expected to be urban tolerant at this location.

Area T: South of Fisher Street, east of Pennsy Greenway: The Hammond Alternative Options would be located on the same tracks in the same location as the Commuter Rail Alternative Options in the vicinity of this natural area. The Hammond Alternative Options would result in the loss of 0.26 acre. The resulting impacts to wildlife would be similar to those of the

Commuter Rail Alternative Options. Impacts to wildlife at this location from 24 trains per day would be negligible. Wildlife is expected to be urban tolerant at this location.

Area U: North of 45th Street: The Hammond Alternative Options would be located on the same tracks in the same location as the Commuter Rail Alternative Options in the vicinity of this natural area. The loss of habitat from the Hammond Alternative Options would include:

- Option 1 0.06 acre
- Option 2 0.06 acre
- Option 3 0.03 acre

The urban tolerant wildlife that currently utilize this space would be expected to be displaced; however, this displace would be minimal due to the small size of the loss of acreage. There is some nearby habitat towards the west associated with the Lansing Country Club's golf course, as well as the residential neighborhood towards the north that wildlife could utilize. Impacts to wildlife at this location from 24 trains per day would be negligible. Wildlife is expected to be urban tolerant at this location.

2.4.6 Maynard Junction Rail Profile Option

There would be no changes to the impacts to natural areas or wildlife habitat described for the applicable alternative options (i.e., Commuter Rail Alternative Options 1, 2, and 3, IHB Alternative Options 1, 2, and 3, and Hammond Alternative Options 1 and 2) as a result of the Maynard Junction Rail Profile Option.

2.5 Construction-Related Impacts

Construction has the potential to impact natural areas and wildlife due to increases in noise, construction traffic, presence of workers, and erosion and sediments coming off of bare soil resulting from clearing activities. Construction-related impacts are temporary in nature and limited to the areas adjacent to the tracks and are therefore expected to be minimal.

2.6 Mitigation

2.6.1 Long-Term Operating Effects

Impacts to wildlife and habitat are expected to be minimal, as discussed above. Additional mitigation beyond what is described above is not proposed. Per correspondence received from USFWS dated November 4, 2014 (see **Appendix B**), Executive Order 13186 and the Migratory Bird Treaty Act require federal agencies to avoid or minimize impacts on migratory bird populations. Any impacts to migratory bird species would be mitigated as required by USFWS consultation and USACE permit requirements.

Per INDNR (ER-17897), in order to minimize the Project's impacts to the Indiana bat, no trees that are suitable for Indiana bat roosting (greater than 3 inches in diameter at breast height), living or dead, can be cut from April 1 through September 30. Per the Final 4(d) Rule for the northern long-eared bat, no trees can be removed within a 150-foot radius of a known maternity roost tree between June 1 and July 31. While no impacts to the Indiana bat and northern long-eared bat are anticipated, removal of trees would be in compliance with the applicable requirements.

The INDNR (ER-17897) also provided recommendations for stream crossings that would minimize impacts to fish, wildlife, and botanical resources (see **Appendix B**).

Recommendations included erosion and sediment control requirements for exposed soil. Additionally, INDNR advised that riparian habitat mitigation would be required if riparian impacts occur and impacts must be avoided to any mitigation plantings that were installed as a result of the sediment remediation of the West Branch Grand Calumet River between Hohman Avenue and the state line. Erosion and sedimentation impacts would be minimized through the implementation of erosion and sediment control plans.

2.6.2 Short Term Construction Effects

Per INDNR (ER-17897), techniques to minimize the Project's impacts to wildlife must include the following:

- No work will be allowed in waterways from April 1 through June 30 without prior written approval from the Division of Fish and Wildlife.
- Riprap that is a minimum 6 inches in grade will be used below the normal water level in order to provide habitat for aquatic organisms in the voids.

Per correspondence received from USFWS dated November 4, 2014, Executive Order 13186 and the Migratory Bird Treaty Act require federal agencies to avoid or minimize impacts on migratory bird populations. Any impacts to migratory bird species would be mitigated as required by USFWS consultation and USACE permit requirements.

Impacts due to erosion and sedimentation during construction would be minimized through the use of proper erosion and sediment control measures, which would be required as part of the Clean Water Act (CWA) Sections 401/404 permits. In addition, impacts to wetland or waters of the United States (US) would be mitigated based on applicable regulations. Mitigation ratios would be determined as part of the CWA Sections 401/404 permitting processes, and wetland types and mitigation amounts would be determined at that time.

3. SURFACE WATERS, WATERS OF THE US/STATE, AND COASTAL ZONE MANAGEMENT

This section describes surface waters and coastal zone management and their implications for the Study Area. The expected jurisdictional status of the surface waters, whether they are anticipated to be classified as waters of the US or waters of the State, is also discussed. The locations of the surface waters and coastal zone management areas in the Study Area are included in **Appendix A**.

3.1 Regulatory Setting

3.1.1 Surface Waters and Waters of the US/State

Waters of the US are regulated under Sections 401 (33 USC § 1341) and 404 (33 USC § 134) of the CWA. The placement of fill materials in waters of the US requires a permit from the USACE under Section 404 of the CWA. The appropriate level of this permit is determined based on the type of fill activity and the amount and location of fill involved. Section 404 permit requirements will be determined through coordination with USACE. Final determination of permit applicability lies with USACE.

Section 401 CWA Water Quality Certifications are needed for projects that require a Section 404 permit. Section 401 of the CWA requires any applicant for a Section 404 permit to obtain the Water Quality Certification for any activity that may result in the discharge of a pollutant into waters of the US. The Section 401 Water Quality Certification is administered by the state; in Illinois it is administered by the Illinois Environmental Protection Agency (IEPA), in Indiana it is administered by the Indiana Department of Environmental Management (IDEM).

Permits are required under both Section 401 and 404 of the CWA prior to dredge or fill activities. As part of the permitting process, it must be demonstrated that impacts to waters of the US were avoided to the extent possible, minimized where avoidance is not possible, and mitigation is provided for unavoidable impacts.

Surface waters are determined to be waters of the US if there are hydrologic connections to interstate waters or if they are a significant nexus to waters of the US. Surface waters that are isolated from waters of the US are regulated under state laws.

3.1.2 Coastal Zone Management Act

The Coastal Zone Management Act of 1972 (CZMA) (16 USC §§ 1451-1464) provides the basis for protecting the nation's coastal resources and the Great Lakes. The National Coastal Zone Management Program is authorized through the CZMA and is overseen by a partnership of the National Oceanic and Atmospheric Administration and local or state agencies. As such, projects that are located within a CZMA boundary must be reviewed to ensure that the project is consistent with the CZMA. In Illinois, IDNR manages this resource through the Illinois Coastal Management Program (ICMP); in Indiana, INDNR manages their coastal management program through their Lake Michigan Coastal Program (LMCP), with assistance from the Natural Resource Conservation Service (NRCS).

In both Illinois and Indiana, portions of the Project are located within the coastal zone management boundaries (ICMP boundaries within Illinois, LMCP boundaries in Indiana). In both

states a federal consistency review will be required. These consistency reviews will take place with IDNR and INDNR when design plans are developed, most likely at the time of the CWA Section 401/404 permitting process.

In Illinois, the ICMP has determined that its priorities will include habitat and natural area restoration, sustainable development, reduction of pollution, provision of public access and recreation, and economic development (IDNR 2014c).

In Indiana, the LMCP is tasked with considering regional issues and trying to balance preservation, protection, restoration, and when possible, development (INDNR 2014).

3.2 Methodology

3.2.1 Surface Waters

Information on the location of surface waters, including ponds, lakes, rivers, and streams, was obtained from the United States Geological Survey (USGS) National Hydrography Dataset (USGS 2008). Information on impaired waters was obtained from the United States Environmental Protection Agency (USEPA) Office of Water Programs (USEPA 2015). This data was obtained in the form of geographic information system (GIS) datasets and included in exhibits with the proposed alignments and facilities. Field reconnaissance conducted on October 22 and November 3, 2014, included inspections of the identified water bodies. No water or sediment samples were taken. No data was obtained except for what was readily visible during the reconnaissance.

3.2.2 Jurisdictional Waters of the US/State

A determination of the jurisdictional status of surface waters, whether they are under federal jurisdiction and the CWA, or state jurisdiction due to their isolation from interstate hydrologic connections, is made by the regulatory agencies (USACE, IDEM, or IEPA). The jurisdictional status of individual surface waters will be made when design plans are developed and submitted as part of the CWA Section 401/404 permitting process. For the purposes of this study, most surface waters that were identified using Geographic Information System (GIS) information were considered jurisdictional under the CWA, and subject to the authority of USACE.

For the purposes of this discussion, surface waters are discussed as either meeting water quality standards or as impaired. Under Section 303(d) of the CWA, states are required to determine which waters do not meet water quality standards and report these to USEPA. Reasons for these impairments are also required. Information related to impairments was obtained from the IEPA Section 303(d) CWA Impaired Waters internet site (IEPA 2014) and the IDEM Section 303(d) CWA Impaired Waters internet site (IDEM 2014).

3.2.3 Coastal Zone Management Act

Information on the location of coastal zone management boundaries was obtained from IDNR and INDNR. This information was obtained as GIS datasets from the respective coastal management programs.

3.3 Affected Environment

3.3.1 Surface Waters

The following is a discussion of the surface waters, including rivers, streams, named ditches, lakes, and ponds. These water bodies are discussed from north to south.

Lake Calumet: The Study Area is west of the lake by approximately ½ mile at its closest point. Lake Calumet is considered a traditional navigable river by the USACE/USEPA. Lake Calumet's hydrologic unit code (HUC) is 040400010603; its reach code in Illinois was not available. Lake Calumet is considered a traditional navigable river by USACE/USEPA. Per the Illinois 2016 Section 303(d) List of Impaired Waters, Lake Calumet is impaired for fish consumption due to mercury and polychlorinated biphenyls (PCBs).

MWRDGC's Calumet Water Reclamation Plant Ponds: All Project Alternative Options would run adjacent to the Calumet Water Reclamation Plant north of 130th Street. There is an assemblage of open water ponds and sludge drying beds located within the Calumet Water Reclamation Plant property. These ponds are part of the operations of the plant and are not anticipated to be jurisdictional under the CWA. These ponds may be considered waters of the State.

Flatfoot Lake: The IHB Alternative Options would run adjacent to Flatfoot Lake in the Beaubien Woods Forest Preserve, south and east of the lake. Flatfoot Lake's HUC is 071200030304. A determination as to whether this lake is jurisdictional under the CWA will need to be made by USACE. Per the Illinois 2016 Section 303(d) List of Impaired Waters, Flatfoot Lake is impaired for fish consumption due to mercury.

Little Calumet River: The Study Area crosses the Little Calumet River twice. The first crossing occurs in Illinois east of Torrence Avenue. The Commuter Rail Alternative Options and Hammond Alternative Options would cross the Little Calumet at the northern leg of the oxbow the river creates at this location, just south of 130th Street. The IHB Alternative Options would cross at the southern portion of the oxbow, near 141st Street. The Little Calumet River is considered a traditional navigable river by USACE/USEPA.

The Little Calumet River is not impaired where the Commuter Rail Alternative Options and Hammond Alternative Options would cross the river near 130th Street. Its HUC is 071200030305. The reach code is 071200030000174 at this location. USEPA considers the Little Calumet River impaired where it would be crossed by the IHB Alternative near 141st Street; its HUC is 071200030304 and its reach code is 07120003000061 at this location. Per the Illinois 2016 Section 303(d) List of Impaired Waters, causes of impairment include aldrin, mercury, dissolved oxygen, total phosphorus, PCBs, and silver. No total maximum daily loads (TMDLs) have been developed for this portion of the watershed.

Grand Calumet River: The Commuter Rail Alternative Options and Hammond Alternative Options would cross the Grand Calumet River approximately 0.2 mile north of Plummer Avenue. The Grand Calumet's HUC is 071200030407, its reach code is 07120003000188 in both Illinois and Indiana in the vicinity of the Study Area. The Grand Calumet River is considered a traditional navigable river by the USACE/USEPA.

The Commuter Rail Alternative Options would cross the river on the Illinois side. Per the Illinois 2016 Section 303(d) List of Impaired Waters, the Grand Calumet River is impaired for indigenous aquatic life due to ammonia, arsenic, barium, cadmium, chromium, copper,

dichlorodiphenyltrichloroethane (DDT), iron, lead, nickel, dissolved oxygen, total phosphorus, PCBs, sedimentation/siltation, silver, and zinc. The Hammond Alternative Options would cross the river on the Indiana side. Per the Indiana 2014 Section 303(d) List of Impaired Waters, the Grand Calumet River has impaired biotic communities and is impaired due to ammonia, dissolved oxygen, E. coli, nutrients, and PCBs.

A letter from INDNR dated November 10, 2014 (**Appendix B**) advised that the Grand Calumet River is one of the most contaminated rivers in the country due to a long history of chemical dumping and discharges prior to environmental regulations. The River had contaminated sediments that average 8 feet to 10 feet in depth. Sediments in the West Branch of the Grand Calumet River, from Indianapolis Boulevard to the Indiana-Illinois state line, have been remediated through a combination of dredging/disposal and a 2-foot cap. Because of these remediation efforts, the placement of piers within the Grand Calumet River may not be permitted.

A letter was received from USFWS dated November 4, 2014 (**Appendix B**). Per this letter, the Grand Calumet River in Hammond has severely polluted sediments within both the West and East Branches. Restoration has been ongoing along various segments of the river. The portion of the West Branch between Hohman Avenue and the state line will be remediated in the near future; remediation efforts will consist of dredging and capping the remaining sediments. USFWS advised that any construction activities that could compromise the integrity of the cap, including the placement of piers and abutments for a new railroad bridge, would be prohibited. Any bridge in this section of the river must be a clear span, with no piers or abutments within the river channel.

A letter received from USEPA dated November 26, 2014 (**Appendix B**) reiterated USFWS concern with polluted sediments within the Grand Calumet River. This letter also requested avoidance of impacts to any remediation efforts and recommended spanning the river without piers or abutments placed in the river that could compromise the integrity of the sediment cap.

Powderhorn Lake: The Commuter Rail Alternative Options and Hammond Alternative Options would be south of and adjacent to Powderhorn Lake, approximately 0.03 mile at its closest point. A determination as to whether this lake is jurisdictional under the CWA will need to be made by USACE. A HUC was not available. Not listed in the Illinois 2016 Section 303(d) List of Impaired Waters, it is assumed that Powderhorn Lake meets water quality standards.

Little Calumet River: The Commuter Rail Alternative Options, IHB Alternative Options, and Hammond Alternative Options would all cross the Little Calumet River south of I-80 in Indiana. The Little Calumet River is impaired at this location. The Little Calumet River's reach code is 07120003000016 at this location. Per the Indiana 2014 303(d) List of Impaired Waters, the River is impaired at this location due to chloride, dissolved oxygen, impaired biotic communities, polychlorinated biphenyls (PCBs), free cyanide, and nutrients.

The Little Calumet River is crossed another time in the Illinois portion of the Study Area. It is not impaired where the proposed alignments of the Commuter Rail Alternative Options and Hammond Alternative Options cross the river near 130th Street; however, it is impaired where it is crossed by the IHB Alternative Options near 141st Street. Per the Illinois 2016 303(d) List of Impaired Waters, causes of impairment near 141st Street include aldrin, mercury, low dissolved oxygen, total phosphorus, PCBs, and silver. No total maximum daily loads (TMDLs) have been developed for this portion of the watershed.

Plum Creek: Plum Creek is in the southern-most portion of the Study Area. USEPA considers this Hart Ditch. Its HUC is 071200030302; its reach code is 07120003000038. Not listed in the Indiana Section 303(d) List of Impaired Waters, it is assumed that Plum Creek meets water quality standards.

Dyer Ditch: Dyer Ditch is in the southern-most portion of the Study Area. Its HUC is 7120003030030; its reach code is 07120003000114. Not listed in the Indiana 2014 Section 303(d) List of Impaired Waters, it is assumed that Dyer Ditch meets water quality standards.

Unnamed Tributary to North Creek: The Study Area approaches an unnamed tributary to North Creek at the Lansing Country Club; the Commuter Rail Alternative Options and Hammond Alternative Options would be approximately 0.33 mile east of this water body. Its HUC is 0712000302; its reach code is 07120003000097. Per the Illinois 2016 Section 303(d) List of Impaired Waters, North Creek is impaired due to dissolved oxygen, hexachlorobenzene, and sedimentation/siltation.

North Creek: The Commuter Rail Alternative Options and Hammond Alternative Options would be approximately 0.33 mile east of North Creek at the southern end of the Study Area. Its HUC is 0712000302; its reach code is 07120003000096 at this location. Water quality information for North Creek is the same as the Unnamed Tributary to North Creek, discussed above.

3.3.2 Coastal Zone Management Act

Within the State of Illinois, the coastal zone management area is associated with Lake Michigan in the northern portion of the Study Area and Lake Calumet in the central portion of the Study Area. In the northern portion, north of 56th Street, the MED tracks form the boundary of the coastal zone management area. In the southern portion of the Study Area, the coastal zone management area includes Lake Calumet, including land south to 134th Street from I-90 to the Indiana-Illinois state line. The Commuter Rail Alternative Options and Hammond Alternative Options would traverse the coastal zone management area in this location. Within Indiana, the entire Study Area is located within the coastal zone management area.

3.4 Environmental Consequences

3.4.1 No Build Alternative

Surface Waters

The No Build Alternative would have no impacts on surface waters. There would be no change in existing conditions, no construction impacts, and no operational impacts.

Coastal Zone Management Act

The No Build Alternative would have no impacts on coastal zone management areas. There would be no change in existing conditions, no construction impacts, and no operational impacts.

3.4.2 Commuter Rail Alternative Options

Surface Waters

Contaminants can be associated with railroads, including maintenance facilities or tracks. Maintenance facilities are used for fueling and maintenance operations, which can include the use of numerous solvents, paints, coatings, grease and oils, organic compounds associated with diesel fuel, degreasers, and heavy metals. Heavy metals can include antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, or zinc. Volatile organic compounds, including ethylbenzene and xylene, can be found in petroleum products used in railcar and engine repairs or degreasers (United Kingdom Department of the Environment 1995).

Tracks, ballast, and switching areas may be contaminated by fuel, oils, or grease due to use and repetitive minor leakage of engines or rail cars. Semi-volatile organic compounds are used in creosote, which is used as a protective coating on rail ties. Pesticides and herbicides are used in tracks to eliminate insects or vegetation. Sedimentation is also a potential pollution source for waterways, where it can cause turbidity. This type of impact would be minimal since most sedimentation would be captured by the railroad ballast.

The contaminants discussed above are mobile in soils and pose a threat to water resources. The transportation of organic and inorganic compounds in soil is dependent on the chemical properties of the compound as well as the type of soil in the vicinity of the railroad facility or tracks. Generally, the higher the content of natural organic matter or clay within the soil, the greater the adsorption capacity of the soil and the lesser the migration of the contaminant within the ground or surface water. Migration of contaminants is greatest with sandy soils. The soils in the majority of the Study Area are composed of organic or clayey soils. Sandy soils are located in the northern portion of the Study Area, however.

Surface waters that would be affected by the Commuter Rail Alternative Options are described below. Only those that could have potential effects are described. All others would not be affected.

Little Calumet River: The Commuter Rail Alternative Options would cross the Little Calumet River at a location that meets water quality standards. There are therefore no listed impairments that might be associated with a commuter rail line. The Hammond Alternative Options would cross the Little Calumet River on a new through-girder bridge, and may use the remaining original Monon Railroad support structures, which include two abutments and three piers. Four of the original piers have been removed. The northernmost existing pier is located at the edge of the River and the other two piers are within the levee protection system. Due to the removal of the adjacent piers, the existing piers would need to be strengthened. The work for the northernmost pier would be in-water. A decision to encapsulate or replace the remaining existing support structures would be made in the Project's Engineering phase. The bridge would be designed to clear span the river. Any modifications to the existing abutments would be conducted outside of the ordinary high water mark. Indirect impacts to the Little Calumet River would be negligible as only minor amounts of contaminants would occur due to 24 trains per day. In addition, the existing Monon Trail bridge would be relocated to the west using new support structures that would also fully clear span the River. As a result, no abutments, piers, or sheet pile walls would be constructed in the water for the Monon Trail bridge.

Indirect impacts to the Little Calumet River from any of the Commuter Rail Alternative Options would be negligible; all Commuter Rail Alternative Options would use existing, active tracks and only incremental increases would occur as a result of an increase in 24 trains per day.

Grand Calumet River: There would be no direct impacts to the Grand Calumet River as a result of any of the Commuter Rail Alternative Options. Per coordination with INDNR dated November 10, 2014 (**Appendix B**), the placement of piers within the Grand Calumet River may not be permitted. Any bridge design for a new bridge would be required to have a 100-foot span, which would eliminate the need for piers within the river. The Commuter Rail Alternative Options would cross the Grand Calumet River in Indiana at locations impaired due to a variety of contaminants. Per INDNR, the Grand Calumet River is one of the most contaminated rivers in the country, with sediment contamination that averages 8 feet to 10 feet in depth. Of the listed impairments, a commuter rail line has the potential to release additional heavy metals, oil and grease, or sediments. Indirect impacts from any Commuter Rail Alternative Options would be negligible, however. Any Commuter Rail Alternative Option would use existing, active tracks; it is anticipated that only incremental increases would occur as a result of an increase of 24 trains per day.

3.4.3 IHB Alternative Options

Flatfoot Lake: The IHB Alternative Options would run adjacent to Flatfoot Lake. Flatfoot Lake is impaired at this location due to mercury. A commuter rail line has the potential to release heavy metals, including mercury. Indirect impacts to Flatfoot Lake would be negligible due to contaminant uptake/adsorption by vegetation and soils located between the tracks and Flatfoot Lake. Only incremental increases would occur as a result of 24 trains per day.

Little Calumet River: The IHB Alternative Options would cross the Little Calumet River at a location that is impaired due to a variety of contaminants. Of the listed impairments, a commuter rail line only has the potential to release sediments or heavy metals. Indirect impacts to the Little Calumet River from the IHB Alternative Options would be negligible; all IHB Alternative Options would use existing, active tracks and only incremental increases would occur as a result of an increase of 24 trains per day.

3.4.4 Hammond Alternative Options

Impacts to surface waters from the Hammond Alternative Options would be the same as described for the Commuter Rail Alternative Options.

3.4.5 Maynard Junction Rail Profile Option

There would be no change to impacts to surface waters or wetlands, floodplains, groundwater and water supply, and stormwater as described for the applicable alternative options (i.e., Commuter Rail Alternative Options 1, 2, and 3, IHB Alternative Options 1, 2, and 3, and Hammond Alternative Options 1 and 2) resulting from the Maynard Junction Rail Profile Option.

Coastal Zone Management Act

A portion of the Study Area for all of the Build Alternatives is located within Illinois' coastal zone management area. The IDNR review will be conducted in coordination with the CWA permit reviews. Because the Project promotes sustainable and economic development and has minimal impacts related to the other coastal priorities, it is not expected that the Project would have any impacts on coastal zone management in Illinois.

Within Indiana, the entire Study Area for all of the Build Alternatives is located within Indiana's coastal zone management area. INDNR reviews federal projects to determine whether they are

consistent with the state's coastal zone management programs. This review will be conducted in coordination with the CWA permit reviews. Because the Project promotes sustainable and economic development and has minimal impacts related to the other coastal priorities, it is not expected that the Project would have any impacts on coastal zone management in Indiana.

3.5 Construction-Related Impacts

3.5.1 Surface Waters

During construction, construction activities could result in erosion and sedimentation which could be released to the surface waters. These impacts would be temporary and minimized through the use of an erosion and sediment control plan, which would be required as part of the CWA Section 401/404 permits. Implementation of an erosion and sediment control plan would minimize any impacts during construction; it is therefore anticipated that any impacts to surface waters would be minimal.

3.5.2 Coastal Zone Management Act

There would be no impacts to coastal zone management area as a result of construction.

3.6 Mitigation

3.6.1 Long-Term Operating Effects

Surface Waters

A letter was received from USFWS dated November 4, 2014 (see **Appendix B**) expressing concern regarding any new crossing of the West Branch of the Grand Calumet River in Hammond, Indiana. A letter received from USEPA dated November 26, 2014 (see **Appendix B**) reiterated USFWS concern with polluted sediments within the Grand Calumet River.

Polluted sediments are undergoing restoration and the cap over these sediments must be maintained. There would be no impacts to the integrity of this cap; any bridge in this section of the river would span the river, with no piers or abutments within the river channel.

A letter was received from USEPA dated November 26, 2014 (see **Appendix B**) providing guidelines related to the CWA. These include choosing the least environmental damaging practicable alternative (minimizing impacts), prohibitions on causing or contributing to significant degradation of waters, and minimizing and mitigating unavoidable impacts to waters of the US.

Per INDNR (ER-17897) (see **Appendix B**), the Project would utilize existing structures for stream crossing where possible, thereby minimizing impacts to surface waters and wetlands. Where the existing structure for the Little Calumet River would be used, the northernmost existing pier is located at the edge of the River and the other two piers are within the levee protection system. The existing piers would need to be strengthened and the work for the northernmost pier would occur in-water. If the use of an existing structure is not possible, spans without piers would be used at the Little Calumet River; bridges would be used preferentially over culverts; and bottomless culverts would be used instead of pipe culverts in order to promote passage of aquatic organisms. If box or pipe culverts are used, they would be buried a minimum of 6 inches; crossings would span the entire channel width; the natural stream

substrate would be maintained within any structures; and stream depths and velocities during low flow conditions would be similar to those in the natural stream. By complying with these guidelines, impacts to surface waters due to scouring and impacts to aquatic organisms would be minimized.

Per INDNR (ER-17897), riparian mitigation will be required under Indiana's Construction in a Floodway regulations. Impacts specific to riparian habitat, as defined by the Indiana's Construction in a Floodway regulations, would be determined as part of the CWA Sections 401/404 permitting process.

A determination of impacts to waters of the US would be finalized during the Engineering phase. The amount and type of waters of the US mitigation would be determined as part of the CWA permit process, in compliance with USACE/USEPA requirements.

Impacts to surface waters would be minimized through the methods described above, and through the implementation of best management practices (BMPs) and erosion and sediment control plans.

Coastal Zone Management Act

There would be no impacts to coastal management zones in both Indiana and Illinois. No mitigation is proposed.

3.6.2 Short Term Construction Effects

Surface Waters

Impacts due to construction activities would be minimized through the use of an erosion and sediment control plan, which would be required as part of the CWA Section 401/404 permits. Implementation of an erosion and sediment control plan would minimize any impacts during construction; no other mitigation is proposed.

Coastal Zone Management Act

There would be no impacts to coastal zone management areas as a result of construction. No mitigation is proposed.

4. GROUNDWATER AND WATER SUPPLY, STORMWATER, AND FLOODPLAINS

This section describes stormwater management, anticipated groundwater impacts, floodplains, and the potential for water supply impacts and their implications for the Study Area.

4.1 Regulatory Setting

4.1.1 Groundwater and Water Supply

Groundwater is protected by federal and state regulations. The Federal Safe Drinking Water Act (42 USC §§ 3004f-300j-26) establishes wellhead protection areas. The Illinois Groundwater Protection Act provides regulations regarding protective setbacks to groundwater wells in Illinois. Per Illinois law, potential sources of pollution, such as stockpiles of deicing chemicals, must be at least 1,000 feet away from community wells and 200 feet from private wells. In Indiana, public water supplies are protected through the 1989 Groundwater Protection Act.

4.1.2 Stormwater Detention Policy

Indiana: According to the Lake County Stormwater Management and Clean Water Regulations, the general post-development release rates for developments up to and including the 100-year return period storm may not exceed 0.2 cubic feet per second (cfs) per acre of development. For sites where the pre-developed area has more than one outlet, the release rate should be computed based on pre-developed discharge at each outlet point. The computed release rate for each outlet point shall not be exceeded at the respective outlet point even if the post developed conditions would involve a different arrangement of outlet points (Chapter 3, Section 2Ai).

Illinois: The Cook County Stormwater Management Plan's (CCSMP) primary goals for new development runoff is to minimize the increase of stormwater runoff volume beyond that experienced under predevelopment conditions and to reduce peak stormwater flows. According to the Calumet Design Guidelines, the lack of available sewers may require that 100 percent of the City of Chicago's 5.8 inch, 100-year 24-hour rainfall volume be retained onsite (Section III(a) – Sites Draining to Combined Sewers, Storm Sewers or Existing Ditches). For sites draining to Lake Calumet, Calumet River, or Indian Creek, stormwater must be treated via a wet basin or wetland prior to discharging to the water body. The required volume of detention shall be based on a 2-year, 24-hour storm event with a maximum allowable discharge rate of 0.04 cfs/acre (Section III(a) – Sites Draining to Lake Calumet, Calumet River or Indian Creek).

4.1.3 Floodplains

A regulatory floodway is defined as the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1 percent annual chance flood event can be carried without substantial increases in flood height. A floodplain is defined as the channel and adjoining area (flood fringe) that has been or may be subject to inundation by water exceeding a certain discharge. The floodplain is composed of the floodway and flood fringe. Regulatory floodways are identified by the Federal Emergency Management Agency (FEMA) as part of the Flood Insurance Rate Map (FIRM) program. In addition, floodplains are protected under

Executive Order 11988. Federal and State regulations that are applicable to floodplains or floodways include:

- Executive Order 11988, Floodplain Management
- Indiana Flood Control Act (IC 14-28-1)
- Indiana Floodplain Management Act (IC 14-28-3)
- Floodway Construction in Northeastern Illinois (Illinois Administrative Code Title 17, Part 3708)
- Constructions in Floodways of Rivers, Lakes, and Streams (IAC Title 17, Part 3700)

Both the States of Illinois and Indiana have floodplain and floodway regulations. In Illinois, permits are required from IDNR; in Indiana, construction activities require a permit from INDNR. In both Illinois and Indiana, compensatory storage is required for fill in the floodway.

Indiana: According to the Lake County Stormwater Management and Clean Water Regulations (Ordinance No. 1365C), compensatory excavation 1.5 times the floodplain storage lost shall be required for all activities within the floodplain of streams located in Lake County where drainage area of the stream is equal to or larger than one square mile. This requirement shall be considered to be above and beyond the minimum requirements provided in the applicable flood hazard areas ordinance currently in effect in Lake County. The Lake County Surveyor may alter the compensation ratio, based on extenuating circumstances, for a specific project, for specific written reasons.

Illinois: According to the CCSMP, the majority of local agencies within Cook County require a compensatory storage ratio of 1.0:1 to 1.5:1 for fill in the floodplain. Per Chapter 7, Section 3.5 of the CCSMP, compensation for lost storage in the flood fringe is required in order to prevent the loss of watershed storage, which can result in increases in flood flows and stages; compensatory storage that is hydraulically equivalent may be required for all activities in the flood fringe.

4.2 Methodology

4.2.1 Groundwater and Water Supply

The analysis of potential groundwater impacts included an assessment of the existing groundwater conditions in the alternative footprints, as well as the effects on groundwater resources from potential impacts to existing water wells. This assessment was based on available GIS shapefile groundwater (aquifer) data and well location information. GIS data for Illinois was obtained from the Illinois State Geological Survey and the Illinois Geospatial Data Clearinghouse; data for Indiana was obtained from IDEM and Indiana Geological Survey (INGS). ArcGIS 10.1 was utilized to create groundwater and water well figures, which were used to analyze the proposed alignment impacts on groundwater (unconsolidated and bedrock aquifers), as well as the distance of the proposed alignment to existing water wells.

4.2.2 Stormwater Detention

Proposed rail and parking lot layouts were established in the Project NICTD conceptual design plan set (from Microstation). The added impervious area was determined utilizing measured areas in Microstation; the detention policy requirements were determined per the county and

state regulations applicable where the proposed work would occur. Some assumptions were made with respect to the storage volume and footprint of proposed detention facilities based on the proposed disturbed areas. To be conservative, no credit was given for existing impervious area being replaced with the proposed alignment or a new parking lot facility. The current project improvement plan would also need to be modified to include additional ROW to construct the proposed detention facilities adjacent to the parking lots, rail stations, and maintenance facilities.

4.2.3 Floodplain Impacts

ArcGIS 10.1 was utilized to create a floodplain figure, which was used to assess whether the proposed alignment would cross mapped floodplains. Floodplain GIS shape files were acquired for Illinois from the Illinois Geospatial Data Clearinghouse, and for Indiana from the INGS. The proposed plan set was utilized to determine floodplain impacts (per Microstation). Since detailed survey information is not available at this conceptual stage of the Project, fill in the floodplain/floodway volumes could not be computed for the existing channel crossing of the bridge/culvert structures. The actual fill in the floodplain volumes will be calculated during the Engineering phase with compensatory storage potentially provided along the stream crossing channel overbanks. Even though the fill volume could not be computed, this report includes the impacted floodway/floodplain footprint area for the proposed alignment.

For the Little Calumet River crossing of the proposed Commuter Rail Alternative Options and Hammond Alternative Options, the preliminary floodplain results were used (instead of the effective floodplain limits) from the FEMA website. The preliminary results take into consideration recent flood control work performed at this location as part of a Letter of Map Revision (LOMR) submitted to FEMA by INDNR.

4.3 Affected Environment

4.3.1 Groundwater and Water Supply

There are 43 water wells located within ½ mile of the proposed alignments for the Hammond Alternative Options (37 in Indiana and 6 in Illinois), Commuter Rail Alternative Options (36 in Indiana and 7 in Illinois), and the Hammond Alternative Options (37 in Indiana and 6 in Illinois). For the IHB Alternative Options, there are 48 water wells within ½ mile of the proposed alignment (36 in Indiana and 12 in Illinois). Water wells are located within the Study Area in both Illinois and Indiana as shown on **Figure 4-1**. Most of the aquifers are located deep underground; however, several existing shallower groundwater wells could potentially be affected by proposed runoff from the new facilities. They are shown on **Figures 4-2 and 4-3**.

4.3.2 Stormwater

Currently much of the Study Area has no formal stormwater treatment to meet current water quality regulatory requirements. Stormwater within the Study Area typically sheet flows directly into surrounding vegetated ditches that provide water quality benefits such as sediment stabilization and waterborne sediments filtration. Water then flows through existing wetlands, and then outlets to the major waterways within each watershed. There are some locations where runoff is drained to storm drain grates located along the curb of the road, which connect into the storm sewer system.

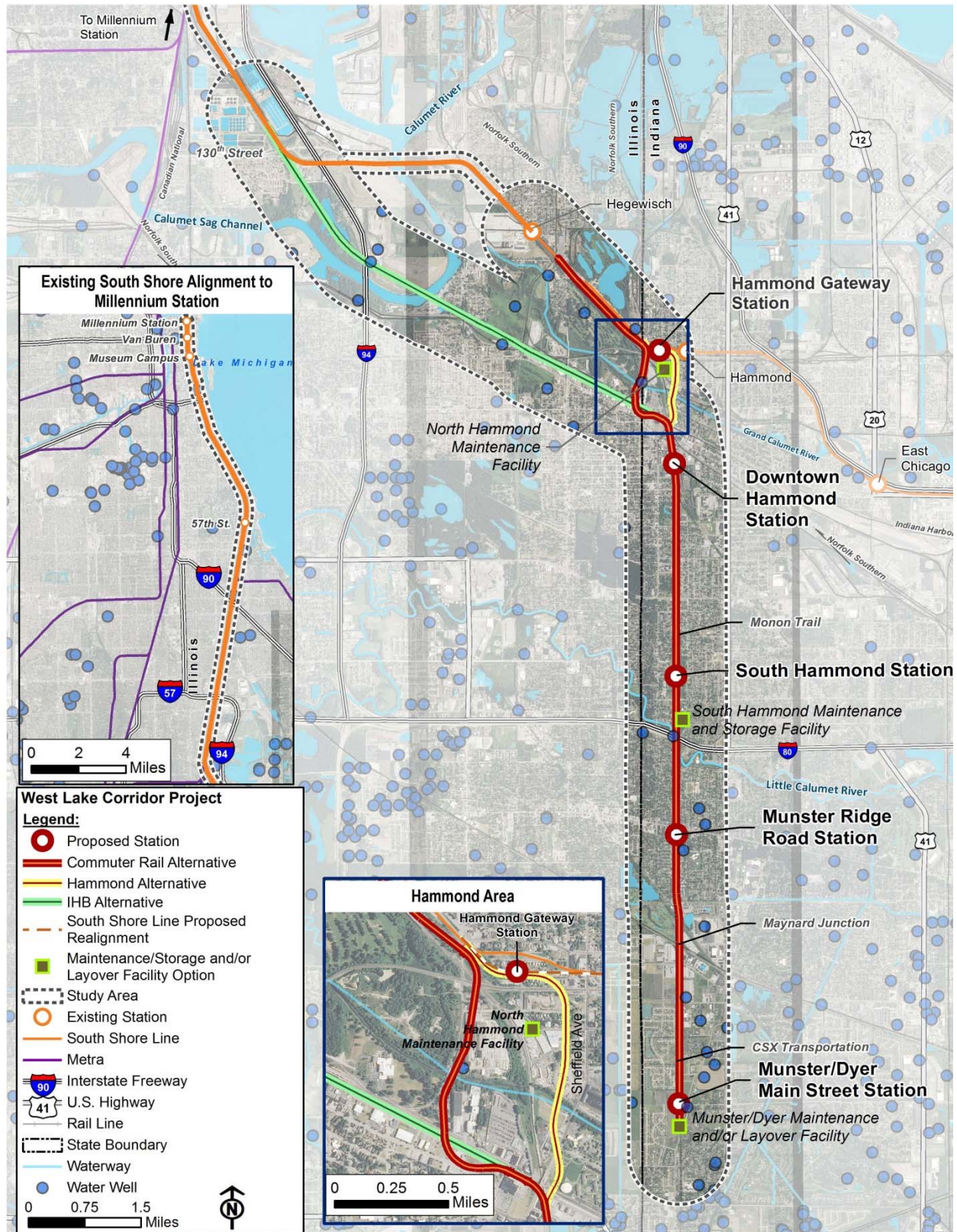


Figure 4-1 Water Wells in the Study Area

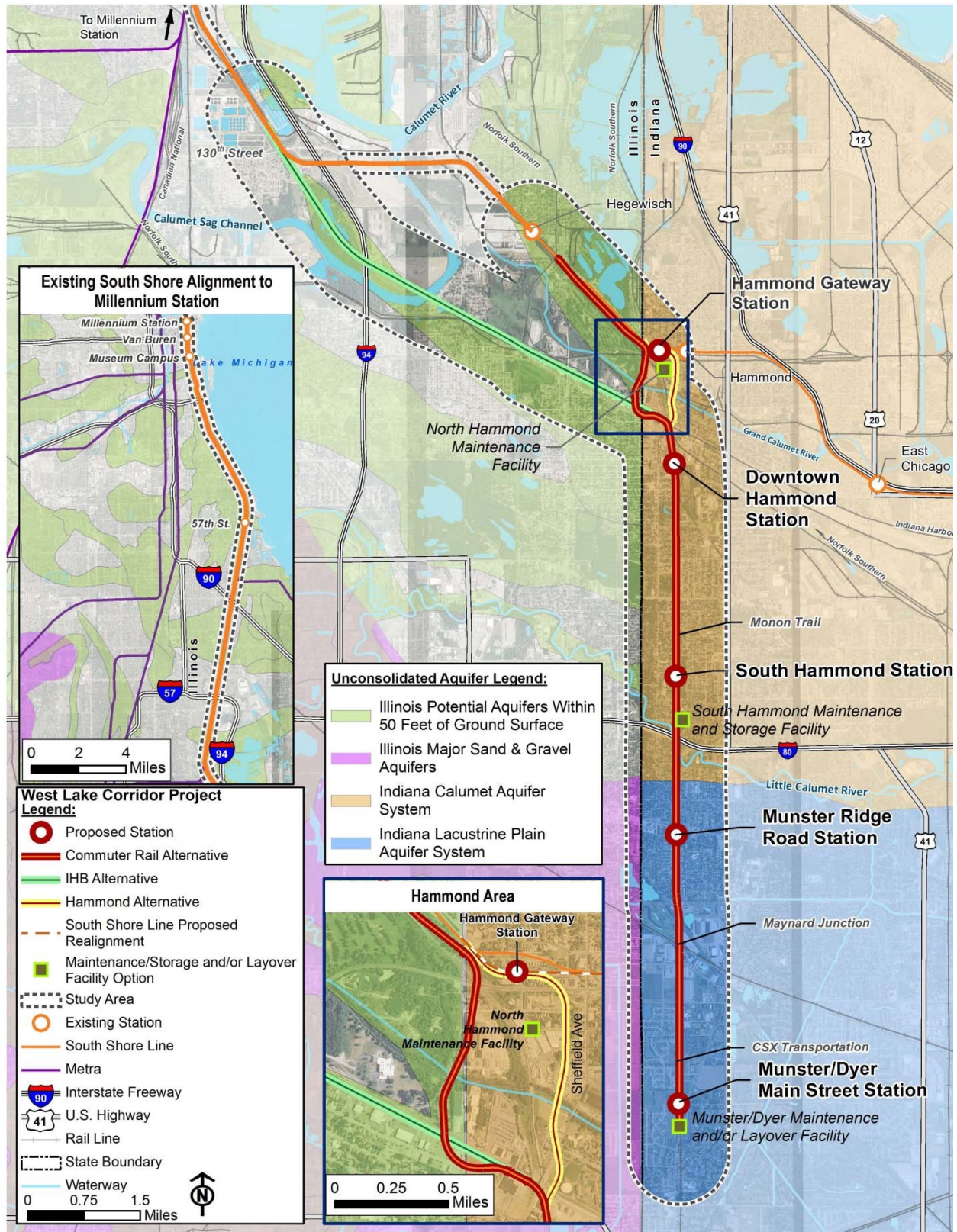


Figure 4-2 Unconsolidated Aquifers

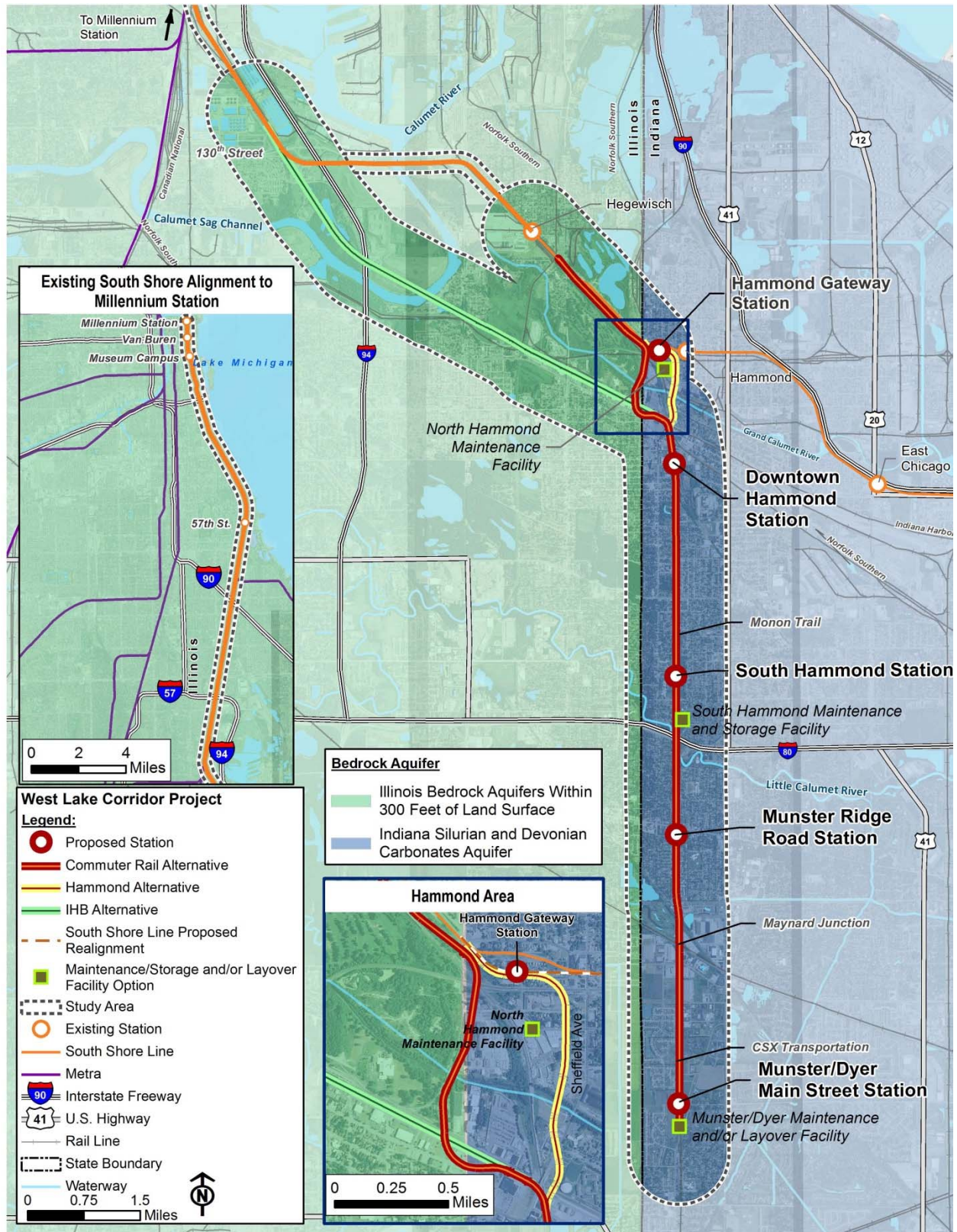


Figure 4-3 Bedrock Aquifers

4.3.3 Floodplains

According to the FIRMs for Lake and Cook counties, the Study Area falls within the FEMA 100-year floodplain in multiple areas along the Study Area. Existing floodways/floodplains in the Study Area are shown on **Figure 4-4**.

4.4 Environmental Consequences

4.4.1 No Build Alternative

Groundwater and Water Supply

The No Build Alternative would have no impacts to existing groundwater wells or aquifers.

Stormwater Detention

The No Build Alternative would not add any impervious area; therefore, there would be no need for stormwater detention.

Floodplain Impacts

The No Build Alternative would have no impacts to the existing stream crossings or floodplains.

4.4.2 Commuter Rail Alternative Options

Groundwater and Water Supply

Water wells could be affected by possible contaminated runoff from proposed operating conditions. These impacts would be minimal due to the presence of organic or clay soils, which minimize the potential for contaminants to move through the soil. Sandy soils are found in the northern portion of the Study Area; however, there are only a few wells located in this area. None of the proposed stations have existing water wells located within their proposed footprints. The proposed Munster/Dyer Main Street Station has an existing water well on private property (520 Sheffield Avenue, Dyer, IN 46311) that is located about 70 feet south of the proposed Main Street construction. Should this property be acquired for station construction, the water well could be affected.

Table 4-1 indicates the water wells located within the Study Area that could be affected by the Commuter Rail Alternative Options.

Table 4-1 Number of Water Wells Affected by Commuter Rail Alternative Options

State	Wells within Study Area (½ mile from alignment)	Wells within Distance to Alignment (feet)			
		100	250	500	1000
Illinois	7	0	1	2	4
Indiana	36	1	4	7	7
Total	43	1	5	9	11

SOURCES: Illinois Water Wells (2014) – Illinois Geospatial Data Clearinghouse – <http://crystal.isgs.uiuc.edu/nsdihome/webdocs/browse.html>.

Indiana Water Wells (2013) – Indiana Map – <http://maps.indiana.edu/layerGallery.html>



Since the existing MED/SSL is being maintained to Millennium Station, no impacts are anticipated for this section.

Stormwater Detention

Table 4-2 indicates the added impervious area that would result from the Commuter Rail Alternative Options. They are summarized below.

Table 4-2 Total Impervious Area from Commuter Rail Alternative Options

Alternative Options	State	Total Impervious Area (acres)		
		Station/Parking	Maintenance and Storage Facility	Track
Option 1	Illinois	0.0	0.0	4.4
	Indiana	33.6	13.0	21.8
	Total	33.6	13.0	26.2
Option 2	Illinois	0.0	0.0	4.4
	Indiana	37.1	13.0	21.8
	Total	37.1	13.0	26.2
Option 3	Illinois	0.0	0.0	4.4
	Indiana	33.4	15.7	21.8
	Total	33.4	15.7	26.2
Option 4	Illinois	0.0	0.0	4.4
	Indiana	36.1	13.0	21.8
	Total	36.1	13.0	26.2

SOURCE: AECOM 2016

Commuter Rail Alternative Option 1: The proposed Project would introduce a new track alignment that would impact approximately 26.2 acres. The total stormwater detention volume required for this improvement is approximately 5.5 acre-feet, which would require a 1.4 acre site (assuming a 4-foot depth) to detain the stormwater runoff.

The proposed Munster/Dyer Main Street Station would contain a single parking lot approximately 18.9 acres in total area, which would be comprised of an impervious area of 15.9 acres. The required stormwater detention storage volume for this facility would be approximately 6.4 acre-feet, which would result in a 1.6 acre detention site being required (assuming 4-foot of depth).

The proposed Munster Ridge Road Station would contain two parking lots approximately 8.8 acres in total area, which would be comprised of an impervious area of 6.7 acres. The required stormwater detention storage volume for these facilities would be approximately 2.2 acre-feet, which would result in a 0.55 acre detention site being required (assuming 4-foot of depth).

The proposed South Hammond Station would contain one parking lot of approximately 8.7 acres in total area. The required stormwater detention storage volume for the impervious area (6.1 acres) of this facility would be approximately 1.9 acre-feet, which would result in a 0.50 acre detention site being required (assuming 4-foot of depth).

The proposed Downtown Hammond Station would contain one parking lot approximately 6.7 acres in total area. The required stormwater detention storage volume for the impervious area (4.9 acres) of this facility would be approximately 1.6 acre-feet, which would result in a 0.40 acre detention site being required (assuming 4-foot of depth).

The South Hammond Maintenance and Storage Facility would be located near the proposed South Hammond Station and would be approximately 15 acres in total area. The required stormwater detention storage for the impervious area (13.0 acres) of this facility would be approximately 5.1 acre-feet, which would result in a 1.3 acre detention site being required (assuming 4-foot of depth).

The current CAD drawings for the Project do not include any designated sites for detention storage purposes. These locations would need to be re-evaluated during the Engineering phase to determine whether some of the proposed landscape area adjacent to the maintenance facilities can be converted into detention storage or if additional land acquisition is required to construct needed basins. The footprint for the proposed detention facilities could also be decreased slightly by providing some pavement storage along the maintenance facility parking lot surface or within underground storage pipes.

Since the existing MED/SSL is being maintained to Millennium Station, no impacts are anticipated for this section.

Commuter Rail Alternative Option 2: The potential impacts of Commuter Rail Alternative Option 2 would be the same as Commuter Rail Alternative Option 1 with the following exception. The proposed Munster/Dyer Main Street Station would contain a single parking lot approximately 25.7 acres in total area, which would be comprised of an impervious area of 19.4 acres. The required stormwater detention storage volume for this facility would be approximately 7.8 acre-feet, which would result in a 1.95 acre detention site being required (assuming 4-foot of depth).

Commuter Rail Alternative Option 3: The potential impacts of Commuter Rail Alternative Option 3 would be the same as Commuter Rail Alternative Option 1 with the following exceptions. The proposed Munster/Dyer Main Street Station would contain a single parking lot approximately 17.8 acres in total area, which would be comprised of an impervious area of 15.7 acres. The required stormwater detention storage volume for this facility would be approximately 6.3 acre-feet, which would result in a 1.6 acre detention site being required (assuming 4-foot of depth).

The Munster/Dyer Maintenance Facility would be located near the proposed Munster/Dyer Main Street Station and would be approximately 17.8 acres in total area. The required stormwater detention storage volume for the impervious area (15.7 acres) of this facility would be approximately 6.3 acre-feet, which would result in a 1.6 acre detention site being required (assuming 4-foot of depth).

Commuter Rail Alternative Option 4: The potential impacts of Commuter Rail Alternative Option 4 would be the same as Commuter Rail Alternative Option 1 with the following exception. The proposed Munster/Dyer Main Street Station would contain a single parking lot approximately 24.6 acres in total area, which would be comprised of an impervious area of 18.4 acres. The required stormwater detention storage volume for this facility would be approximately 6.4 acre-feet, which would result in a 1.85 acre detention site being required (assuming 4-foot of depth).

Floodplain Impacts

Table 4-3 indicates the added total fill in the floodway and floodplain in terms of total disturbed area for the Commuter Rail Alternative Options. The proposed stations, parking lots, or maintenance facilities would not affect floodway or floodplain crossings.

Table 4-3 Total Fill in Floodplain/Floodway from Commuter Rail Alternative Options

State	Total Fill Area (acres)	
	Floodway	Floodplain
Illinois	0.10	0.14
Indiana	1.10	1.33
Total	1.20	1.47

SOURCE: AECOM 2016

There are two major stream crossings with designated floodplains along the proposed alignment that would require compensatory storage for any fill in the floodplain, the Little Calumet River and the Grand Calumet River. The Grand Calumet River crosses the alignment approximately 1,200 feet north of Plummer Avenue (just south of the existing IHB freight line) in Calumet City, Illinois; while the Little Calumet River crosses the alignment approximately 400 feet south of I-80/94, in Munster, IN. Both crossings have been mapped by FEMA (100-year flood elevations are available via FIRM maps) and have designated floodways that are regulated by the Illinois and INDNR, respectively. The designated flood fringe (the area between the floodway and floodplain limits) is regulated by the respective counties.

The proposed alignment (for this analysis, takes into consideration the entire width of the proposed ROW) at the Grand Calumet River crossing would impact approximately 0.1 acre of floodway and another 0.04 acre of flood fringe area, for a total of 0.14 acre within the 100-year floodplain limits (See **Figure 4-5**). The proposed alignment at the Little Calumet River would impact approximately 1.10 acres of floodway and an additional 0.23 acre of flood fringe area, for a total of 1.33 acres within the 100-year floodplain limits. **Figure 4-6** shows the amended floodway and floodplain limits per flood control work that has taken place at the Little Calumet River. The National Flood Hazard Layer from FEMA was used to generate detailed maps for floodplain crossings. Since the existing MED/SSL is being maintained to Millennium Station, no impacts are anticipated for this section.

4.4.3 IHB Alternative Options

Since the proposed improvements for the IHB Alternative Options are similar to the Commuter Rail Alternative Options the only difference in impacts listed below are with respect to the proposed alignment located north of Douglas Street in downtown Hammond.

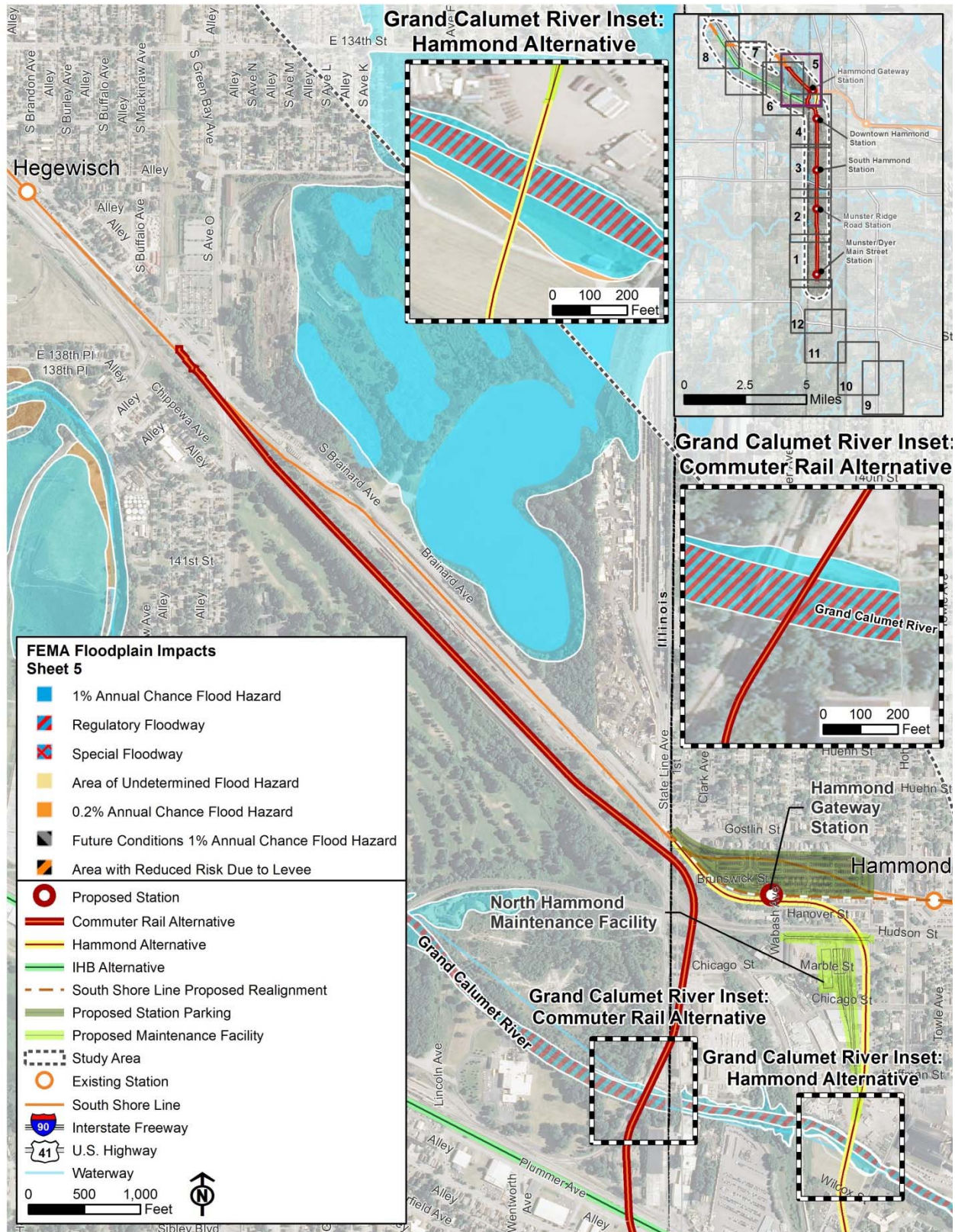


Figure 4-5 Floodplain Detail – Grand Calumet River



Figure 4-6 Floodplain Detail – Little Calumet River

Groundwater and Water Supply

Table 4-4 indicates the water wells potentially affected by the IHB Alternative Options.

Table 4-4 Number of Water Wells Potentially Affected by IHB Alternative Options

State	Wells within Study Area (½ mile from proposed alignment)	Wells within Distance to Alignment (feet)			
		100	250	500	1000
Illinois	12	0	1	1	4
Indiana	36	1	4	7	7
Total	48	1	5	8	11

SOURCES: Illinois Water Wells (2014) – Illinois Geospatial Data Clearinghouse – <http://crystal.isgs.uiuc.edu/nsdihome/webdocs/browse.html>.

Indiana Water Wells (2013) – Indiana Map – <http://maps.indiana.edu/layerGallery.html>

The soil conditions may allow for groundwater impacts. Wells could be impacted by contamination from construction runoff or possible contaminated runoff from proposed operating conditions. These impacts would be minimal as there are only a few wells within this portion of the Study Area.

Stormwater Detention

Table 4-5 indicates the added impervious area resulting from the IHB Alternative Options.

Table 4-5 Total Impervious Area from IHB Alternative Options

Alternative Options	State	Total Impervious Area (acres)		
		Station/Parking	Maintenance and Storage Facility	Track
Option 1	Illinois	0.0	0.0	13.4
	Indiana	33.6	13.0	21.6
	Total	33.6	13.0	35.0
Option 2	Illinois	0.0	0.0	13.4
	Indiana	37.1	13.0	21.6
	Total	37.1	13.0	35.0
Option 3	Illinois	0.0	0.0	13.4
	Indiana	33.4	15.7	21.6
	Total	33.4	15.7	35.0
Option 4	Illinois	0.0	0.0	13.4
	Indiana	36.1	13.0	21.6
	Total	36.1	13.0	35.0

SOURCE: AECOM 2016

Per the CCSMP, the proposed Project will include design to reduce the proposed peak runoff volume and rate to meet the predevelopment stormwater runoff volume and rate. The proposed Project would introduce a new track alignment that would impact approximately 35.0 acres of disturbed area. The total stormwater detention volume required for this improvement is approximately 7.4 acre-feet, which would require a 1.85 acre site (assuming 4-foot depth) to detain the stormwater runoff. The station and maintenance facility alternative option impacts would be similar to the Commuter Rail Alternative Options.

Floodplain Impacts

Table 4-6 indicates the added total fill in the floodway and floodplain in terms of total disturbed area for IHB Alternative Options. All options would affect the same acreage. The proposed stations, parking lots, or maintenance facilities would not affect floodway or floodplain crossings.

Table 4-6 Total Fill in Floodplain/Floodway for the IHB Alternative Options

State	Total Fill Area (acres)	
	Floodway	Floodplain
Illinois	0.1	0.14
Indiana	1.1	1.33
Total	1.2	1.47

SOURCE: AECOM 2016

The IHB Alternative Options would have one additional major stream crossing that is within a designated floodplain, the Little Calumet River. This stream crosses under the proposed alignment approximately 1,200 feet north of East 142nd Street in Burnham, Illinois. The crossing is located within a designated floodway, which would be impacted by the construction of a second bridge to the west of the existing structure that would serve the new track that would be built for exclusive freight use. The current single track bridge would be rehabilitated, and would be used exclusively for Project trains. See **Figure 4-7**.

4.4.4 Hammond Alternative Options

Since the proposed improvements for the Hammond Alternative Options would be similar to the Commuter Rail Alternative Options, the impacts noted below take into consideration the Commuter Rail Alternative Options south of Douglas Street with the proposed improvements along the Hammond Gateway Station (replacing the existing Downtown Hammond Station) and the proposed layover facility at the Munster/Dyer Main Street Station.

Groundwater and Water Supply

Table 4-7 indicates the water wells potentially affected by the Hammond Alternative Options.

Table 4-7 Number of Water Wells Potentially Affected by Hammond Alternative Options

State	Wells within Study Area (½ mile from alignment)	Wells within Distance to Alignment (feet)			
		100	250	500	1000
Illinois	6	0	1	1	4
Indiana	37	1	4	8	7
Total	43	1	5	9	11

SOURCES: Illinois Water Wells (2014) – Illinois Geospatial Data Clearinghouse –

<http://crystal.isgs.uiuc.edu/nsdihome/webdocs/browse.html>.

Indiana Water Wells (2013) – Indiana Map – <http://maps.indiana.edu/layerGallery.html>

The soil conditions may allow for groundwater impacts. Wells could be impacted by contamination from construction runoff or possible contaminated runoff from proposed operating conditions. These impacts would be minimal as there are only a few wells within this portion of the Study Area.



Stormwater Detention

Table 4-8 indicates the added impervious area that would result from Hammond Alternative Options.

Table 4-8 Total Impervious Area from Hammond Alternative Options

Alternative Options	State	Total Impervious Area (acres)			
		Station	Maintenance Facility	Layover Station Option	Rail
Option 1	Illinois	0.0	0.0	0.0	0.0
	Indiana	34.8	3.0	2.8	26.2
	Total	34.8	3.0	2.8	26.2
Option 2	Illinois	0.0	0.0	0.0	0
	Indiana	38.3	3.0	2.8	26.2
	Total	38.3	3.0	2.8	26.2
Option 3	Illinois	0	0.0	0.0	0.0
	Indiana	37.3	5.7	3.0	26.2
	Total	37.3	5.7	3.0	26.2

SOURCE: AECOM 2016

Per the Cook County and Lake County Stormwater Management Plan, the proposed Project would include design to reduce the proposed peak runoff volume and rate to meet the predevelopment stormwater runoff volume and rate. The proposed Project would introduce a new track alignment that would impact approximately 26.2 acres of disturbed area. The total stormwater detention volume required for this improvement is approximately 5.5 acre-feet, which would require a 1.4 acre site (assuming 4-foot depth) to detain the stormwater runoff.

Hammond Alternative Option 1: The proposed Hammond Gateway Station would contain one parking lot approximately 8.3 acres in total area. The required stormwater detention storage volume for the impervious area (6.1 acres) of this facility would be approximately 1.6 acre-feet, which would result in a 0.40 acre detention site being required (assuming 4-foot depth). The rest of the station/parking lot impacts would be similar to Commuter Rail Alternative Option 1.

The proposed Hammond Gateway Station would contain a maintenance facility, which would be approximately 3.0 acres in total area. The required stormwater detention storage volume for the impervious area (3.0 acres) of this facility would be approximately 1.6 acre-feet, which would result in a 0.40 acre detention site being required (assuming 4-foot depth).

The Munster/Dyer Layover Facility would be located near the proposed Munster/Dyer Main Street Station and would be approximately 2.8 acres in total area. The required stormwater detention storage volume for the impervious area (2.8 acres) of this facility would be approximately 1.5 acre-feet, which would result in a 0.40 acre detention site being required (assuming 4-foot depth).

The current CAD drawings for the Project do not include any designated sites for detention storage purposes. These locations would need to be re-evaluated during the Engineering phase to determine whether some of the proposed landscape area adjacent to the parking lots/stations can be converted into detention storage or if additional land acquisition is required to construct these basins. The footprint for the proposed detention facilities can also be decreased slightly by providing some pavement storage along the parking lot surface or within underground storage pipes.

Hammond Alternative Option 2: The proposed Hammond Gateway Station would contain one parking lot approximately 8.3 acres in total area. The required stormwater detention storage volume for the impervious area (6.1 acres) of this facility would be approximately 1.6 acre-feet, which would result in a 0.40 acre detention site being required (assuming 4-foot of depth).

Hammond Alternative Option 3: The proposed Hammond Gateway Station would contain one parking lot approximately 8.3 acres in total area. The required stormwater detention storage volume for the impervious area (6.1 acres) of this facility would be approximately 1.6 acre-feet, which would result in a 0.40 acre detention site being required (assuming 4-foot of depth).

The proposed Hammond Gateway Station would contain a maintenance facility, which would be approximately 5.7 acres in total area. The required stormwater detention storage volume for the impervious area (5.7 acres) of this facility would be approximately 3.0 acre-feet, which would result in a 0.75 acre detention site being required (assuming 4-foot depth).

The Munster/Dyer Layover Facility would be located near the proposed Munster/Dyer Main Street Station and would be approximately 3.0 acres in total area. The required stormwater detention storage volume for the impervious area (3.0 acres) of this facility would be approximately 1.6 acre-feet, which would result in a 0.40 acre detention site being required (assuming 4-foot of depth).

Floodplain Impacts

Table 4-9 indicates the added total fill in the floodway and floodplain in terms of total disturbed area for the Hammond Alternative Options. None of the floodway/floodplain crossings impact the proposed stations, parking lots or maintenance facilities.

Table 4-9 Total Fill in Floodplain/Floodway from Hammond Alternative Options

State	Total Fill Area (acres)	
	Floodway	Floodplain
Illinois	0.07	0.14
Indiana	1.1	1.33
Total	1.17	1.47

SOURCE: AECOM 2016

There is one major stream crossing with a designated floodplain along the proposed alignment different than the Commuter Rail Alternative Options that would require compensatory storage for any fill in the floodplain, the Grand Calumet River. The Grand Calumet River crosses the alignment approximately 1,600 feet north of Plummer Avenue (just south of the existing IHB freight line), in Hammond, Indiana. The crossing has been mapped by FEMA (100-year flood elevations are available via FIRM maps) and has a designated floodway regulated by the INDNR. The designated flood fringe (the area between the floodway and floodplain limits) is regulated by the County. The proposed crossing of the Grand Calumet River varies from the Commuter Rail Alternative.

The proposed alignment (for this analysis, takes into consideration the entire width of the proposed ROW) at the Grand Calumet River crossing would impact approximately 0.07 acre of floodway and another 0.07 acre of flood fringe area, for a total of 0.14 acre within the 100-year floodplain limits (See **Figure 4-5**). The National Flood Hazard Layer from FEMA was used to generate detailed maps for floodplain crossing.

4.4.5 Maynard Junction Rail Profile Option

There would be no change to impacts to surface waters or wetlands, floodplains, groundwater and water supply, and stormwater as described for the applicable alternative options (i.e., Commuter Rail Alternative Options 1, 2, and 3, IHB Alternative Options 1, 2, and 3, and Hammond Alternative Options 1 and 2) resulting from the Maynard Junction Rail Profile Option.

4.5 Construction-Related Impacts

4.5.1 Groundwater and Water Supply

For all Build Alternatives, water wells located within the construction limits of the proposed rail, existing rail to be restored, and the site development of the station and maintenance facility options, may be directly impacted by construction, which has the potential to pollute groundwater. Wells near construction limits may be impacted via construction surface runoff activities or via traffic. Impacts to the majority of these wells would be minimal due to distance and the presence of organic or clay soils, which minimize the potential for contaminants to move through the soil. Impacts may occur but would be minimal to wells located within the northern portion of the Study Area, where sandy soils are present because there are few wells in this portion of the Study Area.

4.5.2 Stormwater Detention

The current conceptual plan drawings do not include a designated site for proposed detention facilities. These sites would need to be evaluated further to determine whether constructing a detention facility adjacent to the parking lots/stations is feasible. This evaluation would also take into consideration ROW. If the recommended area is not available to construct an above ground detention facility then underground storage may need to be investigated as an alternative. Also, when constructing the proposed detention facilities, an emergency spillway would need to be provided to allow for overflows to drain away from adjacent properties or sensitive outlets. Additional ROW acquisition may also be required for this overflow route. No additional impacts to stormwater detention would result from the construction of stormwater detention facilities.

4.5.3 Floodplain Impacts

The existing waterway crossings would need to be hydraulically modeled to determine whether the existing culverts/bridges would require widening, full replacement or extension. A hydraulic report study would need to be prepared to determine existing versus proposed hydraulic capacities/waterway openings to determine the overall level of effort required with respect to proposed construction. At locations where only bridge deck work is required no modifications are anticipated to the waterway crossings below.

Impacts to floodplains as a result of construction would be short term and temporary, and would consist primarily of erosion and sediment control impacts. These impacts would be minimized through the implementation of proper erosion and sediment control plans.

4.6 Mitigation

4.6.1 Long-Term Operating Effects

Groundwater and Water Supply

All wells that are located within Study Area and would be impacted by the Project would be properly capped and abandoned. If the dwelling associated with an affected well is to remain after construction is complete, the water well would be replaced or other suitable alternative would be provided. Any replacement wells would be constructed such that susceptibility to surficial contamination is minimized (i.e., constructing the well in a deeper aquifer).

Stormwater Detention

Stormwater facilities, discharges, and other BMPs/water quality measures would be monitored and managed following construction in accordance with the requirements of the Indiana 327 15-5, Rule 5 (2012c) and the General National Pollutant Discharge Elimination System (NPDES) Illinois permit number ILR10.

Floodplain Impacts

Any proposed work permanent fill within the existing floodways/floodplains would require compensatory storage and a hydraulically sized structure to ensure that water surface levels are not raised within the stream channel or along adjacent properties. These crossings would also need to be designed to allow for fish passage and to meet any regulatory and water quality requirements from regulatory agencies. If compensatory storage cannot be provided at the stream crossing of the proposed track work, additional coordination would be required with the county and local community to mitigate the required compensatory storage volume farther upstream or downstream of the proposed crossing in designated areas. There is a possibility that additional ROW may be required to widen ditches or construct a new compensatory storage site adjacent to the floodplain.

4.6.2 Short-Term Construction Effects

Groundwater and Water Supply

Mitigation measures would be completed through the implementation of BMPs (such as bioswales, which is a type of landscaping designed to remove silt and pollution from water runoff) that treat and filter stormwater runoff prior to it infiltrating and becoming groundwater. These BMPs would also be implemented to minimize the volume of stormwater runoff discharge. Installation of BMPs would result in physical, chemical, or biological pollutant load reduction; increased infiltration; and evapotranspiration (plant respiration). Proper soil erosion and sediment control measures would also be used to minimize erosion and sedimentation from the project.

Stormwater Detention

Stormwater facilities and discharges would be monitored and managed during construction in accordance with the requirements of the Indiana 327 15-5, Rule 5 (2012c) and the General NPDES Illinois permit number ILR10. Other stormwater control practices may be implemented to mitigate water quality impacts. In addition to detention facilities, other practices such as

vegetated basins/buffers, infiltration basins, and bioswales would be evaluated to minimize transport of sediment, heavy metals, and other pollutants. Regional stormwater detention storage may be necessary per watershed basis to ensure that the overall watershed release rate to the designate waterway crossings is not increased. It may not be feasible to provide stormwater detention storage at each outlet.

Floodplain Impacts

While there would be temporary construction impacts to the existing floodplains, no mitigation measures are proposed since the impacts do not constitute permanent regrading and fill within the existing floodplain limits, which in this scenario would require compensatory storage. Erosion and sediment control plans would be required with the contract drawings to prevent or reduce the displacement of soil and other sediments via stormwater runoff within land development area.

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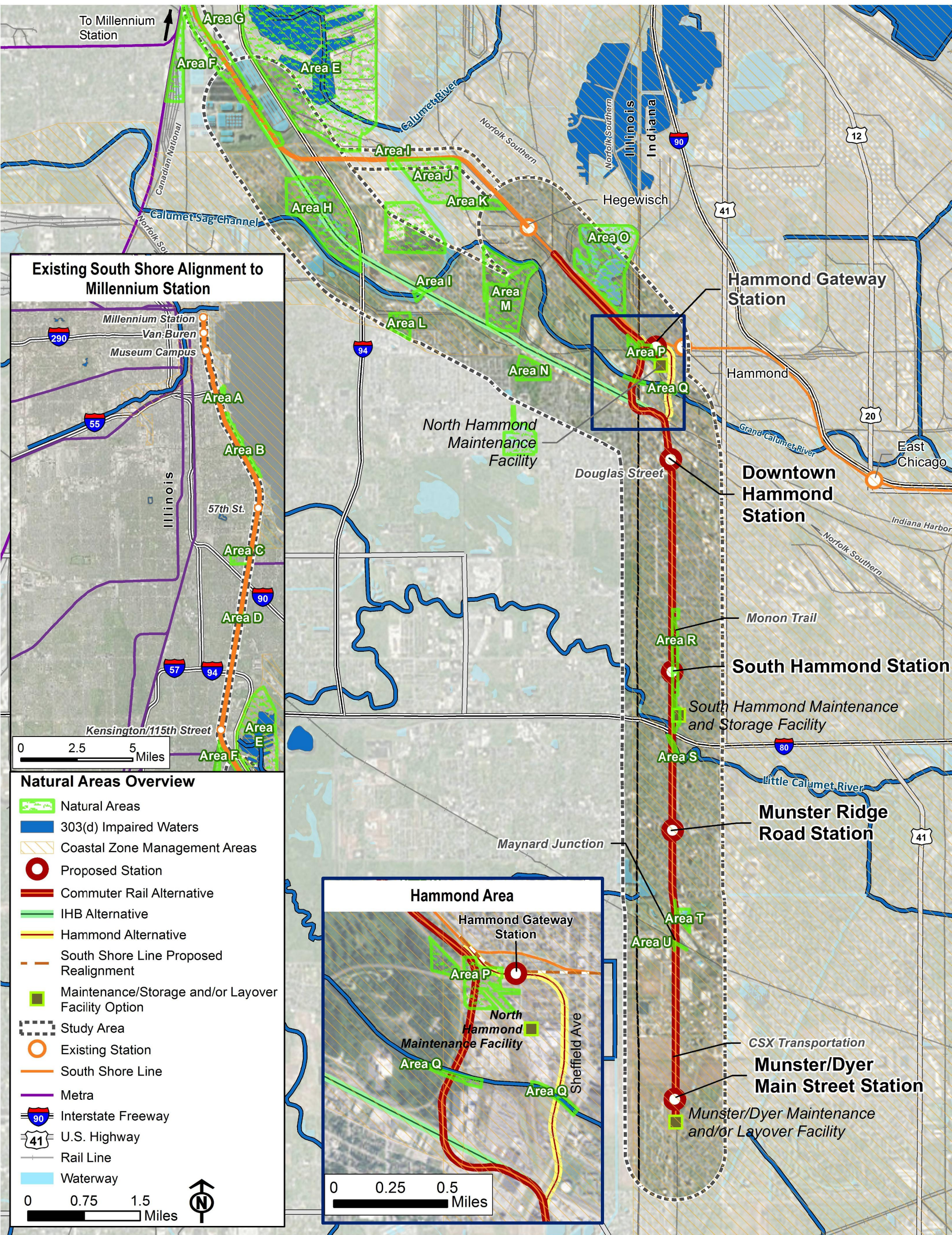
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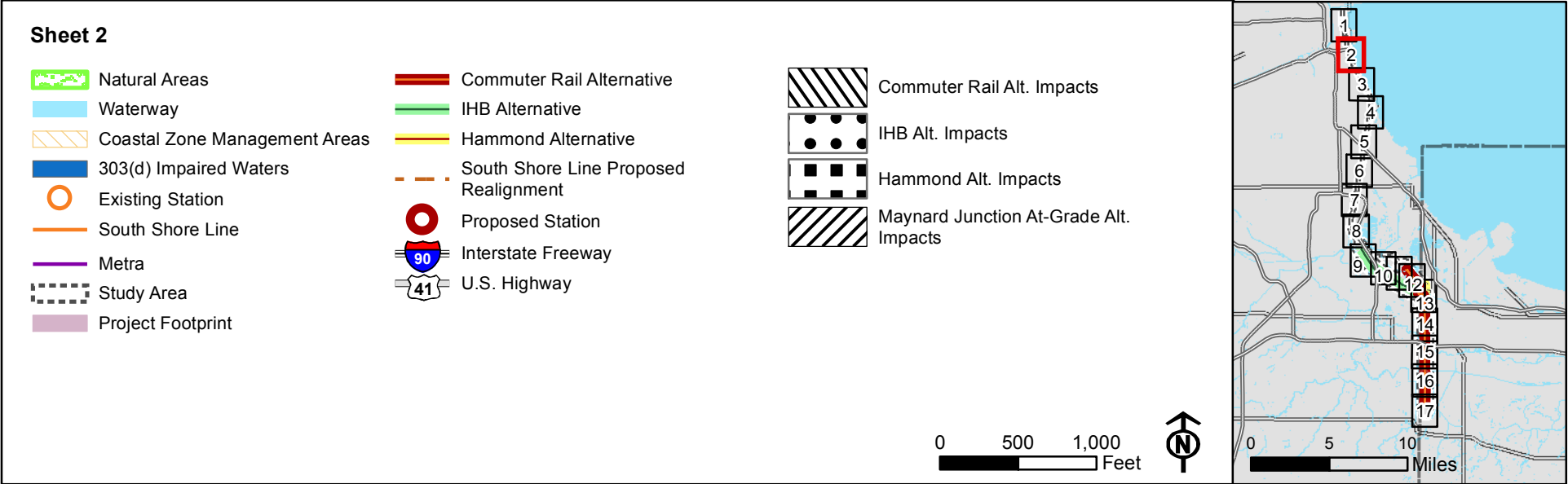
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APPENDIX A
Natural Resources, Surface Waters, and Coastal Zone
Management Areas in Study Area







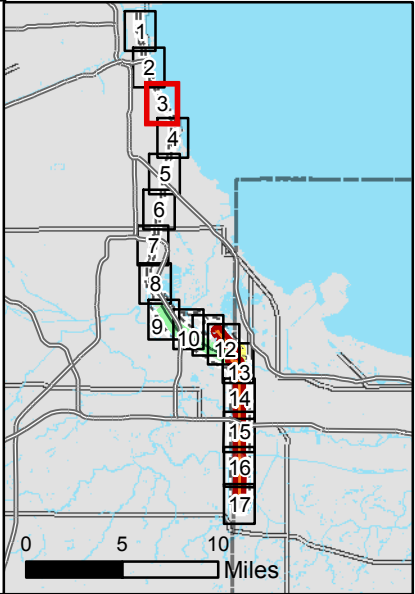
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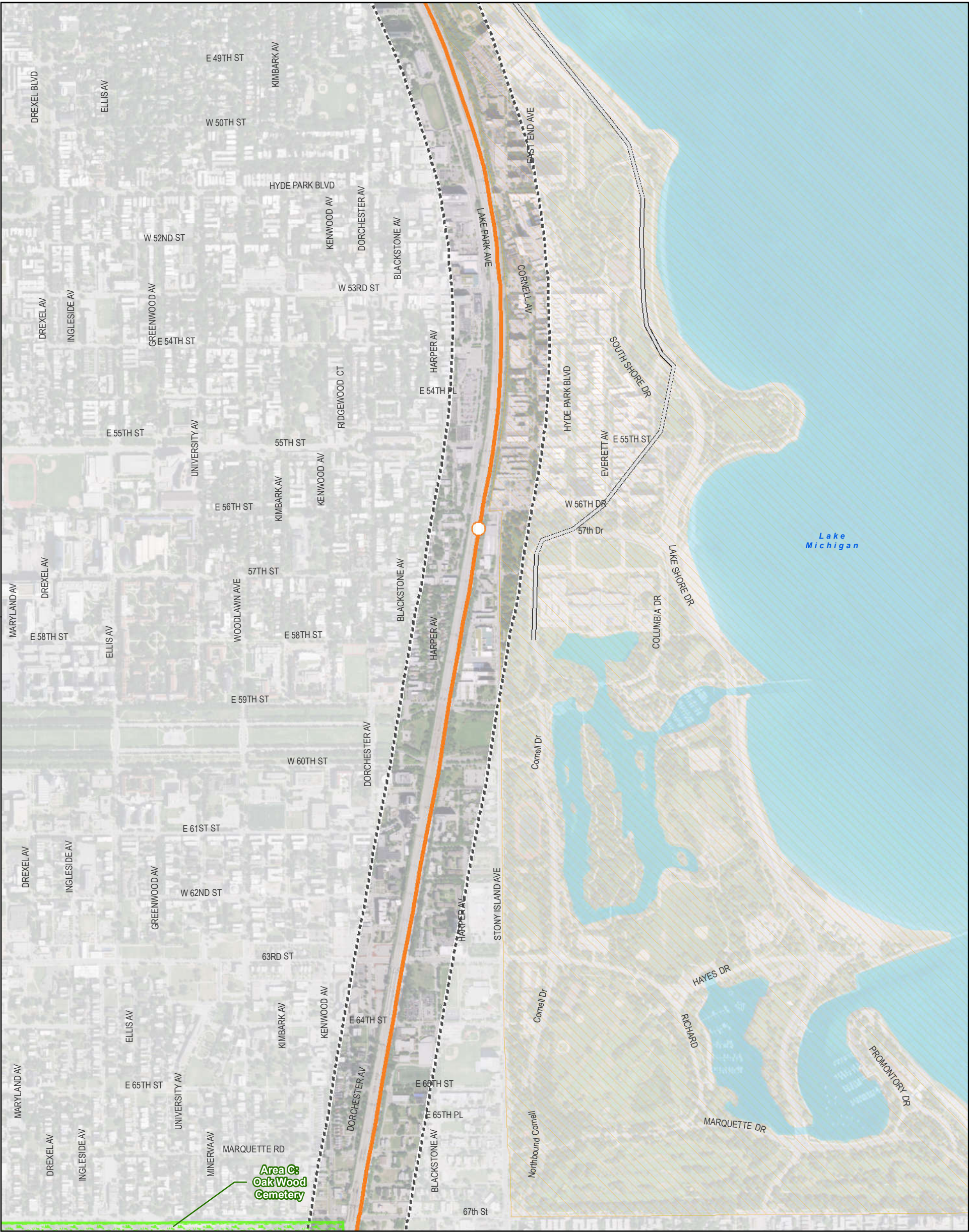
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| Waterway | IHB Alternative | IHB Alt. Impacts |
| Coastal Zone Management Areas | Hammond Alternative | Hammond Alt. Impacts |
| 303(d) Impaired Waters | South Shore Line Proposed Realignment | Maynard Junction At-Grade Alt. Impacts |
| Existing Station | Proposed Station | |
| South Shore Line | Interstate Freeway | |
| Metra | U.S. Highway | |
| Study Area | | |
| Project Footprint | | |

0 500 1,000 Feet



0 5 10 Miles





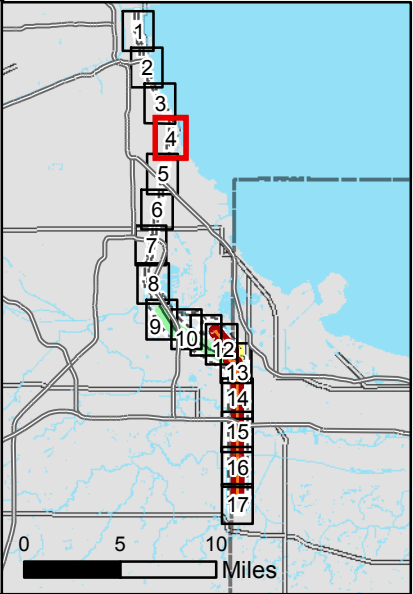
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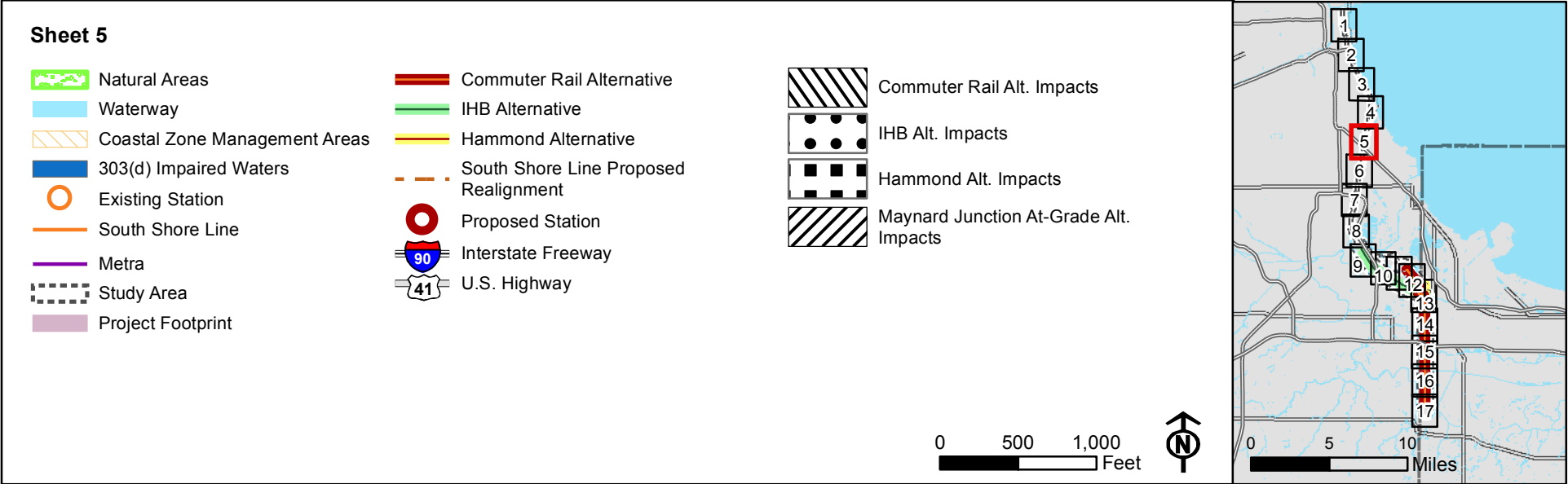
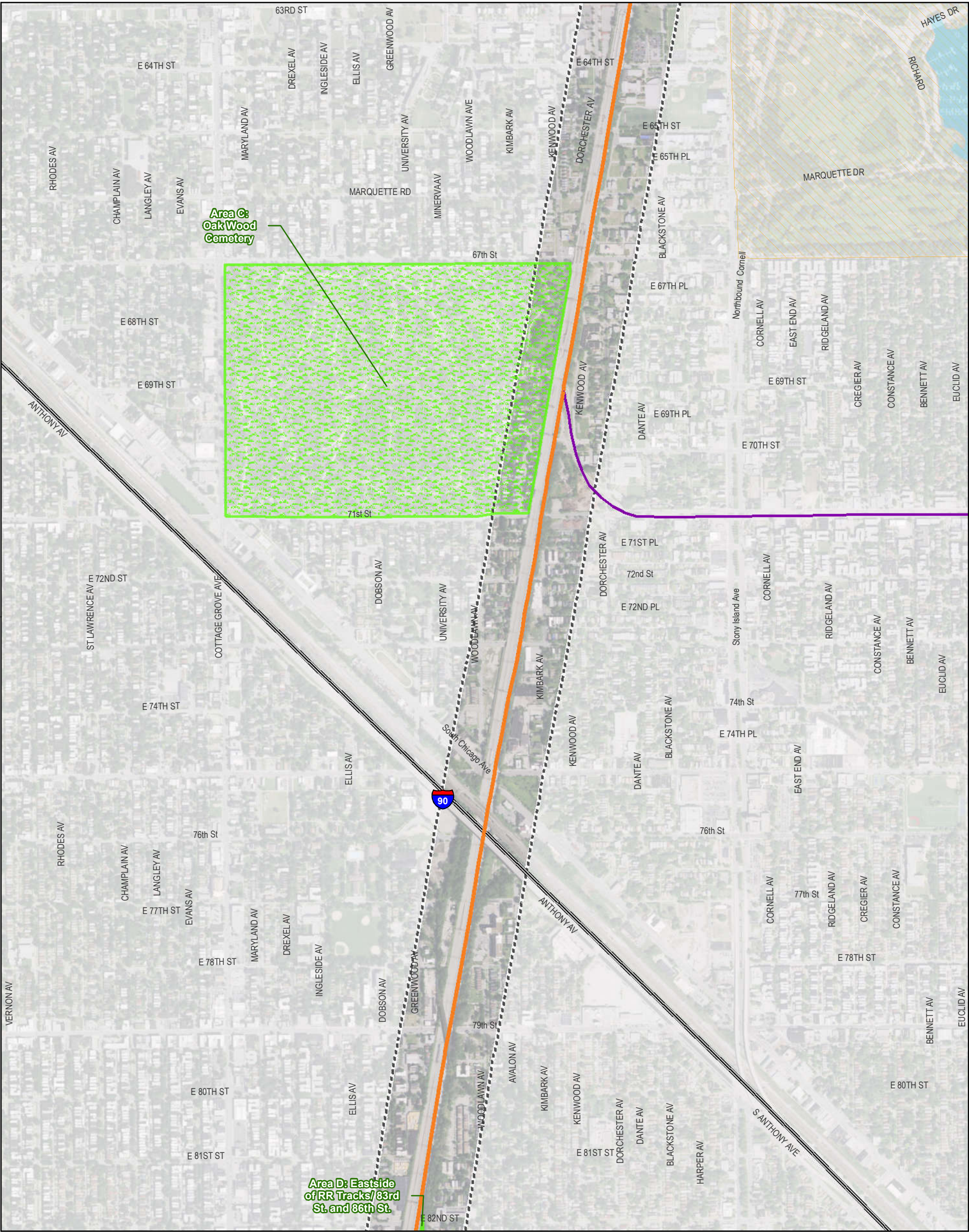
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| South Shore Line | Interstate Freeway | |
| Metra | U.S. Highway | |
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| Project Footprint | | |

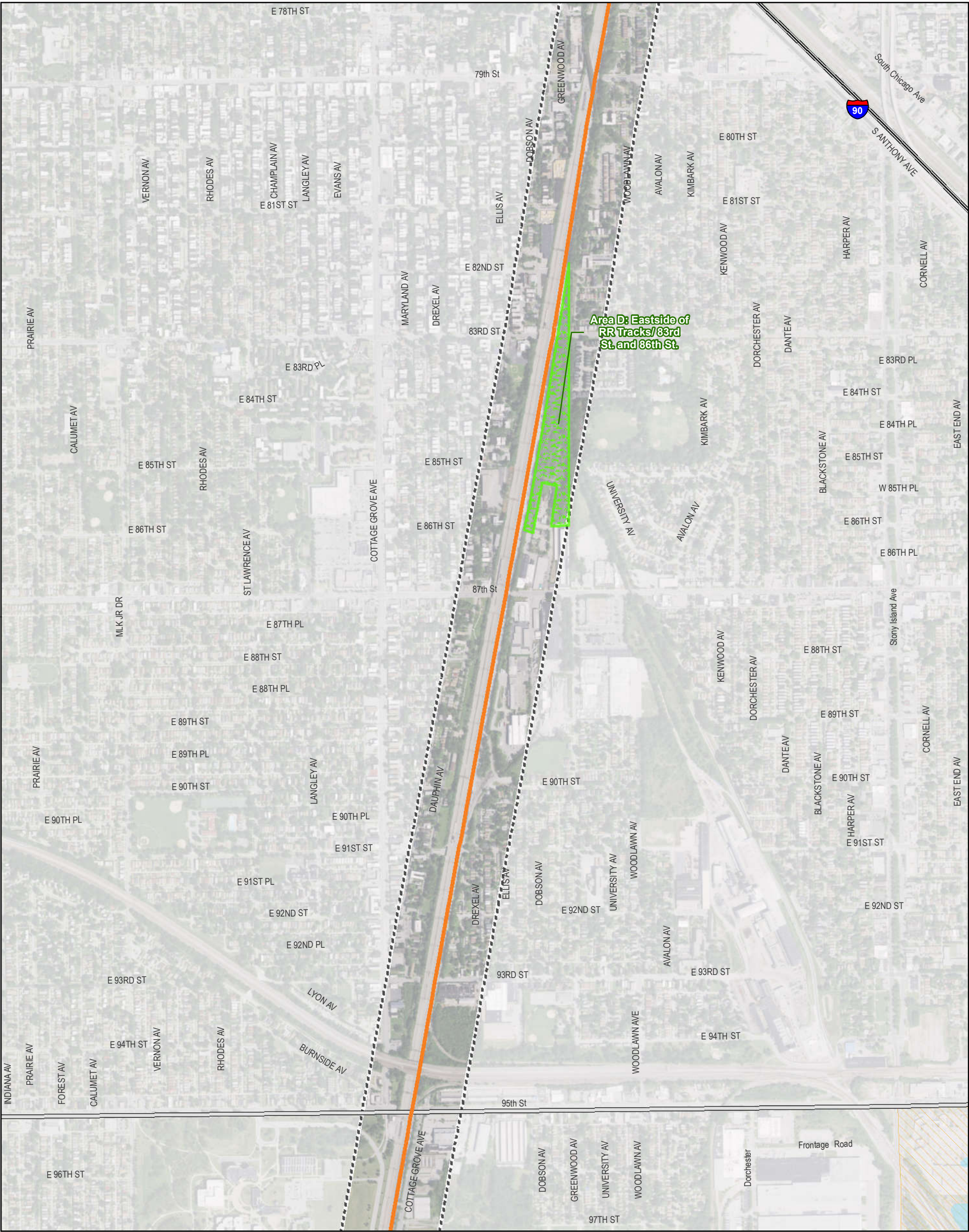
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











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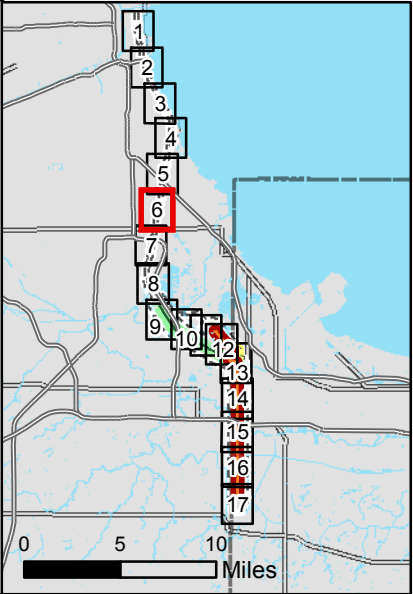
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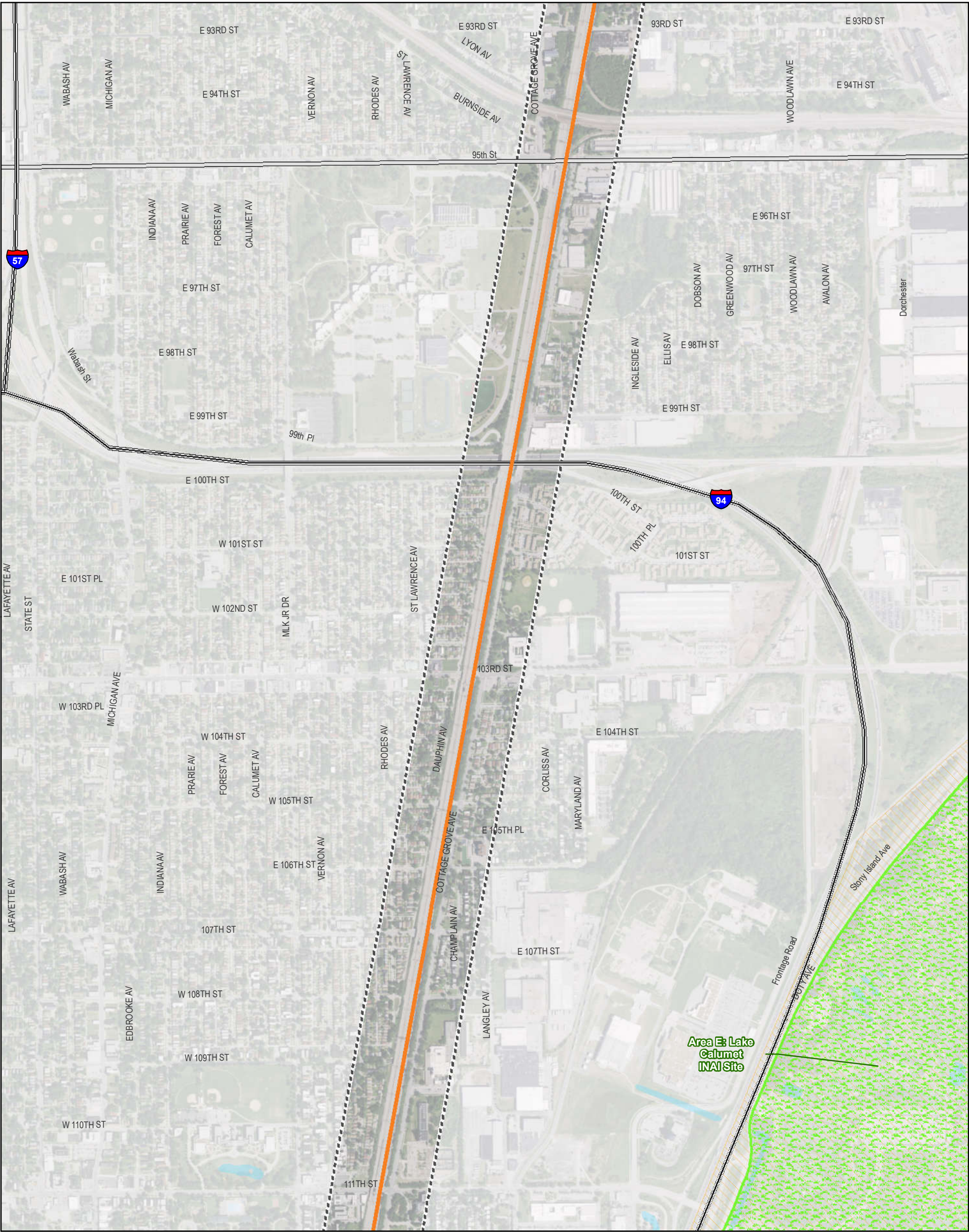
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|  Coastal Zone Management Areas |  Hammond Alternative |  Hammond Alt. Impacts |
|  303(d) Impaired Waters |  South Shore Line Proposed Realignment |  Maynard Junction At-Grade Alt. Impacts |
|  Existing Station |  Proposed Station | |
|  South Shore Line |  Interstate Freeway | |
|  Metra |  U.S. Highway | |
|  Study Area | | |
|  Project Footprint | | |

0 500 1,000 Feet



0 5 10 Miles





Sheet 7

- Natural Areas

Waterway

Coastal Zone Management Areas

303(d) Impaired Waters

Existing Station

South Shore Line

Metra

Study Area

Project Footprint
- Commuter Rail Alternative

IHB Alternative

Hammond Alternative

South Shore Line Proposed Realignment

Proposed Station

Interstate Freeway

U.S. Highway
- Commuter Rail Alt. Impacts

IHB Alt. Impacts

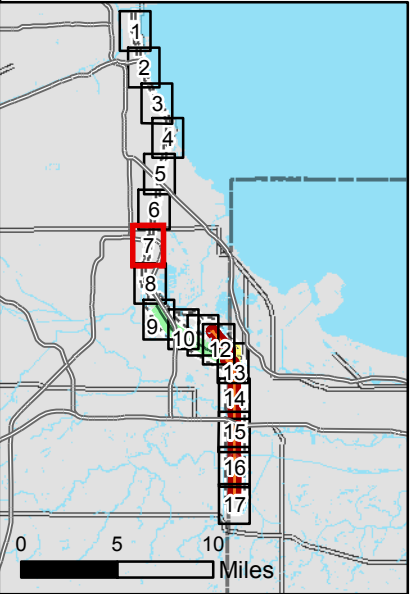
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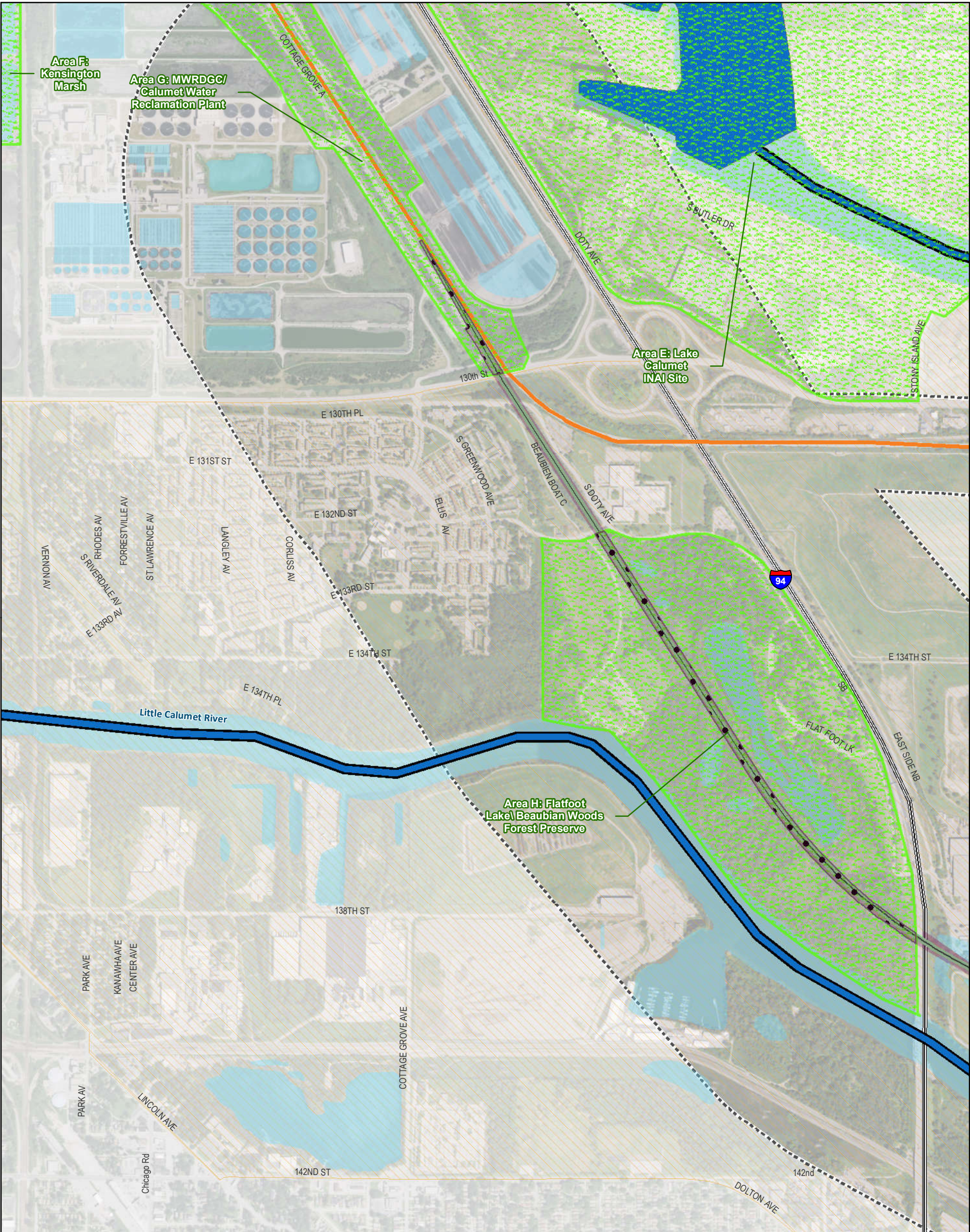
Maynard Junction At-Grade Alt. Impacts

0 500 1,000 Feet



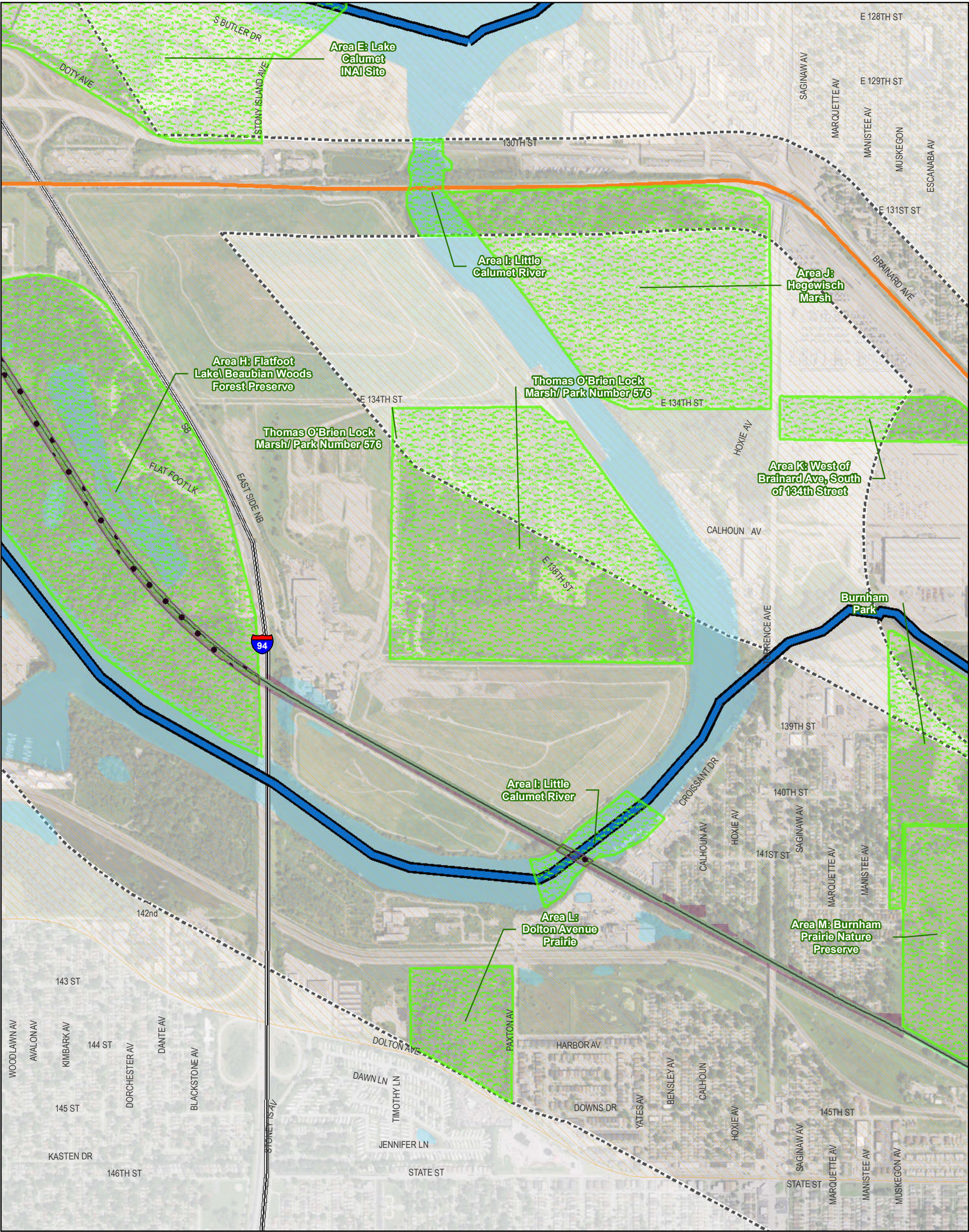
0 5 10 Miles





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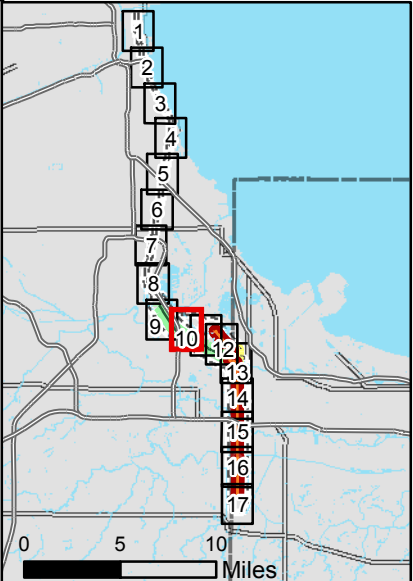
Natural Areas	Commuter Rail Alternative	Commuter Rail Alt. Impacts
Waterway	IHB Alternative	IHB Alt. Impacts
Coastal Zone Management Areas	Hammond Alternative	Hammond Alt. Impacts
303(d) Impaired Waters	South Shore Line Proposed Realignment	Maynard Junction At-Grade Alt. Impacts
Existing Station	Proposed Station	
South Shore Line	Interstate Freeway	
Metra	U.S. Highway	
Study Area		
Project Footprint		

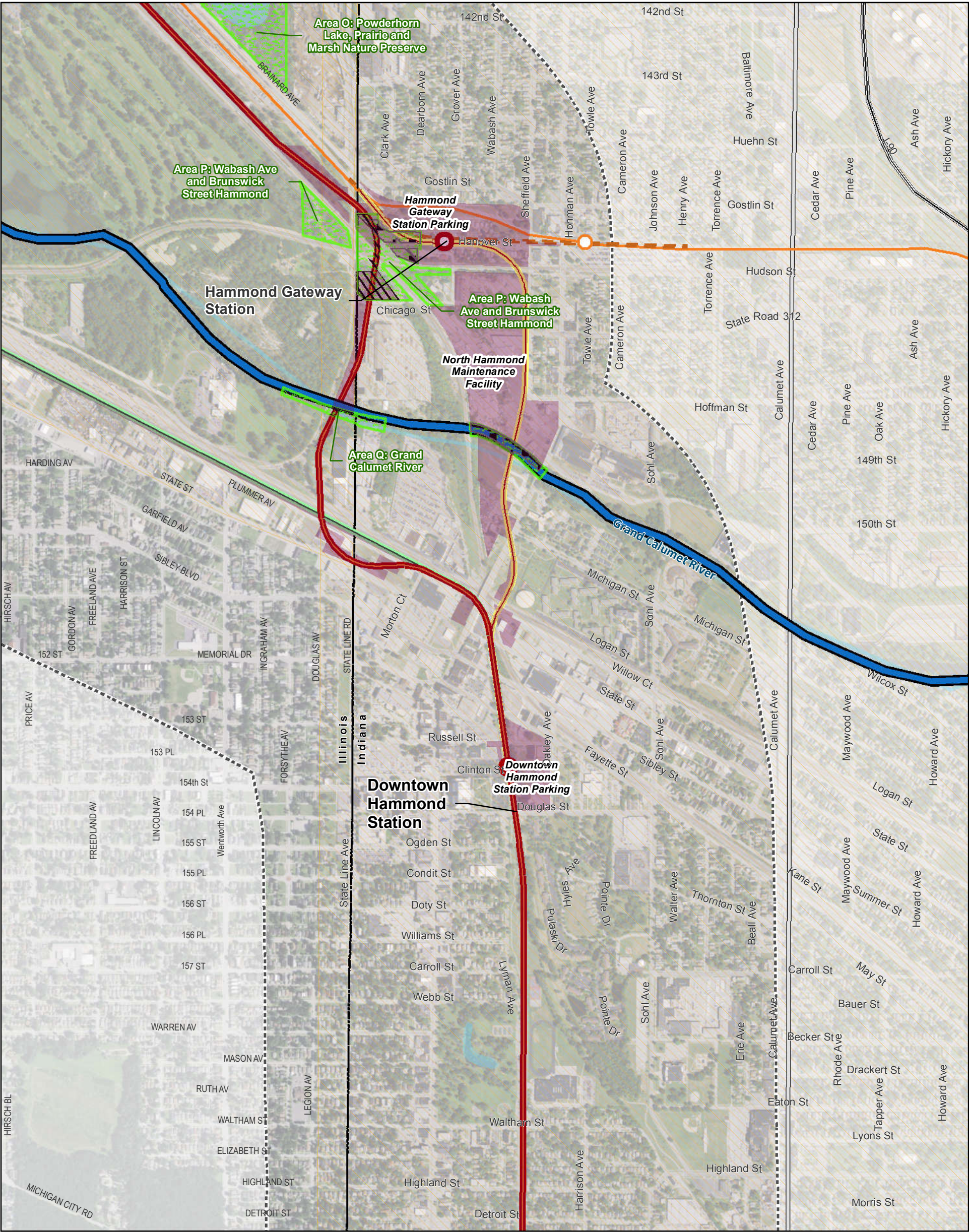


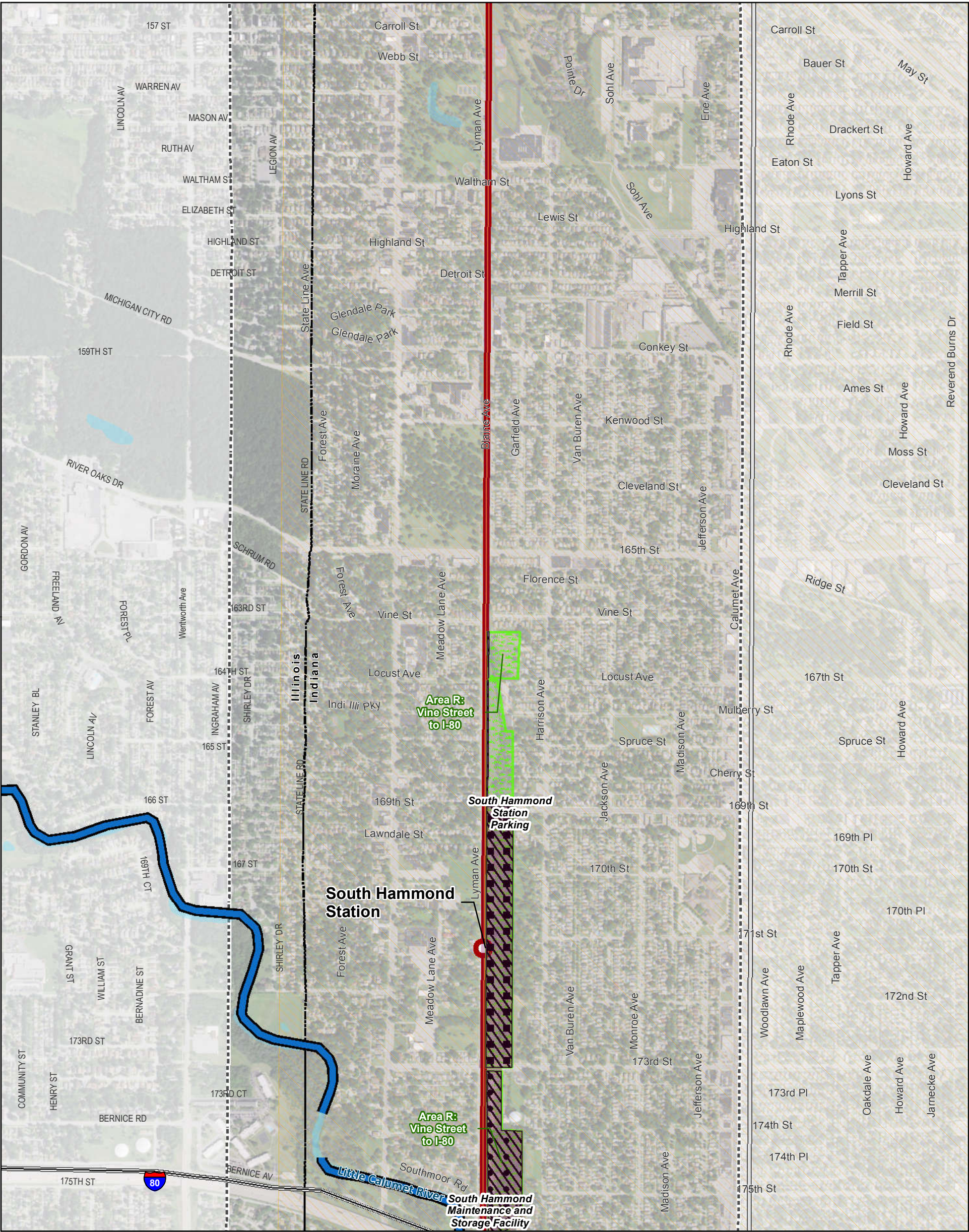
Sheet 10

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|-------------------------------|---------------------------------------|--|
| Natural Areas | Commuter Rail Alternative | Commuter Rail Alt. Impacts |
| Waterway | IHB Alternative | IHB Alt. Impacts |
| Coastal Zone Management Areas | Hammond Alternative | Hammond Alt. Impacts |
| 303(d) Impaired Waters | South Shore Line Proposed Realignment | Maynard Junction At-Grade Alt. Impacts |
| Existing Station | Proposed Station | |
| South Shore Line | Interstate Freeway | |
| Metra | U.S. Highway | |
| Study Area | | |
| Project Footprint | | |

0 500 1,000 Feet







Sheet 14

Natural Areas

Waterway

Coastal Zone Management Areas

303(d) Impaired Waters

Existing Station

South Shore Line

Metra

Study Area

Project Footprint

Commuter Rail Alternative

IHB Alternative

Hammond Alternative

South Shore Line Proposed Realignment

Proposed Station

Interstate Freeway

U.S. Highway

Commuter Rail Alt. Impacts

IHB Alt. Impacts

Hammond Alt. Impacts

Maynard Junction At-Grade Alt. Impacts

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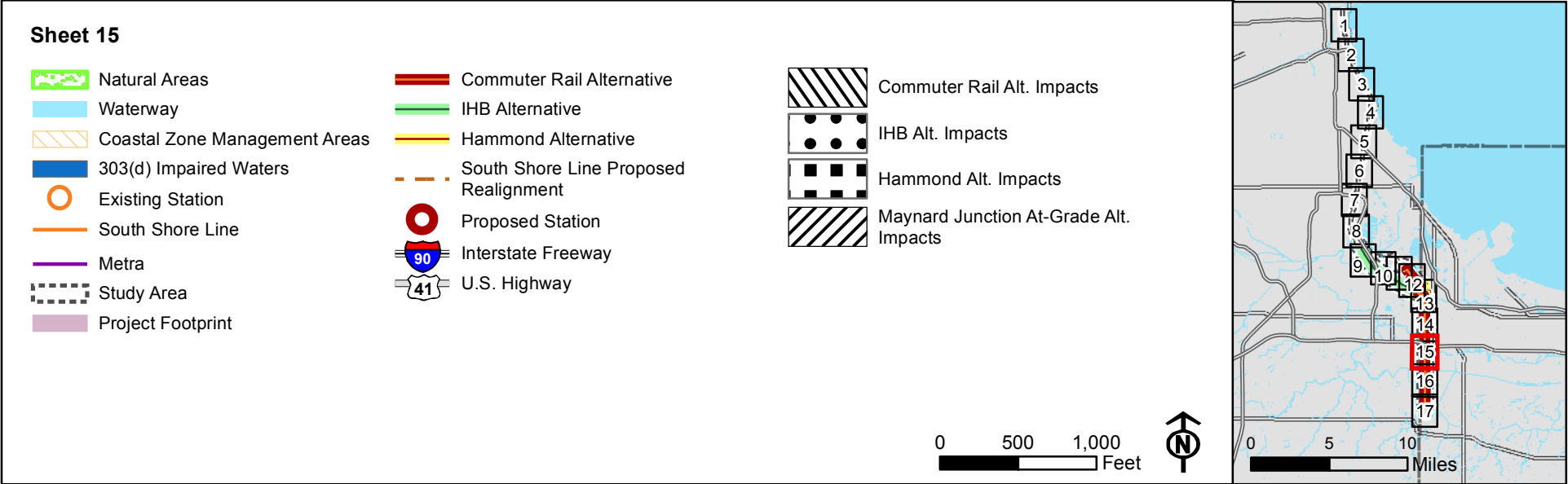
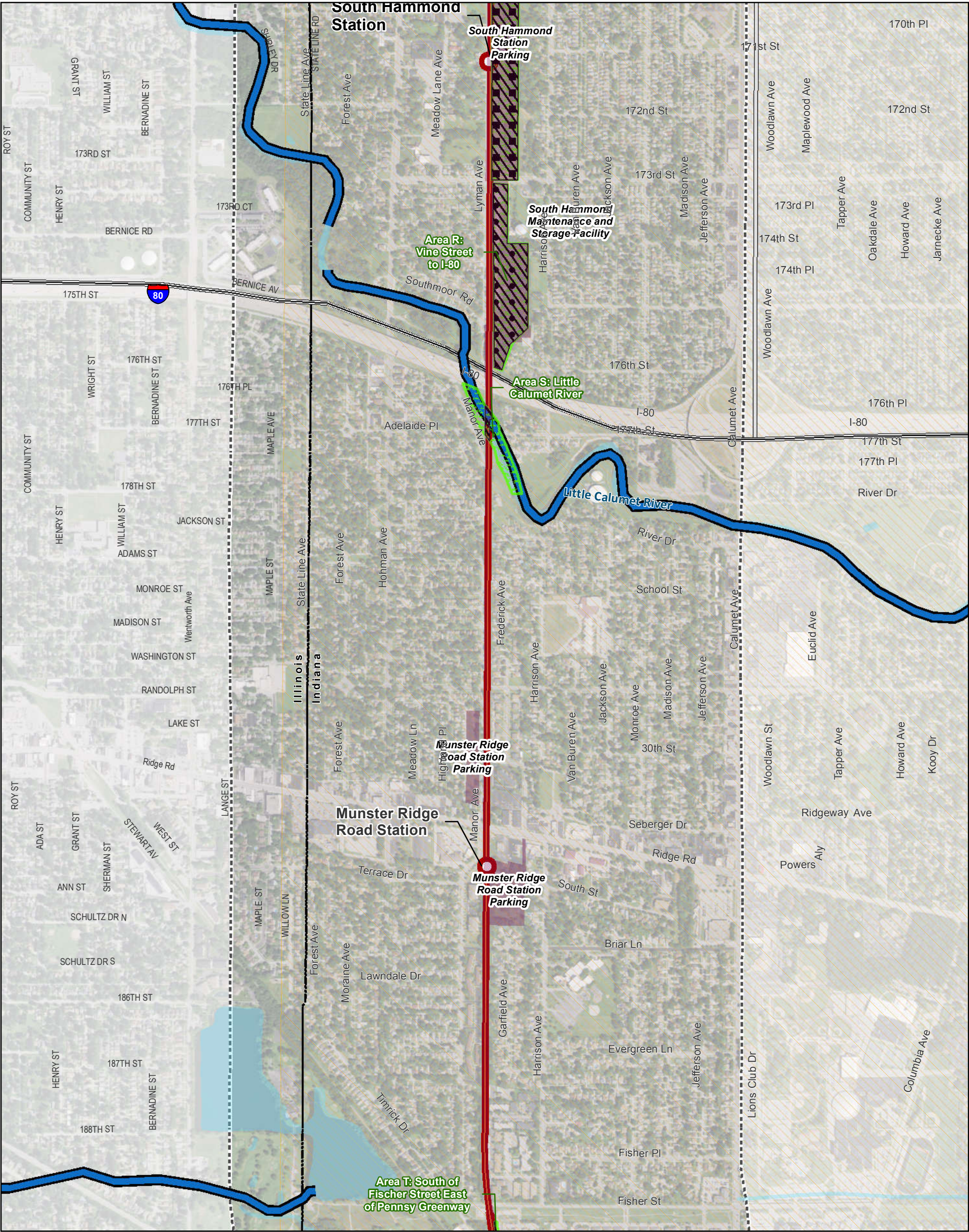
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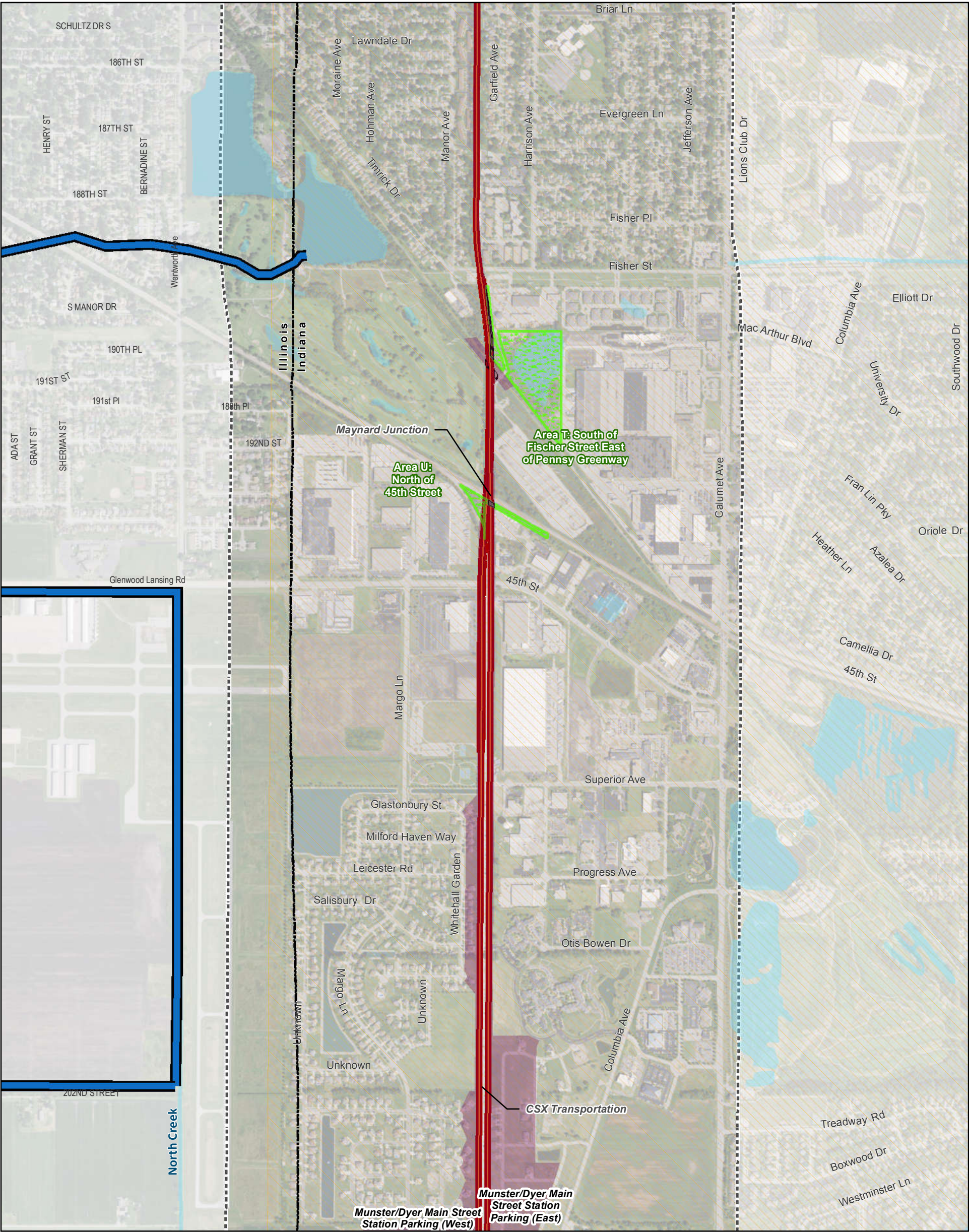
North

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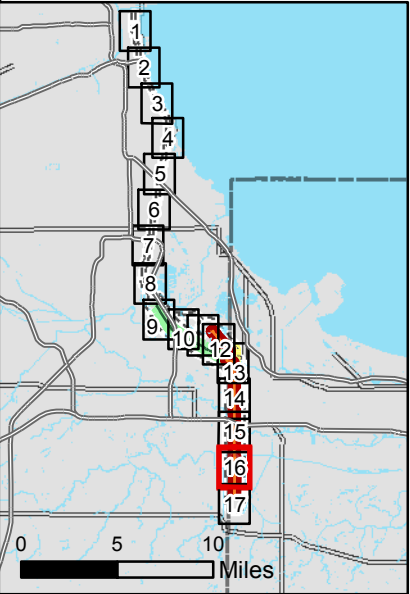
Sheet 16

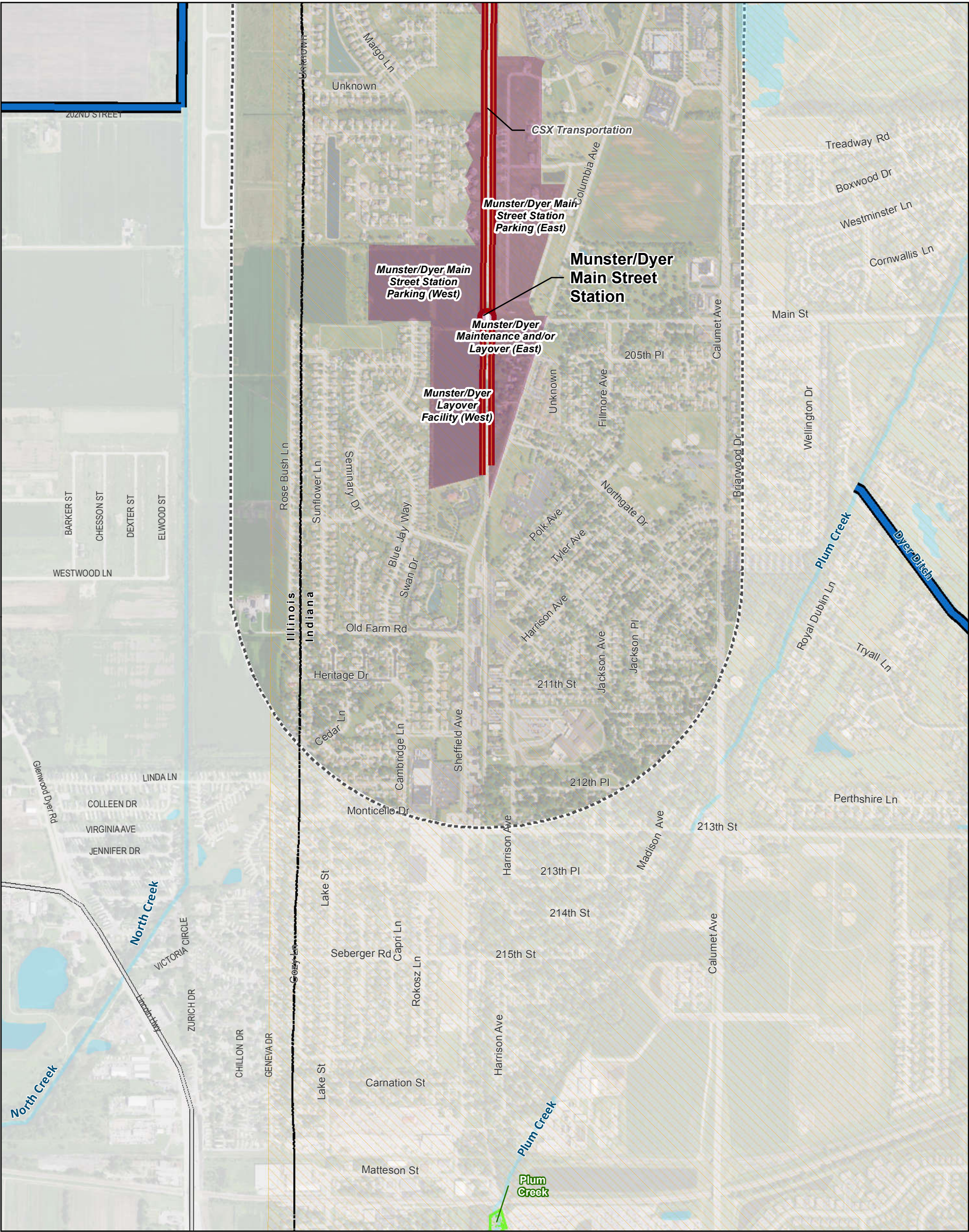
- Natural Areas
- Waterway
- Coastal Zone Management Areas
- 303(d) Impaired Waters
- Existing Station
- South Shore Line
- Metra
- Study Area
- Project Footprint

- Commuter Rail Alternative
- IHB Alternative
- Hammond Alternative
- South Shore Line Proposed Realignment
- Proposed Station
- Interstate Freeway
- U.S. Highway

- Commuter Rail Alt. Impacts
- IHB Alt. Impacts
- Hammond Alt. Impacts
- Maynard Junction At-Grade Alt. Impacts

0 500 1,000 Feet

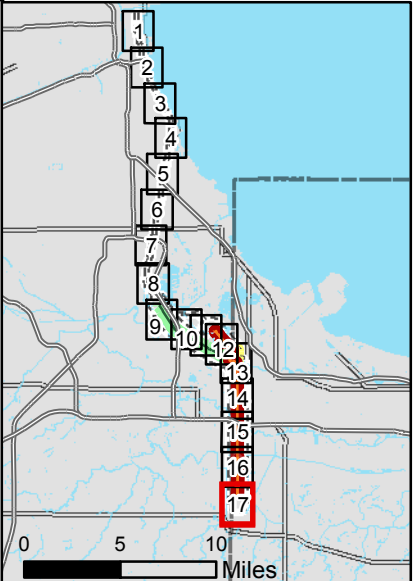




Sheet 17

- | | | |
|-------------------------------|---------------------------------------|--|
| Natural Areas | Commuter Rail Alternative | Commuter Rail Alt. Impacts |
| Waterway | IHB Alternative | IHB Alt. Impacts |
| Coastal Zone Management Areas | Hammond Alternative | Hammond Alt. Impacts |
| 303(d) Impaired Waters | South Shore Line Proposed Realignment | Maynard Junction At-Grade Alt. Impacts |
| Existing Station | Proposed Station | |
| South Shore Line | Interstate Freeway | |
| Metra | U.S. Highway | |
| Study Area | | |
| Project Footprint | | |

0 500 1,000 Feet



APPENDIX B

Resource Agency Coordination

Applicant: AECOM
Contact: Cheryl Nash
Address: 303 E. Wacker Dr.
Suite 1400
Chicago, IL 60601

IDNR Project Number: 1506736
Date: 11/24/2014

Project: NICTD West Lake Corridor Study - Gateway Hammond Option
Address: Plummer Ave, Calumet City, IL

Description: Environmental study for a new rail-based service between the Munster/Dyer area downtown Chicago.

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Burnham Prairie INAI Site
Calumet City Prairie INAI Site
Powderhorn Lake And Prairie INAI Site
Wolf Lake INAI Site
Burnham Prairie Nature Preserve
Calumet City Prairie And Marsh Nature Preserve
Powderhorn Prairie And Marsh Nature Preserve
Banded Killifish (*Fundulus diaphanus*)
Blanding's Turtle (*Emydoidea blandingii*)
Common Moorhen (*Gallinula chloropus*)
Least Bittern (*Ixobrychus exilis*)
Little Blue Heron (*Egretta caerulea*)
Marsh Speedwell (*Veronica scutellata*)
Osprey (*Pandion haliaetus*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Headed Blackbird (*Xanthocephalus xanthocephalus*)

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Cook

Township, Range, Section:

36N, 15E, 5
36N, 15E, 6
36N, 15E, 8
37N, 15E, 31



IL Department of Natural Resources

Contact

Impact Assessment Section

217-785-5500

Division of Ecosystems & Environment

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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Applicant: AECOM
Contact: Cheryl Nash
Address: 303 E. Wacker Dr.
Suite 1400
Chicago, IL 60601

IDNR Project Number: 1506737
Date: 11/24/2014

Project: NICTD West Lake Corridor Study - Indiana Harbor Belt Option
Address: Plummer Ave, Calumet City, IL

Description: Environmental study for a new rail-based service between the Munster/Dyer area downtown Chicago.

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Burnham Prairie INAI Site
Calumet City Prairie INAI Site
Dolton Avenue Prairie INAI Site
Powderhorn Lake And Prairie INAI Site
Wentworth Prairie INAI Site
Burnham Prairie Nature Preserve
Calumet City Prairie And Marsh Nature Preserve
Powderhorn Prairie And Marsh Nature Preserve
Least Bittern (*Ixobrychus exilis*)
Little Blue Heron (*Egretta caerulea*)
Osprey (*Pandion haliaetus*)
Wood Orchid (*Platanthera clavellata*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Headed Blackbird (*Xanthocephalus xanthocephalus*)

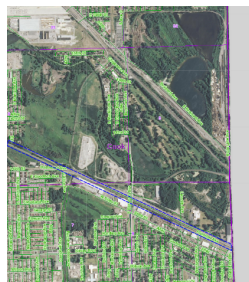
Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Cook

Township, Range, Section:

36N, 15E, 6
36N, 15E, 7
36N, 15E, 8



IL Department of Natural Resources

Contact

Impact Assessment Section

217-785-5500

Division of Ecosystems & Environment

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Applicant: AECOM
Contact: Cheryl Nash
Address: 303 E. Wacker Dr.
Suite 1400
Chicago, IL 60601

IDNR Project Number: 1506738
Date: 11/24/2014

Project: NICTD West Lake Corridor Study - Indiana Harbor Belt Option
Address: Jepp Trail, Calumet City, IL

Description: Environmental study for a new rail-based service between the Munster/Dyer area downtown Chicago.

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

130Th Street Marsh INAI Site
Burnham Prairie INAI Site
Calumet City Prairie INAI Site
Dolton Avenue Prairie INAI Site
Lake Calumet INAI Site
Wentworth Prairie INAI Site
Burnham Prairie Nature Preserve
Calumet City Prairie And Marsh Nature Preserve
Banded Killifish (*Fundulus diaphanus*)
Common Moorhen (*Gallinula chloropus*)
Least Bittern (*Ixobrychus exilis*)
Little Blue Heron (*Egretta caerulea*)
Little Blue Heron (*Egretta caerulea*)
Osprey (*Pandion haliaetus*)
Peregrine Falcon (*Falco peregrinus*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Headed Blackbird (*Xanthocephalus xanthocephalus*)

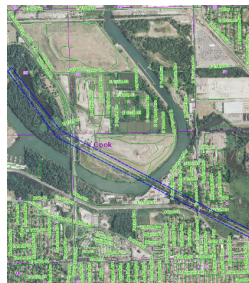
Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Cook

Township, Range, Section:

36N, 14E, 1
36N, 14E, 2
36N, 15E, 6



37N, 14E, 35

IL Department of Natural Resources

Contact

Impact Assessment Section

217-785-5500

Division of Ecosystems & Environment

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Applicant: AECOM
Contact: Cheryl Nash
Address: 303 E. Wacker Dr.
Suite 1400
Chicago, IL 60601

IDNR Project Number: 1506739
Date: 11/24/2014

Project: NICTD West Lake Corridor Study - Indiana Harbor Belt Option
Address: west of I-94, Chicago, IL

Description: Environmental study for a new rail-based service between the Munster/Dyer area downtown Chicago.

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Lake Calumet INAI Site
Banded Killifish (*Fundulus diaphanus*)
Blanding's Turtle (*Emydoidea blandingii*)
Common Moorhen (*Gallinula chloropus*)
Little Blue Heron (*Egretta caerulea*)
Peregrine Falcon (*Falco peregrinus*)
Yellow-Crowned Night Heron (*Nyctanassa violacea*)
Yellow-Headed Blackbird (*Xanthocephalus xanthocephalus*)

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Cook

Township, Range, Section:

37N, 14E, 26
37N, 14E, 27
37N, 14E, 35



IL Department of Natural Resources

Contact

Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

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United States Department of the Interior Fish and Wildlife Service



Bloomington Field Office (ES)
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

November 4, 2014

NICTD

West Lake Corridor Project
33 East U.S. Highway 12
Chesterton, Indiana 46304

Dear Sir:

This is in reference to the September 30, 2014 Federal Register Notice of Intent to Prepare an Environmental Impact Statement for development of a commuter rail line within an approximate 9-mile corridor between Dyer and Hammond, with a possible extension southeast to St. John, all in Lake County, Indiana. The U.S. Fish and Wildlife Service (FWS) offers the following comments.

A coalition of the Northern Indiana Commuter Transportation District (NICTD), Town of Munster, and City of Hammond owns the abandoned right-of-way of the Monon Railroad between the 45th/Fisher Streets area in Munster and Sibley Street in Hammond and proposes using this corridor, in conjunction with the active CSX track, currently utilized by Amtrak and freight trains, south of 45th Street, as the primary route of the proposed commuter rail line. New tracks will be required beyond Sibley Street. Use of a portion of the existing South Shore Line (SSL) and Metra Electric District (MED) facilities or alternative existing rail lines between Hammond and Chicago will also be addressed. Several alternatives for a rail yard/maintenance facility will be considered, including near US 41 at St. John, near Main Street in Dyer, and at the site of the former Monon rail yard in southern Hammond.

There may be wetlands in the Fisher/45th Streets area in southern Munster because numerous other proposed developments in that area have encountered wetlands. However, we do not know what specific parcel has already been purchased by the NICTD/Munster/Hammond coalition in anticipation of a passenger station in that area, so we do not know if wetlands are involved or not. Wetland delineations will therefore be necessary in this area.

There may also be wetlands associated with the proposed crossings of the West Branch Little Calumet River, West Branch Grand Calumet River, and/or Calumet River/Calumet Sag Channel, depending upon the route chosen. The crossing of the West Branch Little Calumet will likely be at the site of the existing abandoned bridge, and a crossing of the Calumet River/Cal Sag Channel would be in the vicinity of the existing Indiana Harbor Belt (IHB) Railroad bridge in Burnham. The IHB route bisects Beaubien Woods Forest Preserve in Illinois, which contains numerous wetlands, including adjacent to the existing single railroad track; in Burnham, the IHB is also adjacent to wetlands, plus the Burnham Prairie Nature Preserve. Since entirely new tracks will be required in the downtown Hammond area to connect the old Monon right-of-way with the existing SSL tracks north of the West Branch Grand Calumet River, it is currently unknown where there may be a new crossing of the West Branch Grand Calumet.

The existing bridge over the West Branch Little Calumet River includes several piers within the river channel which are known to collect debris and contribute to flooding problems during high water events. Therefore, the DEIS needs to evaluate the impacts of leaving this bridge in place to serve the commuter line versus removing it and replacing it at the same site with a clear span bridge with no in-channel piers.

The FWS will request mitigation for wetland losses; the mitigation ratio for the loss of forested wetland is 4:1, with 2: or 3:1 for emergent and scrub-shrub wetlands. The U.S. Army Corps of Engineers, Chicago District, will have to determine whether or not a Section 404 permit would be required for the filling of wetlands due to the rail project. However, the Federal Transit Administration has an obligation to minimize the destruction, loss, or degradation of wetlands pursuant to Executive Order 11990, as amended by Executive Order 12608, concerning protection of wetlands, regardless of the need for a wetland fill permit.

Of particular concern to the FWS is the possibility of a new crossing of the West Branch Grand Calumet River in Hammond. The FWS, in conjunction with the other Natural Resources Trustees (Indiana Departments of Natural Resources and Environmental Management) has been working with the U.S. Environmental Protection Agency (EPA) to remediate the severely polluted sediments within both the West and East Branches of the Grand Calumet River in Indiana utilizing Great Lakes Legacy Act and the Great Lakes Restoration Initiative funding. This multi-year project has been proceeding along various distinct segments of the river, with the westernmost portion, Reaches 6 and 7 between Hohman Avenue and the State Line, being the last segment to be remediated within the West Branch Grand Calumet; permits have been received and work will begin shortly. The work involves dredging of some of the contaminated sediments and capping of the remaining sediments with a geosynthetic grid, organoclay, and/or granulated activated carbon a minimum of 2 feet deep, topped with several feet of clean sand. Because of the dredging and capping, the Trustees are opposed to any construction activities that could compromise the integrity of the cap, including the placement of piers and abutments for a new railroad bridge. If it is determined by the FTA that a new bridge will be necessary to cross the West Branch Grand Calumet within Hammond, this bridge must be a clear span, with no

piers or abutments within the river channel. We are not aware of similar constraints to the construction of a new bridge over the river in Illinois, because to our knowledge the State of Illinois has not proposed to dredge and cap the river in that state.

Executive Order 13186, issued on January 10, 2001, directs each Federal agency taking actions having or likely to have a negative impact on migratory bird populations to work with the FWS to develop an agreement to conserve those birds under the Migratory Bird Treaty Act (MBTA). In addition to avoiding or minimizing impacts to migratory bird populations, agencies will be expected to take reasonable steps that include restoring and enhancing habitat and incorporating migratory bird conservation into agency planning processes whenever possible. Therefore, the DEIS you are preparing will need to address this issue. Included in the migratory bird issue is the presence of bald eagles nesting/attempting to nest within wetland and woodland habitats in the Grand Calumet/Cal-Sag Channel/Lake Calumet area in Illinois during the past 4-5 years. An adult eagle pair has attempted to nest at several locations in this area, but we do not have information about the success of the most recent nesting attempt, although the first several attempts were not successful. Bald eagles are protected by the MBTA and also by the Bald and Golden Eagle Protection Act; please refer to the National Bald Eagle Management Guidelines available on the U.S. Fish and Wildlife Service's Website.

As discussed in the Federal Transit Administration's October 1, 2014 letter to the U.S. Fish and Wildlife Service, our agency agrees to be a Participating Agency during the EIS process. Staff at our Northern Indiana Suboffice is available to attend the interagency meetings and/or field reviews and to provide early coordination comments on the proposal. Please address correspondence to Mrs. Elizabeth McCloskey, U.S. Fish and Wildlife Service, Northern Indiana Suboffice, P.O. Box 2616, Chesterton, Indiana 46304, phone (219) 983-9753, elizabeth_mccloskey@fws.gov.

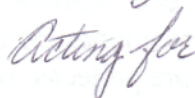
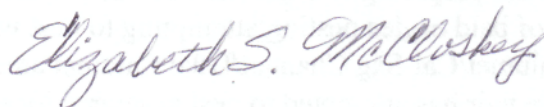
ENDANGERED SPECIES

Lake County, Indiana is within the range of the Federally endangered Indiana bat (Myotis sodalis) and Karner blue butterfly (Lycaeides melissa samuelis), the proposed endangered northern long-eared bat (Myotis septentrionalis), and the threatened Pitcher's thistle (Cirsium pitcheri) and Mead's milkweed (Asclepias meadii). Cook County, Illinois is within the range of the Federally endangered piping plover (Charadrius melodus), Hine's emerald dragonfly (Somatochlora hineana), and leafy-prairie clover (Dalea foliosa), the proposed endangered northern long-eared bat, the threatened prairie bush clover (Lespedeza leptostachya), eastern prairie fringed orchid (Platanthera leucophaea), and Mead's milkweed, and the candidate eastern massasauga rattlesnake (Sistrurus catenatus) and rattlesnake-master borer moth (Papaipema eryngii). Also in Cook County there is designated Critical Habitat for the Hine's emerald dragonfly.

None of the Lake County listed species are known within the West Lake Corridor Project Study Area. Most of the Cook County listed species are also not known within the Corridor, including the Hine's emerald dragonfly and its Critical Habitat. However, we do not know the status of some of the species within the Forest Preserves, Nature Preserves, and other protected habitats within the Corridor.

We appreciate the opportunity to provide input during this environmental scoping process. If you have any questions about our comments, please contact Elizabeth McCloskey at (219) 983-9753 or elizabeth_mccloskey@fws.gov.

Sincerely yours,



Scott E. Pruitt
Supervisor

cc: Regional Director, FWS, Ft. Snelling, MN (HC/EC/NWI) (ER 14/0622)
USDI, Office of Environmental Policy and Compliance, Washington, DC. (PEP/NRM)
Shawn Cirton, USFWS, Chicago Field Office, Barrington, IL
Carl Wodrich, IDNR, Land Acquisition, Indianapolis, IN
Lori White, IDNR, Regional Environmental Biologist, West Lafayette, IN
Christie Stanifer, IDNR, Environmental Coordinator, Indianapolis, IN
Marty Maupin, IDEM, Office of Water Quality, Indianapolis, IN
Paul Leffler, USACE, Regulatory Branch, Chicago, IL
Kenneth Westlake, USEPA, NEPA Implementation Section, Chicago, IL

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

DNR #: ER-17897

Request Received: October 6, 2014

Requestor: US Department of Transportation
Mark Assam
Federal Transit Administration
200 West Adams Street, Suite 320
Chicago, IL 60606-5253

Project: West Lake Corridor Project, Lake Co., IN and Cook Co., IL EIS: new track improvements, four (4) new stations, and a maintenance facility along a 9 mile southern extension along the Northern Indiana Commuter Transportation District (NICTD) existing South Shore Line (SSL) between Dyer and Hammond, IN

County/Site info: Lake

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

Regulatory Assessment: This proposal may require the formal approval of our agency pursuant to the Flood Control Act (IC 14-28-1) for any proposal to construct, excavate, or fill in or on the floodway of a stream or other flowing waterbody which has a drainage area greater than one square mile, or the Lake Preservation Act (IC 14-26-2) for any construction that will take place at or lakeward of the legal shoreline of a public freshwater lake. Please submit more detailed plans to the Division of Water's Technical Services Section if you are unsure whether or not a permit will be required.

Natural Heritage Database: The Natural Heritage Program's data have been checked. This project does not impact any DNR owned nature preserves. Also, no plant or animal species listed as state or federally threatened, endangered, or rare have been reported to occur within the proposed corridor. However, a historical record of the northern leopard frog (*Lithobates pipiens*), a state species of special concern, and a wet-mesic sand prairie "between EJE Railroad and Conrail Railroad tracks" near Dyer about 0.4 mile east of project, have been documented with 1/2 mile of the proposed corridor.

This review is based on the current proposed alignment. Once stations and maintenance sites are determined, or if the proposed alignment is changed, further review and comments may be needed.

Fish & Wildlife Comments: We do not foresee any impacts to the Northern leopard frog as a result of this project.

Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. The following are recommendations that address potential impacts identified in the proposed project area:

1) Stream Crossings:

Utilizing existing structures will produce fewer impacts to streams, wetlands, and surrounding habitats. If the rehabilitation of an existing structure is not feasible, consider the following:

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Using a three span structure without piers within the Little Calumet River could provide benefits to the river by removing the existing structure and piers and allowing the river to flow unobstructed. Locating a new structure within the footprint of the existing structure and minimizing impacts to surrounding habitat will aid to further minimize impacts to the river, wetlands, and surrounding habitat.

For purposes of maintaining fish passage through a crossing structure, the Environmental Unit recommends bridges rather than culverts and bottomless culverts rather than box or pipe culverts. Wide culverts are better than narrow culverts, and culverts with shorter through lengths are better than culverts with longer through lengths. If box or pipe culverts are used, the bottoms should be buried a minimum of 6" (or 20% of the culvert height/pipe diameter, whichever is greater up to a maximum of 2') below the stream bed elevation to allow a natural streambed to form within or under the crossing structure. Crossings should: span the entire channel width (a minimum of 1.2 times the bankfull width); maintain the natural stream substrate within the structure; have a minimum openness ratio (height x width / length) of 0.25; and have stream depth and water velocities during low-flow conditions that are approximate to those in the natural stream channel.

2) Bank Stabilization:

Establishing vegetation along the banks is critical for stabilization and erosion control. In addition to vegetation, some other form of bank stabilization may be needed. While hard armoring alone (e.g. riprap or glacial stone) may be needed in certain instances, soft armoring and bioengineering techniques should be considered first. In many instances, one or more methods are necessary to increase the likelihood of vegetation establishment. Combining vegetation with most bank stabilization methods can provide additional bank protection while not compromising the benefits to fish and wildlife. Information about bioengineering techniques can be found at <http://www.in.gov/legislative/iac/20120404-IR-312120154NRA.xml.pdf>. Also, the following is a USDA/NRCS document that outlines many different bioengineering techniques for streambank stabilization: <http://directives.sc.egov.usda.gov/17553.wba>.

The new, replacement, or rehabbed structure, and any bank stabilization under or around the structure, should not create conditions that are less favorable for wildlife passage under the structure compared to the current conditions. A level area of natural ground under the structure is ideal for wildlife passage. If hard armoring is needed, we recommend a smooth-surfaced material such as articulated concrete mats (or riprap at the toe and turf reinforcement mats above the riprap toe protection) be placed on the side-slopes instead of riprap. Such materials will not impair wildlife movement along the banks under the bridge.

Riprap must not be placed in the active thalweg channel or placed in the streambed in a manner that precludes fish or aquatic organism passage (riprap must not be placed above the existing streambed elevation). Riprap may be used only at the toe of the sideslopes up to the ordinary high water mark (OHWM). The banks above the OHWM must be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees native to Northern Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion.

3) Riparian Habitat:

We recommend a mitigation plan be developed (and submitted with the permit application, if required) if habitat impacts will occur. The DNR's Floodway Habitat Mitigation guidelines (and plant lists) can be found online at: <http://www.in.gov/legislative/iac/20140806-IR-312140295NRA.xml.pdf>.

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

Impacts to non-wetland forest over one (1) acre should be mitigated at a minimum 2:1 ratio. If less than one acre of non-wetland forest is removed in a rural setting, replacement should be at a 1:1 ratio based on area. Impacts to non-wetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10" dbh or greater (5:1 mitigation based on the number of large trees).

Remediation efforts along the west and east branches of the Grand Calumet River under the Great Lakes Legacy Act and Great Lakes Restoration Initiative have been on-going, and the last segment of remediation work along the Grand Calumet River from Hohman Avenue to the state line will begin soon. Any work proposed within the Grand Calumet River floodway for this project should avoid impacts to any mitigation planting areas from the remediation project.

4) Wetlands:

A formal wetland delineation should be conducted in order to determine the presence of and extent of any wetland habitat within the project corridor. Impacts should be avoided and minimized to the greatest extent possible.

Due to the presence or potential presence of wetlands on site, we recommend contacting and coordinating with the Indiana Department of Environmental Management (IDEM) 401 program and also the US Army Corps of Engineers (USACE) 404 program. Impacts to wetlands should be mitigated at the appropriate ratio (see guidelines above).

5) Exposed Soils:

All exposed soil areas must be stabilized with temporary or permanent vegetation by November 1. Between November 1 and April 1, all exposed soils idle for longer than 7 days must be stabilized with erosion control blankets or with a bonded fiber matrix hydro-mulch. Sites must be protected from seasonal flooding by keeping traffic areas covered with stone and soil stockpiles seeded, stable and contained with silt fencing.

The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources:

1. Revegetate all bare and disturbed areas with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species as soon as possible upon completion.
2. Minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush.
3. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
4. Do not cut any trees suitable for Indiana bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark) from April 1 through September 30.
5. Do not excavate in the low flow area except for the placement of piers, foundations, and riprap, or removal of the old structure.
6. Do not construct any temporary runarounds, causeways, or cofferdams.
7. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
8. Do not use broken concrete as riprap.
9. Minimize the movement of resuspended bottom sediment from the immediate project area.
10. Do not deposit or allow demolition materials or debris to fall or otherwise enter the waterway.
11. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
12. Seed and protect all disturbed streambanks and slopes that are 3:1 or steeper with


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Early Coordination/Environmental Assessment

erosion control blankets (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.

Contact Staff:

Christie L. Stanifer, Environ. Coordinator, Fish & Wildlife
Our agency appreciates this opportunity to be of service. Please contact the above staff member at (317) 232-4080 if we can be of further assistance.



Christie L. Stanifer
Environ. Coordinator
Division of Fish and Wildlife

Date: November 7, 2014



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

NOV 26 2014

REPLY TO THE ATTENTION OF:

E-19J

Marisol R. Simon
Regional Administrator
Federal Transit Administration
200 West Adams Street, Suite 320
Chicago, Illinois 60606

John Parsons
Project Manager
Northern Indiana Commuter Transportation District
33 East U.S. Highway 12
Chesterton, Indiana 46304

Re: Scoping Comments – Federal Transit Administration (FTA) Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS) for the West Lake Corridor Project in Lake County, Indiana and Cook County, Illinois.

Dear Ms. Simon and Mr. Parsons:

The U.S. Environmental Protection Agency (EPA) reviewed the Federal Transit Administration's (FTA) September 30, 2014, Federal Register Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in cooperation with the Northern Indiana Commuter Transportation District (NICTD) for the West Lake Corridor Project (Project). EPA also reviewed NICTD's West Lake Corridor Project Scoping Booklet (dated October 2014) (Scoping Booklet). EPA accepted participating agency status in FTA's environmental review process for the Project (per October 27, 2014 5:09 PM email from V. Laszewski, EPA to M. Assam, FTA). In accordance with EPA's responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act (CAA), we are providing scoping comments regarding issues that we believe should be considered during the preparation of the EIS for this transit project.

The NOI and Scoping Booklet identify that the purpose of the Project is to expand NICTD's transit service coverage in high-growth areas of Lake County, Indiana in order to improve mobility and accessibility, and stimulate local job creation and economic development opportunities for Lake County. Alternatives to be considered in the DEIS include a No-build alternative and a Commuter Rail alternative. The Commuter Rail alternative has several alignment design options for route alignments, station locations, maintenance facility sites, and vehicle mode (i.e., electric heavy rail, diesel heavy rail, and combined electric/diesel rail).

Sediment remediation

In an effort to clean up the most polluted areas in the Great Lakes, the United States and Canada committed to working with State and Provincial governments to develop Remedial Action Plans for designated Areas of Concern (AOC) in the Great Lakes Basin. The northern portion of the Project study area in Indiana is located within a designated AOC. This portion of the study area includes the West Branch Grand Calumet River. On-going remediation efforts by EPA and the Indiana Department of Natural Resources (IDNR) to address polluted sediments in the West Branch Grand Calumet River in Indiana have been and continue to take place up to the Indiana/Illinois state line. Remediation work involves dredging of some of the polluted sediments and capping the remaining sediments. EPA and IDNR are particularly concerned that the integrity of the cap is maintained and that remediation efforts are not disturbed and/or disrupted.

The DEIS will need to address these concerns. The West Lake Corridor Project should be located, designed, constructed and operated to avoid impacts to past, present and future remediation efforts on the West Branch of the Grand Calumet River. If a new bridge crossing is necessary in this area, then we recommend the bridge be designed to span the river without piers or abutments placed in the river channel that would compromise the integrity of the cap. For additional information, contact Diana Mally, EPA Great Lakes National Program Office at 312/886-7275 or mally.diana@epa.gov.

Air quality

Lake County, Indiana and Cook County, Illinois are designated non-attainment for the 2008 8-hour ozone standard. EPA plans to propose a revised ozone standard December 1, 2014 and finalize October 2015. For information regarding the ozone standard, you may contact Edward Doty of our Air and Radiation Division at 312/886-6057 or at doty.edward@epa.gov.

Other issues

EPA concurs with the 21 general categories of environmental resources and potential impacts identified in the Scoping Booklet (page 5) and NOI (V. Probable Effects/Potential Impacts for Analysis) for proposed detailed examination in the EIS. The enclosure to this letter provides additional comments for FTA and NICTD consideration while preparing the DEIS. Our comments, in part, regard identification and assessment of alternatives/alternative options, and subjects to be evaluated, including transit-dependent populations, populations with environmental justice concerns, air quality, water resources, vegetation and wildlife habitat, induced development, and mitigation. We also recommend the project proponents consider incorporating green building strategies into the West Lake Corridor Project. By adopting green building strategies, the project proponents can maximize economic and environmental performance. Green building methods can be integrated into buildings (e.g., transit stations) at any stage, from design and construction, to renovation and deconstruction.

EPA understands that the FTA environmental review will culminate in a combined Final EIS (FEIS)/Record of Decision (ROD). We recommend FTA convene a meeting of the participating resources agencies to present and discuss FTA's proposed draft written responses to DEIS comments prior to FTA issuing an FEIS/ROD. This will provide the resources agencies an

opportunity to react to the proposed responses to the agencies' DEIS comments and for resolution of these issues to be pursued prior to release of the FEIS/ROD.

Virginia Laszewski, of my staff, is EPA's lead NEPA reviewer for this project. She may be reached by calling 312/886-7501 or by email at laszewski.virginia@epa.gov. As a participating agency, EPA will attend project meetings/conference calls and review project materials as staff time and resources allow. EPA requests at least a two-week advance notice prior to our receipt of project materials for review and prior to project meetings/conference calls.

Sincerely,



Kenneth A. Westlake
Chief, NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure: EPA Scoping Comments - FTA West Lake Corridor Project EIS

Cc: Scott Pruitt, U.S. Fish and Wildlife Service, Bloomington Field Office (ES),
620 South Walker Street, Bloomington, Indiana 47403-2121
Elizabeth McCloskey, U.S. Fish and Wildlife Service, Northern Indiana Suboffice,
P.O. Box 2616, Chesterton, Indiana 46304
Shawn Cirton, U. S. Fish and Wildlife Service, Chicago Ecological Field Office,
1250 South Grove Avenue, Suite 103, Barrington, Illinois 60010
Paul Leffler, U.S. Army Corps of Engineers, Regulatory Branch, 231 South LaSalle
Street, Suite 1500, Chicago, Illinois 60604
Carl Wodrich, Indiana Department of Natural Resources, Land Acquisition, 402 W.
Washington, Rm W261, Indianapolis, Indiana 46204
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Division of Fish and Wildlife, 402 W. Washington Street, Rm W273,
Indianapolis, Indiana 46204-2748
Marty Maupin, Indiana Department of Environmental Management, Office of Water
Quality, 100 N. Senate Avenue, MC 65-42 IGCN 1255, Indianapolis, Indiana
46204-2251

EPA Scoping Comments - Federal Transit Administration (FTA) Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS) for the West Lake Corridor Project Lake County, Indiana and Cook County, Illinois.

Project Description: The NOI and the West Lake Corridor Project (Project) Scoping Booklet (dated October 2014) describe the Project as an approximately 9-mile southern extension of the Northern Indiana Commuter Transportation District's (NICTD) existing South Shore Line (SSL) between Dyer and Hammond, Indiana. In addition, the Project would operate on about 15 miles of existing SSL and Metra Electric District's (MED) line to the Millennium Station in downtown Chicago. The Project would involve new track improvements along the existing CSX Transportation and former Monon railroad corridors, with a flyover to the existing SSL in Hammond. Four potential stations would be included at the Munster/Dyer Main Street, Munster Fisher/45th Streets, South Hammond, and Downtown Hammond. A maintenance facility would also be needed to store and maintain the vehicles. Two alignment design options are also being considered for the Project, including a possible extension to St. John, Indiana on the southern end, and another along the Indiana Harbor Belt Kensington Branch through Calumet City, Burnham and Chicago, Illinois on the north end. To facilitate this Project, core capacity improvements to the existing MED line and Millennium Station may be required to accommodate the Project.

The project overlaps the study area for the Federal Railroad Administration's (FRA) Chicago-Detroit/Pontiac Passenger Rail Improvement Project, whose DEIS is currently available for public comment. That project is evaluating multiple rail corridor alternatives between Downtown Chicago and Porter, Indiana, in the heavily congested "South of the Lake" area.

Recommendation: In addition to the Project's 9-mile extension with its associated facilities and the two alignment design options, EPA recommends the DEIS evaluate and identify the specific capacity improvements to the existing MED line and Millennium Station that may be required for the Project. Impacts associated with any needed improvements and extensions should be disclosed and potential mitigation measures identified in the DEIS. FTA and NICTD should coordinate closely with FRA and the Illinois, Indiana, and Michigan Departments of Transportation to ensure that the West Lake Corridor Project and the Chicago-Detroit/Pontiac Passenger Rail Project are integrated and do not conflict in infrastructure and operations.

Purpose and Need: According to the documents "[t]he Project would expand NICTD's service coverage, improve mobility and accessibility, and stimulate local job creation and economic development opportunities for Lake County." "Specifically the Project is intended to: 1) Serve high-growth areas in central, southern, and western Lake County, Indiana, 2) Conveniently connect more Northwest Indian residents to downtown Chicago jobs and major activity centers, 3) Establish a solid modal alternative between the two metropolitan regions other than driving, 4) Lower commuting travel times and costs, 5) Increase NICTD system ridership, 6) Promote economic development opportunities, 7) Create local jobs in Northwest Indian, 8) Attract and retain families and younger residents, and 9) Provide a valued transportation asset for us by all northwest Indiana residents."

Recommendation: We recommend NICTD and FTA consider prioritizing the Project's goals based on substantiated need/s. Identify objectives for each goal and then identify the evaluation measures that will be used to assess how well various alternatives/options meet each goal's objective/s.

For example, one of the goals of the Project is to: *"Provide a valued transportation asset for use by all Northwest Indiana Residents."* One of the objectives under this goal might be: *"Help address unmet transit needs of people who depend on transit."* Evaluation measures to assess, disclose and compare how well proposed station locations and alternative alignment options specifically meet the transit needs of transit dependent populations might be: *"The ease (number of times/day and amount of time it takes) for identified transit dependent populations to get to and from a potential transit station location via existing and/or proposed connecting bus service route/s and/or pedestrian/bike routes."*

Recommendation: The DEIS should identify and discuss the specific needs of transit-dependent populations in and near the transit corridor/s, and the region.

Alternatives: Alternatives to be considered in the DEIS include a No-build alternative and a Commuter Rail alternative. The Commuter Rail alternative has several alignment and design options in terms of route alignment, station locations, maintenance facility sites, and vehicle mode (i.e., electric heavy rail, diesel heavy rail, and combined electric/diesel rail).

Recommendation: The DEIS alternative route alignments should be assessed for their potential to impact past, present and future ongoing remediation efforts of contaminated sediments in the West Branch Grand Calumet River in Indiana. (See our detailed comments regarding this issue later under "Water Resources" and the cover letter to this enclosure.)

Recommendation: We recommend the build alternatives also include connecting pedestrian/bikeway routes.

Recommendation: To help enhance the environment for communities in the project area, we recommend that brownfield sites in the corridor be identified and assessed for their potential as transit station locations, park-and-ride lots, and/or other supporting transit facilities.

Environmental Justice (EJ): Communities with environmental justice concerns may constitute one portion of the potential ridership along this corridor.

Recommendation: We recommend communities that may experience disproportionate impacts or barriers to participation ("EJ communities") be identified, including through use of demographic mapping, in the region and along the proposed corridor. We recommend considering the potential for disproportionate impacts at a local scale (census block levels), especially in the denser urban areas related to the project. All potential and applicable impacts to these communities, such as air quality, noise, health, fare pricing, station locations, impacts to businesses, and related changes should be assessed in the DEIS.

Recommendation: We recommend the DEIS include specific information that substantiates that representatives from affected communities and transit-dependent populations have been actively involved in the development of NICTD's 2011 West Lake Corridor Study. The DEIS should document ongoing efforts to engage EJ communities and transit-dependent populations through the remainder of the NEPA process.

Air Quality/National Ambient Air Quality Standards (NAAQS)/Transportation Conformity/Air Toxics: Lake County, Indiana and Cook County, Illinois are designated non-attainment for the 2008 8-hour ozone standard. EPA plans to propose a revised ozone standard December 1, 2014 and finalize October 2015. For information regarding the ozone standard you may contact Edward Doty of our Air and Radiation Division at 312/886-6057 or at doty.edward@epa.gov.

Recommendation: The DEIS should discuss local and regional air quality, the project's impacts on air quality and transportation conformity with the State Air Quality Implementation Plan.

While a transit project may be anticipated to maintain or reduce emissions from private vehicles, the system may add bus or train diesel exhaust and/or electric generation emissions for trains.

Recommendation: We recommend the DEIS quantify these emissions, including emissions of greenhouse gases, and identify possible measures to reduce these emissions. Best management practices (BMPs) that will be followed to reduce emissions, particularly of diesel-related air toxics during construction and operation, should be identified. Such measures may include, but should not be limited to, strategies to reduce diesel emissions, such as project construction contracts that require the use of equipment with clean diesel engines and the use of clean diesel fuels, and limits on the length of time equipment is allowed to idle when not in active use (EPA recommends idling not exceed 5 minutes).

Climate Change/Green House Gases GHG/Increased Frequency and Intensity of Precipitation Events: Increased frequency and intensity of precipitation events can be anticipated due to climate change.

Recommendation: We recommend the DEIS identify and discuss how such precipitation events might impact the proposed project and its associated facilities during construction and operation. We recommend that the DEIS identify and discuss any anticipated effects of climate change on the project and possible adaptation measures. For example, discuss any effects that predicted increases in the number and/or intensity of precipitation events associated with climate change may have on sizing bridge spans, culvert openings, and stormwater management measures in order to accommodate such events and ensure project longevity, public health, and safety.

Water Resources: The wetlands, lakes, rivers and streams and their associated floodplains in the project area could be directly and/or indirectly impacted by construction and/or operation of the proposed transit project.

A portion of the project study area includes the West Branch Grand Calumet River. On-going remediation efforts to address polluted sediments in the West Branch Grand Calumet River in

Indiana have been and continue to take place up to the Indiana/Illinois state line. Remediation work involves dredging of some of the polluted sediments and capping the remaining sediments. Of particular concern is making sure that the integrity of the cap is maintained and remediation efforts are not disrupted. The DEIS will need to address these concerns.

Recommendation: The Project should be located, designed, constructed and operated to avoid any impacts to past, present and future remediation efforts on the West Branch of the Grand Calumet River. If a new bridge crossing is necessary, then the bridge should be designed to span the river without piers or abutments in the river channel that would compromise the integrity of the cap.

Recommendation: The DEIS should identify and assess floodplain impacts and potential mitigation measures to avoid and reduce impacts.

We expect a Clean Water Act (CWA) Section 404 permit will be required from the U.S. Army Corps of Engineers (Corps) for proposed discharges of dredged or fill materials to Waters of the United States. The Section 404 approval is contingent upon the project complying with the Section 404(b)(1) guidelines under the CWA. These guidelines are summarized as follows:

- **Least Environmentally Damaging Practicable Alternative (LEDPA)** – There must be no practicable alternative to the proposed discharge (impacts) which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences;
- **No Violation of Other Laws** – The proposed project must not cause or contribute to the violation of state water quality standards or toxic effluent standards, and must not jeopardize the continued existence of federally-listed endangered or threatened species of their critical habitat(s);
- **No Significant Degradation** – The project must not cause or contribute to significant degradation of Waters of the United States; and
- **Minimization and Mitigation of Adverse Impacts** – The project must include appropriate and practicable steps to avoid impacts to regulated Waters of the United States; where impacts are unavoidable, demonstration of how impacts have been minimized; and must provide compensatory mitigation to offset unavoidable, minimized impacts to the aquatic ecosystem.

Recommendations:

- We recommend the DEIS identify the various water resources in the project area, disclose their existing conditions, and quantify impacts associated with each alternative.
- We recommend the water resources information and discussion in the DEIS demonstrate that the rail rights-of-way, potential park-and-ride lots, stations and

other ancillary project facilities avoid wetland, lake and stream impacts, to the extent feasible. Where water resources cannot be avoided, the DEIS should discuss how impacts to water resources will be minimized.

- The rationale and justification for recommending or selecting one component/option over others should be presented in the DEIS.
- We recommend that wetland delineations, and wetland and stream assessments be included in the DEIS.
- We recommend the DEIS include draft wetland and stream mitigation plans, for those impacts that cannot be avoided or minimized.
- We recommend the DEIS discuss how project alternatives will address stormwater management in order to protect and, if feasible, enhance water resources in the watershed. For information regarding stormwater management and stormwater management best practices see EPA's website: http://www.epa.gov/greeningepa/stormwater/best_practices.htm.

Federal and State Listed Species: The U.S. Fish and Wildlife Service (USFWS) in its scoping letter for this project, dated November 4, 2014, noted multiple species, including endangered and proposed-as-endangered species, as being located in Lake County, Indiana and Cook County, Illinois. Additionally, many state-listed, threatened, endangered, and special concerns species are found in these counties.

Recommendation: EPA recommends that FTA/NICTD continue to coordinate with USFWS and the Indiana Department of Natural Resources (IDNR) to determine if any of the proposed activities would or could detrimentally affect any Federally- or state-listed species, species proposed for listing, or their critical habitat. The DEIS should include the results to-date of the coordination with USFWS and IDNR regarding the proposals potential to affect any Federally- or state-listed threatened or endangered species, including the northern-long eared bat.

Vegetation and Wildlife Habitat: According to the above referenced USFWS letter, the project corridor includes Forest Preserves, Nature Preserves and other protected habitats. These areas contain, in part, wetlands, prairie and forests that provide valuable wildlife habitat. These areas also protect water quality and quantity in their watersheds, and the soil and vegetation provide carbon sinks to help ameliorate climate change.

Recommendation: Impacts to these resources should be avoided. The DEIS will need to assess the various Project components for potential impacts to these resources. If impacts cannot be avoided mitigation measures should be identified in coordination with the USFWS and IDNR.

Noxious Weeds/Invasive Species: Noxious weeds/invasive species may occur within or near the existing right-of-way (ROW). Early recognition and control of new infestations is essential to

stopping the spread of infestation and avoiding future widespread use of herbicides, which could correspondingly have more adverse impacts on biodiversity and nearby water quality.

Recommendations: We recommend the DEIS include a vegetative management plan that addresses the identification and control of noxious weed/invasive species in and near the project ROW and associated facilities during project construction and operation. The plan should list the noxious weeds and exotic plants that occur in the resource area. In cases where noxious weeds are a threat, EPA recommends the document detail a strategy for prevention, early detection of invasion, and control procedures for each species.

Induced Development: The project is intended to serve and draw ridership, in part, from rapidly developing areas in Lake County. Transit stations and associated transit park-and-ride lots may induce and accelerate development such as convenience stores, gas stations, restaurants. Induced development could have adverse impacts. For example, increases in impervious surfaces due to induced development may have the potential to cause or increase flooding, and/or impact surface and ground water quality. The project also has the potential to spur energy-efficient transit-oriented development in the vicinity of its stations.

Recommendation: We recommend the project's potential for causing induced/accelerated development be assessed and disclosed in the DEIS. Impacts associated with induce/accelerated development should be identified in the DEIS and potential mitigation measures to avoid and reduce potential impacts identified. Of particular concern are increases noise, vibration and air quality impacts for residents and other sensitive receptors, and impacts to water resources and wildlife.

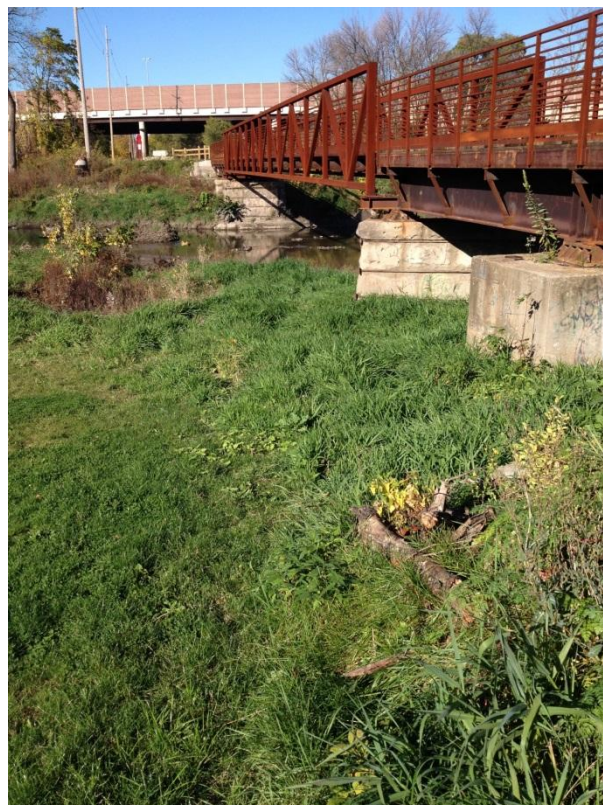
Sustainability and Greening: By adopting green building strategies, the project proponents can maximize economic and environmental performance. Green building methods can be integrated into buildings such as the transit stations at any stage, from design and construction, to renovation and deconstruction. For additional information on green building, we recommend you visit our website at www.epa.gov/greenbuilding/.

Recommendation: We recommend project proponents consider using green building strategies for this transit proposal.

APPENDIX C

Photos of Water Resources

Little Calumet River, Southern-Most Crossing, South of I-80



Grand Calumet River



Little Calumet River, Northern Crossing, North of 142nd Street



Schilling Ditch



Plum Creek

