

ENVIRONMENTAL ASSESSMENT

**ROUTE: FAP 326 IL Route 47 at
FAI 88 Ronald Reagan Memorial Tollway I-88
Section: Old Oaks Road to Green Road
Kane County**

Job No.: P-91-015-14



**Illinois Department of Transportation
District 1**

October 2017

**ILLINOIS ROUTE 47 (FAP 326) AT RONALD REAGAN MEMORIAL TOLLWAY I-88
(FAI 88)**

**SECTION: Old Oaks Road to Green Road
Kane County, Illinois**

ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to 42 USC 4332 (2) (c)

By the

U.S. Department of Transportation
Federal Highway Administration

And

Illinois Department of Transportation

Cooperating Agencies

United States Army Corps of Engineers
United States Environmental Protection Agency
Illinois Department of Agriculture
Illinois Department of Natural Resources

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(1) Source: *Village of Sugar Grove Comprehensive Plan*, www.sugar-grove.il.us

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Acronyms

AADT	Average Annual Daily Traffic
AAI	All Appropriate Inquiries
ACM	Asbestos Containing Materials
ADID	Advanced Identification
ADT	Average Daily Traffic
ANSI	American National Standard Institute
BCR	Bridge Condition Report
BDE	Bureau of Design and Environment
BLR	Bureau of Local Roads
BMP	Best Management Practice
BOL	Bureau of Land
CAG	Community Advisory Group
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMAP	Chicago Metropolitan Agency for Planning
CNE	Common Noise Environments
CSS	Context Sensitive Solutions
CWA	Clean Water Act
CWS	Community Water Supply
dBA	Decibels
DBLA	District Bureau of Land Acquisition
DHV	Design Hourly Volume
DOT	Department of Transportation
DSATS	DeKalb Sycamore Area Transportation Study
EA	Environmental Assessment
EcoCAT	Ecological Compliance Assessment Tool
EO	Executive Order

EPFO	Eastern Prairie Fringed Orchid
ESA	Endangered Species Act
ESR	Environmental Survey Request
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
FQI	Floristic Quality Index
GHG	Greenhouse Gas
HCS	Highway Capacity Software
HEI	Health Effects Institute
HFV	High Functional Value
HQAR	High Quality Aquatic Resource
HUC	Hydrologic Unit Code
IAC	Illinois Administrative Code
IDNR	Illinois Department of Natural Resources
IDOA	Illinois Department of Agriculture
IDOT	Illinois Department of Transportation
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
ILCS	Illinois Compiled Statutes
INHS	Illinois Natural History Survey
IRIS	Integrated Risk Information System
ISGS	Illinois State Geologic Survey
ISWS	Illinois State Water Survey
LAWCON	Land and Water Conservation Fund
LESA	Land Evaluation and Site Assessment
LOS	Level of Service
LUST	Leaking Underground Storage Tank
mIBI	Macroinvertebrate Index of Biological Integrity
MPO	Metropolitan Planning Organization
MOU	Memorandum of Understanding
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NLEB	Northern Long-Eared Bat
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OSLAD	Open Space Lands Acquisition and Development
OWR	Office of Water Resources



PESA	Preliminary Environmental Site Assessment
PSG	Project Study Group
PSI	Preliminary Site Investigation
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
RPW	Relatively Permanent Waters
SHAP	Stream Habitat Assessment Procedure
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SRA	Strategic Regional Arterial
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered
TDS	Total Dissolved Solids
TIP	Transportation Improvement Program
TNM	Traffic Noise Model
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VPD	Vehicles Per Day
VMT	Vehicle Miles Traveled
VPH	Vehicles Per Hour
WOUS	Water of the United States
WQC	Water Quality Certification

Chapter 1 Introduction

1 Introduction

This Environmental Assessment was conducted to assess potential impacts that could result from proposed interchange improvements at Illinois Route 47 (IL 47) and the Ronald Reagan Memorial Tollway (I-88). The project also involves proposed widening of IL 47 from the Waubonsee Community College north entrance as the southern logical termini to Green Road as the northern logical termini in Sugar Grove, Illinois (see **Exhibit 1**). The existing IL 47/I-88 Interchange is a partial service interchange that provides access to and from the west only. Peace Road is the closest full access service interchange to the west of IL 47 (15.5 miles), while to the east the closest full access service interchange is Orchard Road (5.3 miles). IL 47 is classified as a rural Strategic Regional Arterial (SRA) and is included as part of the National Highway System. IL 47 is important to the north-south transportation linkage because it provides access to residential, retail, commercial, agricultural, and recreational lands throughout the region.

Within the project study area, IL 47 is designated with a Principal Arterial classification and a Class II truck route. IL 47 can legally carry 80,000 pounds maximum per vehicle. The existing lane configurations consist of 12-foot lanes in each direction south of Finley Road, two 12-foot lanes in each direction between Finley Road and Seavey Road, and 12-foot lanes in each direction north of Seavey Road. The speed limit is 55 mph throughout the corridor. A total of 13 roadways intersect IL 47 in the project study area, of which only one is signalized at the Waubonsee Community College north entrance.

The project would serve to improve system linkage and accommodate land use and economic development. The Village of Sugar Grove's Comprehensive Plan, approved November 18, 2014, indicates the area around the IL 47 and I-88 Interchange is planned for corridor commercial zoning, which would be designated for retail, service, office, and limited manufacturing uses. The northeast quadrant of the interchange is partially planned as business park zoning and designated for small office buildings. Along the west side of IL 47, north of Seavey Road and south of Finley Road, future land use is planned to remain as estate residential.

What is an Environmental Assessment?

An Environmental Assessment (EA) is a document prepared for a proposed project under the National Environmental Policy Act. The EA describes the purpose and need for the project, the alternatives, the existing socioeconomic and environmental conditions in the project study area, and any anticipated impacts on socioeconomics or environmental resources. The EA serves to advise the public on impacts to socioeconomics or environmental resources. The EA serves to advise the public and stakeholders on the project and help make a decision as to the desirability of the project.

If the EA determines that there are no significant impacts anticipated from the project, a Finding of No Significant Impacts (FONSI) can be issued. If a FONSI cannot be concluded, additional studies or an Environmental Impact Statement may be warranted.

Chapter 1 Introduction

The proposed improvements to the IL 47/I-88 Interchange and IL 47 Mainline will facilitate the expected economic growth from the land use changes and allow full movement of goods and services to the east and west with a full access interchange.

The Village of Sugar Grove is leading this Phase I study in partnership with the Illinois Department of Transportation (IDOT), Kane County, and the Illinois Tollway. This project is included in the FY 2014-2019 Transportation Improvement Program (TIP) endorsed by the Metropolitan Planning Organization Policy Committee of the CMAP for the region in which the project is located. Phase II and Phase III funding is also identified in the TIP.

If the proposed widening of IL 47 Mainline and the completion of the IL 47/I-88 Interchange is undertaken, the following environmental impacts are anticipated.

- 1.7 acres of wetland impacts
- 0.8 acres of waters of the U.S. (WOUS) impacts
- 6.1 acres of agricultural impacts
- 4.7 acres of floodplain impacts
- 1.5 acres of 4(f) Kane County Forest Preserve Impacts

This Environmental Assessment discusses the purpose and need for the proposed improvements, summarizes the alternatives and reasons for choosing the preferred alternative, as well as discusses the environmental impacts that could be expected. Minimization and mitigation strategies are also included, where appropriate.

2 Purpose and Need

2.1 Purpose of the Project

The purpose of the proposed action is to improve system linkage and accommodate land use and economic development for IL 47 and I-88 from the north entrance of Waubonssee College at the south end of the project to Green Road at the north end.

2.2 Project Need

2.2.1 System Linkage

The current IL 47/I-88 Interchange is a partial service interchange that provides access to and from the west only. Peace Road is the closest full access service interchange to the west of IL 47 (15.5 miles), while to the east the closest full access service interchange is Orchard Road (5.3 miles). Crossing roadways throughout this 20.8 mile long corridor were evaluated for their interchange improvement value to the transportation system and the results are summarized in **Table 2.1**. **Figure 2.1** shows the locations of the crossing roadways.

Figure 2.1: Cross Roads Evaluated For Potential Interchange



Chapter 2 Purpose and Need

Table 2.1: I-88 Cross Roads Summary

	Somonauk Road (County Highway 12)	Hinckley Road	Keslinger Road/ Pritchard Road	County Line Road (County Highway 1)	Watson Road	Dauberman Road (County Highway 62)	Main Street (County Highway 10)	Illinois Route 47 (Sugar Grove Parkway)	Bliss Road (County Highway 78)
State Route								X	
Regional Class II Truck Route								X	
Rural SRA								X	
Existing partial access service interchange creating issues with Driver Expectancy								X	
Existing ADT over 10,000								X	
Projected 2040 ADT over 10,000								X	X
Serves the high density population within the CMAP MPO at and east of IL 47								X	X

Chapter 2 Purpose and Need

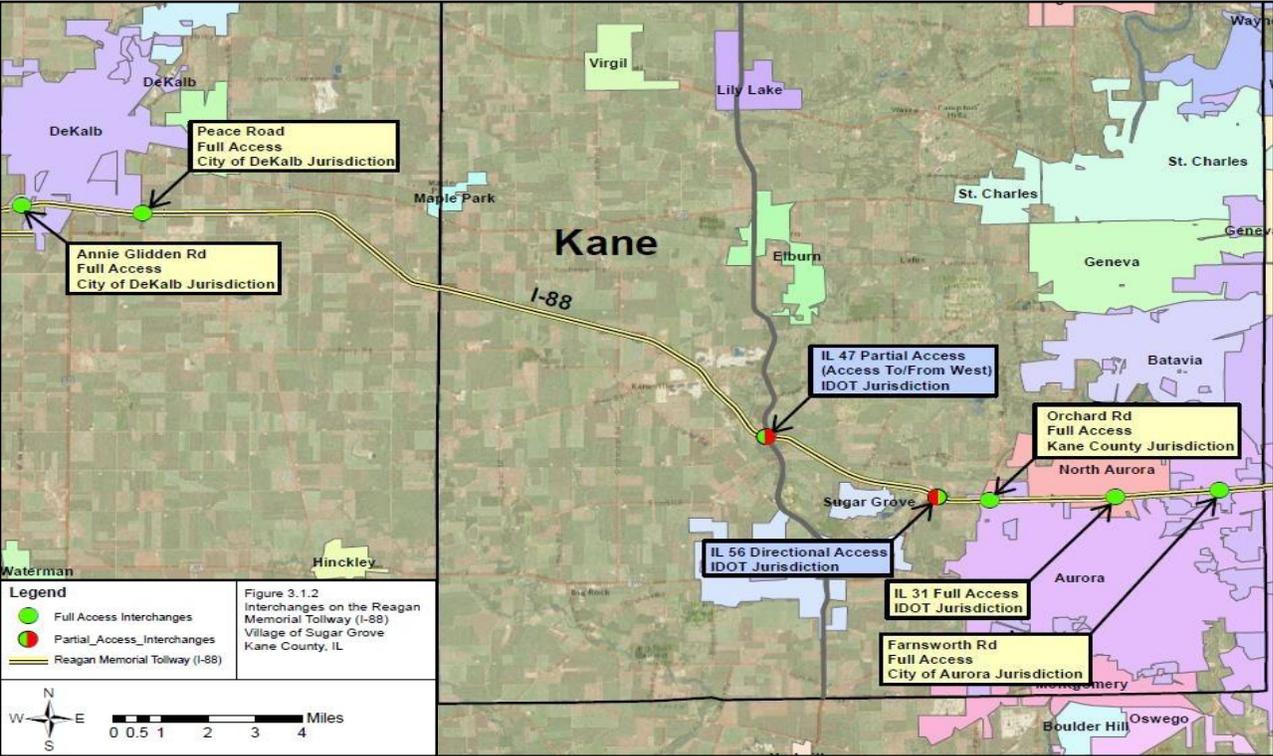
Of these cross roads, IL 47 is the only state route and the only regional Class II truck route. Furthermore, IL 47 is the only designated SRA, and it is the only location with existing partial access that creates driver expectancy issues. Drivers expect to have both ingress and egress to the interstate at the same location. Not having full access causes confusion and delay by motorists.

IL 47 is the only crossing roadway with an existing average daily traffic (ADT) over 10,000 vehicles per day (vpd). Bliss Road and IL 47 are the only cross road with projected 2040 ADT volumes over 10,000 (Source: Kane County 2040 Transportation Plan). The limits of the corridor extend from the DeKalb Sycamore Area Transportation Study (DSATS) planning boundaries to the Chicago Metropolitan Agency for Planning (CMAP) planning boundaries. Within that CMAP planning boundary, only Main Street (County Highway 10), IL 47 and Bliss Road (County Highway 78) would serve the currently developed limits of the area (higher density populations).

The interchanges on I-88 to the east of IL 47 include a full cloverleaf service interchange at Farnsworth Ave, a full-access partial cloverleaf service interchange at IL 31, a full-access partial cloverleaf service interchange at Orchard Road, and a directional service interchange at IL 56. To the west, there is a full-access partial cloverleaf service interchange at Annie Glidden Road and a full-access partial cloverleaf service interchange at Peace Road. Due to the locations of the nearest full access interchanges and the configurations of connecting arterial roads, travel to and from the east at IL 47 is indirect resulting in longer trips, increased travel times, and increased fuel usage. For example, westbound commuters exiting at IL 56 can expect approximately an extra 3.5 miles to reach the same point as they would if they were able to exit at IL 47. Eastbound commuters can expect a similar impact to their travel time. See **Figure 2.2** for all interchanges within the project study region.

Chapter 2 Purpose and Need

Figure 2.2: Interchanges on the Reagan Memorial Tollway (I-88)



Waubonsee Community College is justified as the southern termini because it is a major destination along the corridor and is served by a signalized intersection that has no observed operational issues and provides a four lane cross section already exists south of the intersection. Green Road is justified as the northern termini based on the 2040 Projected No-Build ADT's. There is a significant drop-off in projected traffic volume north of Green Road; 19,100 vehicles per day (vpd) south of Green Road, and 12,600 vpd north of Green Road. Reference **Exhibit 5** for the existing ADT as well as the 2040 No-Build ADT.

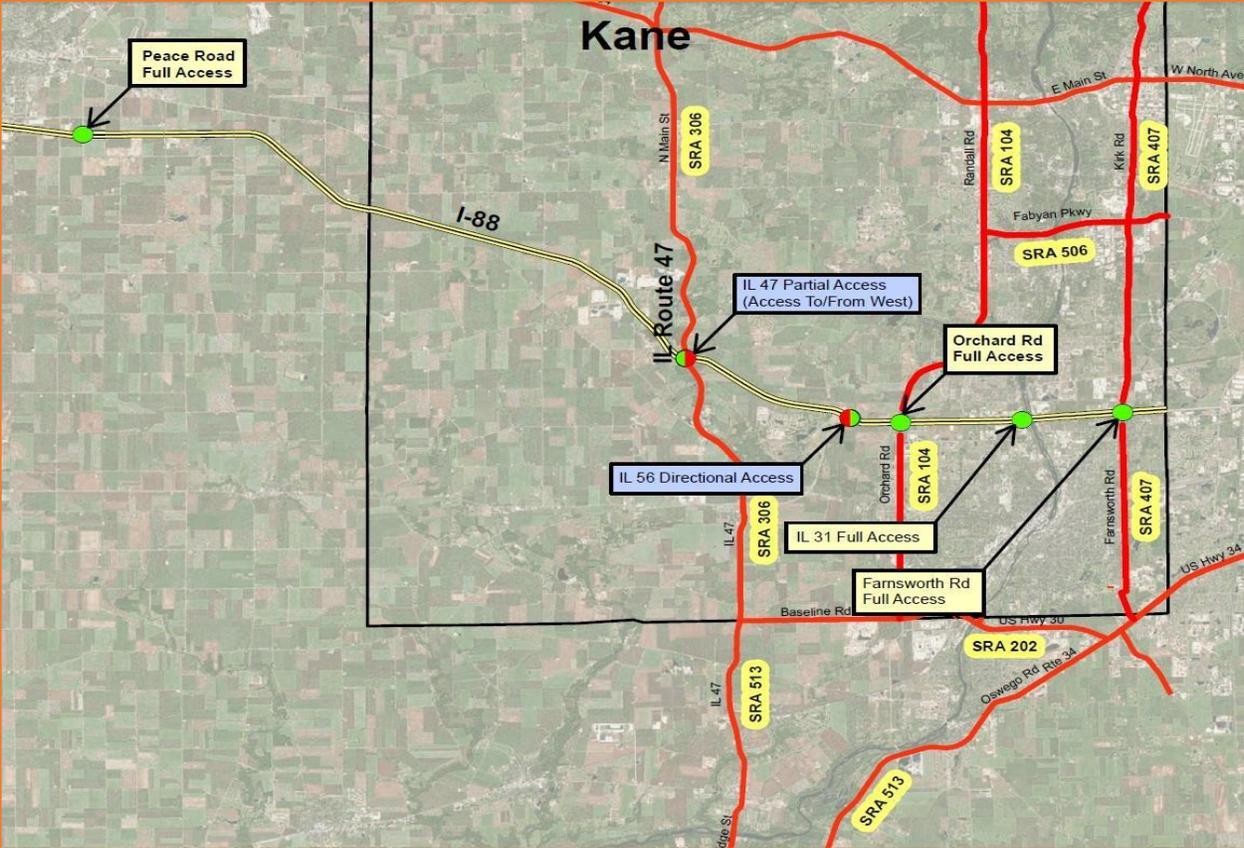
The Illinois Department of Transportation (IDOT) is proposing improvements to the next major intersection north of Green Road. This intersection is at IL 47 and Main Street and has an approved Phase I Environmental Report processed as a Categorical Exclusion II in July of 2012. IDOT's proposed improvement to the intersection of Main Street and IL 47 includes the addition of left turn lanes on all legs of the intersection, widening the roadway, reconstructing and raising the profile of the intersection, and traffic signal installation to address safety, capacity, and flooding issues. This proposed improvement at IL 47 and Main Street is a separate project and is currently in the Contract Plan Preparation and Land Acquisition Phase. Given the limited south extension of the Main Street and IL 47 intersection improvement, and the aforementioned drop off in ADT at Green Road, the selection of Green Road as the northernmost project limit is justified.

Chapter 2 Purpose and Need

IL 47 from IL 173 in McHenry County to IL 71 in Kendall County is designated as an SRA by the CMAP. SRA routes carry larger volumes of traffic at higher speeds as a complement to the regional expressway and Tollway system. As an SRA route, IL 47 is a key corridor in the regional travel network for commuters and freight and provides an important link for the two nearby east-west SRA routes, IL 64 (North Avenue) and IL 71. Within this region, State Route 71, Baseline Rd (US 30), North Ave (IL 64), Lake Street (US 20), Algonquin Road (IL 62), IL 176, Northwest Highway (US 14), and Charles Road (IL 120) are designated SRA routes that intersect with IL 47.

See **Figure 2.3** for all SRA's within the project study region.

Figure 2.3: IL 47 SRA's in Kane County, IL



The current IL 47 partial access interchange creates longer travel and emergency response times to and from I-88 than what could be achieved with a direct route to medical centers in the area. **Figure 2.4** illustrates the expected response routes and times. Presence Mercy Medical Center, located east on I-88, south of the IL 31 (Lake Street) Interchange, is the most logical facility for emergency service for incidents occurring in the Village of Sugar Grove.

For any IL 47 incidents that occur north of the IL 47 at I-88 interchange, Case 1 in **Figure 2.4**, emergency response vehicles proceed south on IL 47, over I-88, before heading east to Presence

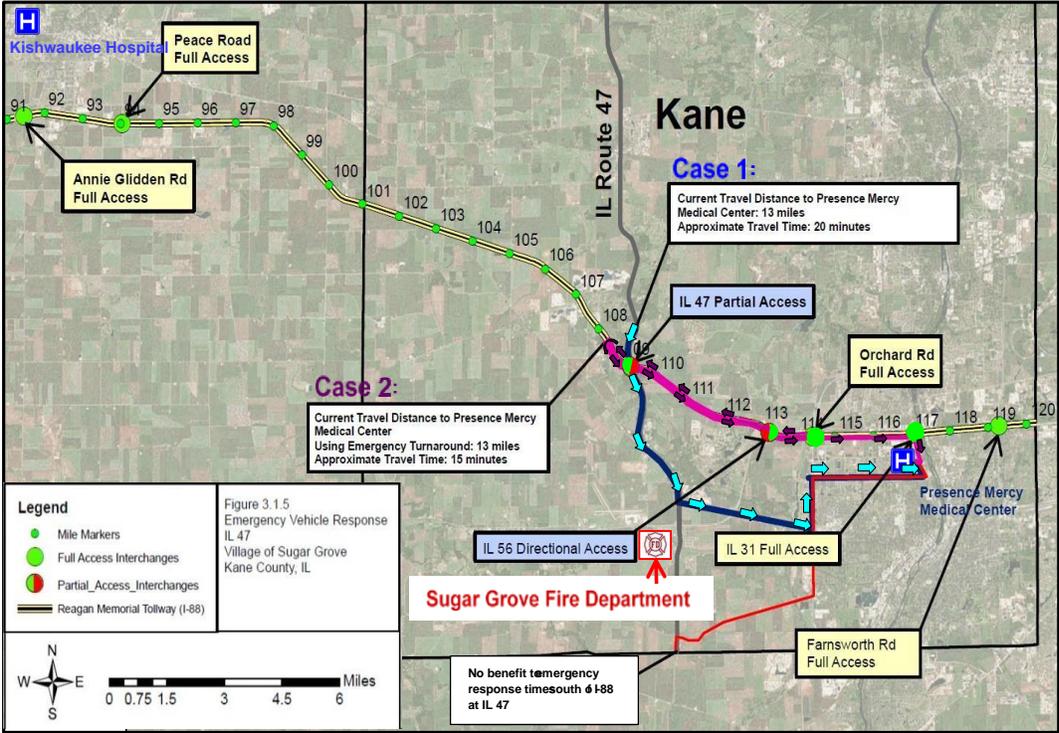
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Mercy Medical Center on some combination of local/collector roads resulting in an approximate distance of 13 miles and a travel time of 20 minutes.

For any I-88 incidents occurring east of IL 47 and west of IL 56, Case 2 in **Figure 2.4.**, emergency response vehicles use the emergency turnaround approximately 1 mile west of the IL 47 and I88 interchange to get to Presence Mercy Medical Center, which is 13 miles in distance and approximately 15 minutes of travel time.

Kishwaukee Hospital is an alternate hospital in DeKalb, approximately 21 miles west of the IL 47 at I-88 interchange, but per discussions with local emergency response personnel, it is unlikely this hospital is ever utilized for incidents occurring between IL 47 and IL 56.

Figure 2.4: Emergency Vehicle Response Routes/Times



2.2.3 Land Use and Economic Development

The Village of Sugar Grove’s Comprehensive Plan, approved November 18, 2014, indicates the areas around the IL 47 and I-88 Interchange is planned for land use changes. The existing land use breakdown consists of: 58% agricultural, 26% residential, 15% forest preserve/open space, and 1% institutional. The proposed land use

Land Use Types:

- Estate Residential:** Large lot rural zoning classification
- Open Space/Environmental:** Undeveloped land, parks, forest preserves, or wetlands.
- Detached Single Family:** land dedicated to homes occupied by just one household or family

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breakdown consists of: 48% residential, 30% commercial, 6% corporate campus, 15% forest preserve/open space, and 1% institutional.

Furthermore, the northwest, northeast, and southwest quadrants are planned for corridor commercial zoning, which would be designated for retail, service, office, and limited manufacturing uses. The northeast quadrant of the interchange is partially planned as business park zoning and designated for small office buildings. Along the west side of IL 47, north of Seavey Road and south of Finley Road, future land use is planned to remain as estate residential.

Exhibit 2 shows the existing land use in the project study area. **Exhibit 3** shows the future land use in the project study area.

Population trends and future projections in the project study area are summarized in **Table 2.2** below. The immediate project study area (Sugar Grove) is in Kane County. Kane County has experienced population increases during each year studied. Kane County's population increased by 59% from 1990 to 2010. CMAP has projected that the county's growth rate will slow between 2010 and 2040; however, the population is still expected to grow by 55%.

The Village of Sugar Grove grew by 448% between 1990 and 2010. CMAP projects that Sugar Grove's population will increase by 194% between 2010 and 2040. The Village of Elburn is approximately five miles to the north along IL 47. CMAP projects that Elburn's population will increase by 194% between 2010 and 2040.

Table 2.2 Population Trends and Projections, 1990 – 2040 (Per CMAP forecast as of October 10, 2014)

		Sugar Grove	Elburn	Kane County
Population	1990	2,005	1,338	319,491
	2000	3,918	2,756	404,119
	2010	10,991	6,197	508,482
	2040	32,299	18,224	789,295
Population Change from 1990 to 2010, percent		448	363	59
Predicted Population Change from 2010 to 2040, percent		194	194	55

At the southern logical terminus, Waubensee Community College has been among the fastest growing community colleges in the state in terms of student enrollment. The College supports twelve public school districts: Aurora, Batavia, Big Rock, Bristol, Elburn, Geneva, Hinckley, Kaneville, Leland, Maple Park, North Aurora, Plano, Sandwich, Somonauk, Oswego, and Yorkville. Of these public school districts, five are east of the IL 47 and I-88 Interchange.

Chapter 2 Purpose and Need

Concurrence on the Purpose and Need was received at the February 29, 2016 NEPA/404 Merger Meeting. A letter of concurrence, provided in **Appendix A**, was received from the USACE on April 7, 2016.

What is the NEPA/404 Merger Process?

The NEPA/404 Merger Process allows resource and regulatory agencies to provide concurrence on key milestones of a project as it progresses. This allows for streamlined coordination and avoids critical flaws late in the development of the project.

3 Alternatives

3.1 Introduction

The project is being developed following a Context Sensitive Solutions (CSS) approach. Based on the CSS approach, evaluations of the existing conditions and public input consensus was obtained on various project elements based on their effectiveness for meeting the project Purpose and Need. From these project elements, the build alternatives were developed. Pedestrian and bicyclist accommodations will be provided per the “Complete Streets Law” regardless of which build alternative is selected as the Preferred Alternative. The type of bicycle and pedestrian accommodations would be dependent upon local cost participation.

The following subsections provide design criteria for alternatives, the development and evaluation process for alternatives, and a description of alternatives. The alternatives list includes the no-build and build alternatives that were studied in detail.

3.2 Proposed Highway Design Guidelines

Alternatives were developed utilizing design criteria as outlined in the IDOT Bureau of Design and Environment (BDE) Manual. Within the IDOT BDE Manual, criteria are determined based on the functional classification designation and other basic conditions of the roadways, such as posted speed limits, terrain, and setting. Within the project study area, IL 47 is designated as a State Other Principal Arterial and a SRA.

What is Context Sensitive Solutions (CSS)?

CSS is an interdisciplinary approach that seeks effective, multi-modal transportation solutions by working with stakeholders to develop, build, and maintain cost-effective transportation facilities that fit into and reflect the project’s surroundings - its “context.” Through early, frequent, and meaningful communication with stakeholders, and a flexible and creative approach to design, the resulting projects should improve safety and mobility for the traveling public, while seeking to preserve and enhance the scenic, economic, historic, and natural qualities of the settings through which they pass.

What is a Build Alternative?

A Build Alternative is one that would include the design and construction of improvements needed to meet the purpose and need of the project.

What is a No-Build Alternative?

The No-Build Alternative is one that would occur if the proposed project was not constructed. This provides a baseline of conditions against which the build alternatives can be compared, allowing for a comparison of socioeconomic and environmental impacts, as well as the failure to meet the purpose and need of the project. The No-Build Alternative is defined as the transportation facility that is most likely to exist in the forecast year without the proposed improvements.

What is Complete Streets Law?

According to the National Complete Streets Coalition, complete streets are those designed and operated to enable safe access and travel for all users, including pedestrians, bicyclists, motorists, transit users, and travelers of all ages and abilities. Typical elements that make up a complete street include sidewalks, bicycle lanes, shared-use paths, designated bus lanes, safe and accessible transit stops, and frequent and safe crossings for pedestrians.

Each complete street has to be customized to the characteristics of the area it serves, but the common denominator is the balancing of safety and convenience for everyone using the road.

Chapter 3 Alternatives

The design guidelines utilized for intersecting side roads were determined based on individual roadway’s functional classification, projected traffic, and other existing conditions. The alternatives developed at the intersections utilized design criteria from the IDOT BDE Manual, as well as the IDOT Bureau of Local Roads (BLR) Manual for the side road locations. Side roads within the corridor are either a Local Street or a Local Major Collector.

The design guidelines utilized for I-88 were based on the March 2016 Tollway’s *Roadway Design Criteria*.

Table 3.1 shows basic elements of the design criteria utilized for both the mainline roadway, I-88 and the side roads throughout the project study area.

Table 3.1: Roadway Design Criteria

Description	Illinois Tollway	Rural SRA Highway	Local Major Collector	Local Street
Design Speed Limit (mph)	70	45-60	30-45	30-35
Number of Lanes	4	4	2-4	2
Lane Width	12’	12’	10’ minimum 12’ Desirable	10-11’ Minimum 12’ Desirable
Median Width and Type	50’ Minimum Depressed	50’ Minimum Depressed	10’-14’/12’	N/A

3.3 Alternatives Development

After concurrence on the Purpose and Need, a list of alternatives was developed for both the IL 47 Mainline and the IL 47/I-88 Interchange. Initial alternatives were developed through a collaborative effort between the Community Advisory Group (CAG), the public, the Project Study Group (PSG), and by utilizing the Feasibility Study conducted by the Village of Sugar Grove. The objective of this process was to develop an initial list of alternatives and reduce this list to the alternatives that were then carried forward for further study.

Community Advisory Group: voluntary group of community leaders, including elected officials, representatives from local municipalities, homeowners, business owners, and local special interest groups.

Project Study Group: group of stakeholders consisting of IDOT, Tollway, Kane County, Village of Sugar Grove and the Federal Highway Administration (FHWA).

Separate alternatives were then developed for IL 47 Mainline and the IL 47/I-88 Interchange, these alternatives were developed independently of each other and evaluated separately. The IL 47 Mainline limits are from Old Oaks Road to Finley Road on the south end and Seavey Road to Green Road on the north end. The interchange limits are from Finley Road to Seavey Road. Finley Road and Seavey Road improvements were part of the IL 47 alternatives. The interchange will likely be completed by others as an operational improvement separate from the IL 47 widening.

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The IL 47 Mainline Alternatives include the following:

- No Build: maintains existing facility without any improvements except for routine maintenance.
- M-1A: maintains existing centerline with two 12-foot lanes in each direction, a 30-foot raised median, and 10-foot shoulders.
- M-1B: maintains existing centerline with two 12-foot lanes in each direction, a 50-foot depressed median, and 10-foot shoulders.
- M-1C: maintains existing centerline with two 12-foot lanes in each direction, a 30-foot median that is reduced to 6-feet in the area of Hannaford Woods/Nickels Farm Forest Preserve, and 10-foot shoulders.
- M-2A: shifts existing centerline 26 feet to the east with two 12-foot lanes in each direction, a 30-foot raised median, and 10-foot shoulders.
- M-2B: shifts existing centerline 26 feet to the east with two 12-foot lanes in each direction, a 50-foot depressed median, and 10-foot shoulders.
- M-2C: shifts existing centerline 26 feet to the east with two 12-foot lanes in each direction, a 30-foot median that is reduced to 6 feet in the area of Hannaford Woods/Nickels Farm Forest Preserve, and 10-foot shoulders.
- M-3: shifts existing centerline 1,050 feet to the east with two 12-foot lanes in each direction, new alignment from Merrill Road to Green Road, a 50-foot depressed median, and 10-foot shoulders.
- M-4: shifts existing centerline west on new alignment from Old Oaks Road to the I-88 ramps with two 12-foot lanes in each direction, a 30-foot raised median, and 10-foot shoulders.

The IL 47 and I-88 Interchange Alternatives include the following:

- No Build: maintains existing facility without any improvements except for routine maintenance.
- I-1: A conventional diamond interchange that would add an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
- I-2: A conventional diamond with roundabouts interchange would include an entrance ramp from IL 47 to I-88 eastbound, an exit ramp from westbound I-88 to IL 47, and a roundabout at each ramp terminal.
- I-3: A diverging diamond interchange would add an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47. IL 47 would cross at the north and south sides of the bridge.
- I-4: A partial cloverleaf with a loop ramp in the northeast quadrant would include an entrance ramp from IL 47 to I-88 eastbound, an exit ramp from westbound I-88 to IL 47, and a loop for northbound IL 47 traffic to enter I-88 westbound.

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- I-5: A partial cloverleaf with a loop ramp in the northeast quadrant and southwest quadrant would include an entrance ramp from IL 47 to I-88 eastbound, an exit ramp from westbound I-88 to IL 47, a loop for northbound IL 47 traffic to enter I-88 westbound, and a loop ramp for southbound IL 47 traffic to enter I-88 eastbound.
- I-6: A partial cloverleaf with a loop ramp in the southwest quadrant would include an entrance ramp from IL 47 to I-88 eastbound, an exit ramp from westbound I-88 to IL 47, and a loop ramp for southbound IL 47 traffic to enter I-88 eastbound.
- I-7: A partial cloverleaf with a loop ramp terminating at Finley Road would include an entrance ramp from IL 47 to I-88 eastbound, an exit ramp from westbound I-88 to IL 47, and a loop ramp that terminates at an intersection with Finley Road.

3.4 Evaluation Process

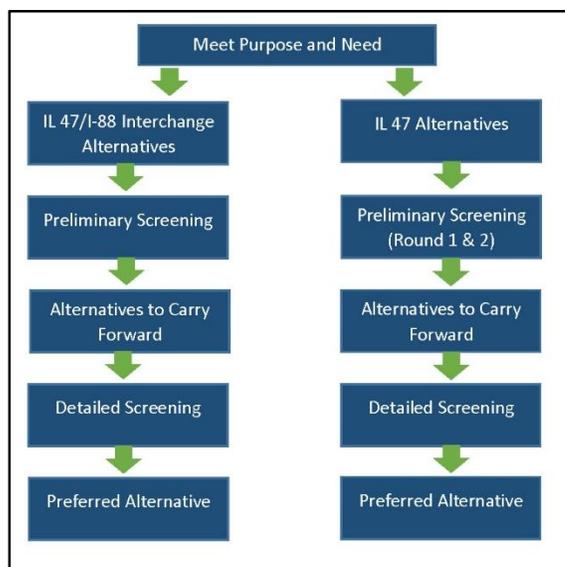
An evaluation and screening process was developed through a collaborative effort with stakeholders and the PSG. The objective of this process was to develop an initial list of alternatives and reduce this list from plausible alternatives to feasible alternatives by conducting rounds of screening analyses. The goal of the process was to refine the number of alternatives and develop a Preferred Alternative for both the IL 47 Mainline and the IL 47/I-88 Interchange (see **Figure 3.1**).

Each set of alternatives was screened against the Purpose and Need. All build alternatives were determined to meet the Purpose and Need by improving system linkage and accommodating future land use and economic development.

The IL 47 Mainline Alternatives were then subjected to two separate rounds of preliminary screening. In Round 1 of the preliminary screening process, alternatives were screened against residential and commercial displacements, right-of-way required, and environmental resource impacts including National Wetland Inventory (NWI) wetlands, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), lands currently being farmed, and forested areas. Alternatives that were carried forward to the next

round of preliminary screening were screened against cost, operational review data, and Environmental Survey Request (ESR) data such as Kane County Forest Preserve Property and Illinois Natural History Survey (INHS) wetlands and Waters of the United States (WOUS). Some categories from Round 1 were also carried forward, such as displacements, right-of-way required and floodplains, for comparison.

Figure 3.1: Evaluation Process



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The IL 47/I-88 Interchange alternatives were subjected to one round of preliminary screening, which included right-of-way required, operational reviews, cost, impacts to the existing IL 47 bridge, and environmental resources.

The next step in the evaluation and screening process was to subject the alternatives to detailed screening which evaluated alternatives against further engineering and environmental review. Each screening process is described in the following subsections.

3.4.1 Purpose and Need Screening

The alternatives were reviewed in detail to determine if they meet the project’s Purpose and Need. There were two critical components of the Purpose and Need: (1) improve system linkage and (2) accommodate land use and economic development within the IL 47 and I-88 project study area. The first criteria was evaluated based on the design of the interchange. The second criteria was evaluated based on review of future land use plans of the Village of Sugar Grove (see **Exhibit 3**), separation of land parcels zoned for future commercial development, and an operational review.

3.4.1.1 Purpose and Need Screening of IL 47 Alternatives

In order for IL 47 to meet the Purpose and Need, it needs to be able to facilitate the 2040 traffic projections. The IL 47 Mainline Alternatives were analyzed with Highway Capacity Software (HCS) 2010, which considered factors like directional traffic volume, heavy vehicle percentage, and aspects of the roadway design to identify a directional Level of Service (LOS) for each segment during the morning and evening peak hours. LOS grades range from A to F with LOS A as the highest (best traffic flow and least delay), LOS E as saturated or at-capacity conditions, and LOS F as the lowest (oversaturated conditions) (see **Figure 3.2**). Given IL 47’s status as a SRA, LOS C or better is desirable for corridor operation.

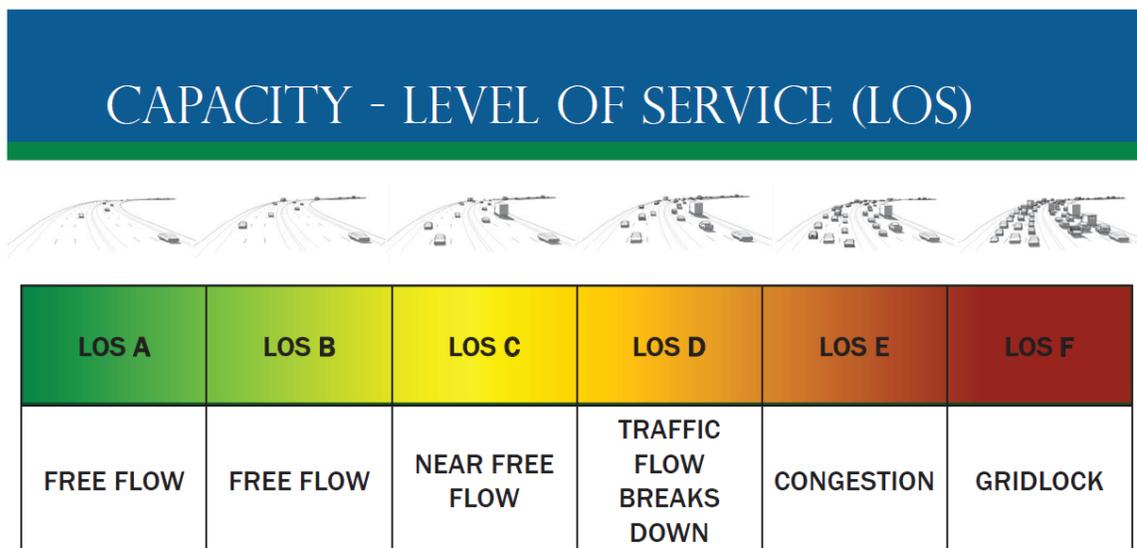


Figure 3.2: Level of Service

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As the basis for capacity analysis of the IL 47 corridor, the CMAP developed Average Daily Traffic (ADT) volumes for each segment of IL 47, for I-88 and the interchange ramps, and for each side street within the study area. These ADTs are illustrated in **Exhibit 5 and 6** for 2040 No-Build and 2040 Build conditions, respectively. Based on these ADTs, Design Hourly Volumes (DHVs) were prepared by IDOT for each study intersection during the weekday morning and evening peak hours. These DHVs, which are presented in **Exhibit 7**, were provided to the project team for use in analyzing corridor operation at this stage of the Phase I study.

Who is Chicago Metropolitan Agency for Planning (CMAP): CMAP is the official regional planning organization for the northeastern Illinois counties of Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will. CMAP establishes coordinated strategies that help the region's 284 communities address transportation, housing, economic development, open space, the environment, and other quality-of-life issues.

The existing IL 47 cross-section provides two lanes in each direction at the interchange ramps and, in the northbound direction only, between the I-88 eastbound ramp and Finley Road. The remainder of IL 47 is one lane in each direction through the study area. It is assumed that this cross-section would be maintained under 2040 No-Build Conditions.

The HCS 2010 roadway segment analyses indicate that nearly all portions of IL 47 providing a single directional travel lane will operate at LOS E during one or both peak hours under 2040 No-Build conditions. The remaining one-lane directional sections are projected at LOS D. As such, all build alternatives are proposing to build IL 47 with two lanes in each direction from Old Oaks Road to Green Road. Since all build alternatives are proposing the same number of lanes, they will be evaluated together. HCS 2010 analyses of the 2040 Build condition indicate that this cross-section will allow all study segments of IL 47 to operate at LOS C or better. As long as two lanes are provided in each direction, the median width or specific alignment are unlikely to have meaningful impact on the LOS results (see **Exhibit 8**).

Based on the results of the operational review, IL 47 should be widened to support projected future traffic volumes and to facilitate the anticipated economic development. The No-Build alternative is not expected to adequately support traffic volumes from a capacity perspective, nor does it meet the Purpose and Need because it does not facilitate economic development. However, for comparison it will be carried forward.

3.4.1.2 Purpose and Need Screening of IL 47/I-88 Interchange Alternatives

All of the IL 47/I-88 Interchange Build Alternatives meet the Purpose and Need to improve system linkage by providing a full access interchange between IL 47 and I-88 and facilitate future economic development and land use. The No-Build Alternative does not meet the Purpose and Need because it does not provide improved access at the IL 47/I-88 Interchange; however, for comparison, it will be carried forward.

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3.4.2 Preliminary Alternative Screening

3.4.2.1 IL 47 Preliminary Screening

The IL 47 Mainline Alternatives were then subjected to two separate rounds of preliminary screening. In Round 1 of the screening process, alternatives were screened against residential and commercial displacements, right-of-way required, and environmental resources including NWI wetlands, FEMA FIRM maps, land currently being farmed, and forested areas. The results of this screening can be seen in **Table 3.2**. Alternatives that were carried forward to the next screening process were screened against cost, operational review data, and ESR data. ESR data included 4(f) property, wetland and WOUS delineations, and other biotic surveys. Some categories from Round 1 were also carried forward, such as displacements, right-of-way required and floodplains, for comparison. The results of this screening can be seen in **Table 3.3**.

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Table 3.2: IL 47 Impact Matrix (Round 1)

	Residential Displacements ¹	Right of Way (acres)	NWI Wetlands (acres) ²	Floodplains (acres) ³	Forest (acres)	Farmland (acres) ⁴	Forest Preserve – 4(f) (acres)	Carry Forward to Round 2
No-Build	0	0	0	0	0	0	0	Yes
M-1A 30 Foot Median on Alignment	7	11.1	0.2	3.5	1.1	5.8	0.8	Yes
M-1B 50 Foot Median on Alignment	11	15.1	0.3	4.2	1.6	6.5	1.2	Yes
M-1C Modified 30 Foot Median	7	10.6	0.2	2.8	0.6	5.8	0.3	Yes
M-2A 30 Foot Median Widened to East	1	12.7	0.3	3.5	1.6	7.4	1.1	Yes
M-2B 50 Foot Median Widened to East	1	15.1	0.4	4.2	2.7	8.6	1.6	Yes
M-2C Modified 30 Foot Median Widened to East	0	11.7	0.3	2.6	1.2	7.3	0.3	Yes
M-3 50 Foot Median New Alignment-East	1	37.5	1.2	5.1	6.7	25.9	1.2	No
M-4 30 Foot Median New Alignment-West (Hannaford Woods Avoidance Alternative)	11	40.7	2.5	9.2	5.2	17.2	0	No

Note: Impacts based on 45 foot buffer off of the edge of pavement for each alternative

1. Residential displacements were calculated based on structures within 10 feet of the buffer.
2. Wetlands were determined based on the US Fish and Wildlife Service’s National Wetland Inventory.
3. Floodplains were based on Federal Emergency Management Agency’s Flood Insurance Rate Maps (FIRM).
4. Farmland was based on current land use.

Low Impact	Impacts are calculated based on the range of the numbers in each category, excluding the No-Build. Those impacts falling in the lower 33 rd Percentile are low impact, those between 33 rd and 66 th Percentiles are moderate and those above the 66 th Percentile of the range are high impact. No-Build numbers were not included in the range.
Moderate Impact	
High Impact	

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Chapter 3 Alternatives

Table 3.3: IL 47 Impact Matrix (Round 2)

	Residential Displacements ¹	Right of Way (acres)	Estimated Cost in Millions (2016 Dollars) ²	Operational Review	INHS Wetlands (acres) ³	Floodplains (acres) ⁴	Farmland (acres) ⁵	INHS Waters of the U.S. (linear feet)	Forest Preserve – 4(f) (acres)	Carry Forward
No-Build	0	0	0	Unacceptable	0	0	0	0	0	Yes
M-1A 30 Foot Median	7	11.1	\$16.5	Acceptable	1.9	3.5	5.8	2000-3000	0.8	Yes
M-1B 50 Foot Median	11	15.1	\$17.2	Acceptable	2.2	4.2	6.5	2000-3000	1.2	No
M-1C Modified 30 Foot Median	7	10.6	\$16.5	Acceptable	1.3	2.8	5.8	2000-3000	0.3	Yes
M-2A 30 Foot Median	1	12.7	\$18.3	Acceptable	2.1	3.5	7.4	2000-3000	1.1	No
M-2B 50 Foot Median	1	15.1	\$18.8	Acceptable	2.5	4.2	8.6	2000-3000	1.6	No
M-2C Modified 30 Foot Median	0	11.7	\$18.3	Acceptable	1.3	2.6	7.3	2000-3000	0.3	Yes

Note: Impacts based on 45 foot buffer off of the edge of pavement for each alternative

1. Residential displacements were calculated based on structures within 10 feet of the buffer.
2. Cost was estimated for improving IL 47 from Old Oaks Road/College Drive to Green Road.
3. Wetlands and Waters of the U.S. were determined based on the INHS 2016 survey.
4. Floodplains were based on Federal Emergency Management Agency’s Flood Insurance Rate Maps (FIRM).
5. Farmland was based on current land use.

	Low Impact	Impacts are calculated based on the range of the numbers in each category for Round 2 alternatives only, excluding the No-Build. Those impacts falling in the lower 33 rd Percentile are low impact, those between 33 rd and 66 th Percentiles are moderate and those above the 66 th Percentile of the range are high impact. No-Build numbers were not included in the range.
	Moderate Impact	
	High Impact	

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3.4.2.2 Illinois 47 Alternatives Eliminated

3.4.2.2.1 Round 1 Elimination

The alternatives eliminated during Round 1 contained high amounts of farmland, floodplain, and forest impacts and right-of-way required. Each of the alternatives eliminated during Round 1 are described below.

Alternative M-3: 4-Lane New Alignment East	
Description	This alternative includes two 12-foot lanes in each direction with a 50-foot depressed median and 10-foot shoulders.
	The centerline is shifted 1,050 feet to the east.
	The new alignment would begin at Merrill Road and end at Green Road.
	The alternative takes into account the potential for a 10-foot wide multi-use trail to be located on both sides of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
	The new alignment would have new intersections at Seavey Road, Thornapple Tree Road, and Scott Road.
Reasons for Elimination	This alternative had the second highest amount of right-of-way required (37.5 acres).
	This alternative had the highest amount of impacts to farmland (25.9 acres), and forest (6.7 acres), and moderate impacts to floodplain (5.1 acres) and wetlands (1.2 acres) compared to other alternatives.
	It would create an entirely new crossing of Seavey Road Run.

Alternative M-4: 4-Lane New Alignment West (Hannaford Woods Avoidance Alternative)	
Description	This alternative includes two 12-foot lanes in each direction with a 30-foot raised median and 10-foot shoulders.
	The alignment is shifted west south of Old Oaks Road and merges back on existing alignment just south of the I-88 ramps.
	The alternative takes into account the potential for a 10-foot wide multi-use trail to be located on both sides of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
Reasons for Elimination	This alternative impacts the highest number of residential properties (11).
	This alternative requires the highest amount of right-of-way (40.7 acres).
	This alternative had the highest amount of impacts to wetlands (2.5 acres) and floodplains (9.2 acres), high impacts to forest (5.2 acres) and moderate impacts to farmland (17.2 acres) as compared to other alternatives.

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3.4.2.2.2 Round 2 Elimination

The alternatives eliminated during Round 2 had high costs and higher amounts of impacts to the Hannaford Woods/Nickels Farm Forest Preserve, and wetlands. Each of the alternatives eliminated during Round 2 are described below.

Alternative M-1B: 4-Lane on Existing Alignment with 50 foot Median	
Description	This alternative includes two 12-foot lanes in each direction with a 50-foot depressed median and 10-foot shoulders.
	The alternative maintains the existing centerline of IL 47.
	The alternative takes into account the potential for a 10-foot wide multi-use trail to be located on both sides of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
Reasons for Elimination	This alternative had the highest of potential residential displacements (11).
	Among the alternatives carried to Round 2, it tied for the highest amount of right-of-way (15.1 acres).
	This alternative tied for the highest impacts to floodplains (4.2 acres) and had high impacts to wetlands (2.2 acres) and Hannaford Woods/Nickels Farm Forest Preserve (1.2 acres) as compared to other alternatives carried to Round 2.

Alternative M-2A: 4-Lane Widened to the East with 30 foot Median	
Description	This alternative includes two 12-foot lanes in each direction with a 30-foot raised median and 10-foot shoulders.
	The centerline is shifted 26 feet to the east.
	The alternative takes into account the potential for a 10-foot wide multi-use trail to be located on both sides of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
Reasons for Elimination	Among the alternatives carried to Round 2, it had the second highest amount of right-of-way (12.7 acres).
	This alternative has the second highest cost of those advanced to Round 2 (\$18.3 Million).
	This alternative had moderate impacts to wetlands (2.1 acres), floodplains (3.5 acres), farmland (7.4 acres), and Hannaford Woods/Nickels Farm Forest Preserve (1.1 acres) as compared to other alternatives carried to Round 2.

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Alternative M-2B: 4-Lane Widened to the East with 50 foot Median	
Description	This alternative includes two 12-foot lanes in each direction with a 50-foot depressed median and 10-foot shoulders.
	The centerline is shifted 36 feet to the east.
	The alternative takes into account the potential for a 10-ft wide multi-use trail to be located on both sides of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
Reasons for Elimination	Among the alternatives carried to Round 2, it tied for the highest amount of right-of-way (15.1 acres).
	This alternative has the highest cost for those advanced to Round 2 (\$18.8 Million).
	This alternative had the highest impacts to farmland (8.6 acres), wetlands (2.5 acres), floodplains (4.2 acres), and Hannaford Woods/Nickels Farm Forest Preserve (1.6 acres) as compared to other alternatives carried to Round 2.

3.4.2.3 Illinois 47 Alternatives to be Carried Forward

The IL 47 alternatives to be carried forward were based on the design's ability to minimize environmental and socioeconomic impacts. The alternatives to be carried forward were approved at the February 22, 2017 NEPA/404 Merger Meeting. The meeting minutes indicating concurrence are provided in **Appendix A**. The following alternatives were carried forward:

No Build Alternative	
Description	The No-Build Alternative would maintain the existing facility without any improvements except for routine maintenance (i.e. shoulder resurfacing or pavement patching and resurfacing) and those projects currently planned and programmed.
	The No-Build alternative would not include any lane widening or lane additions.
Comments	Based on 2040 No-Build DHVs provided by IDOT, the IL 47 corridor is projected to operate at LOS E on most study segments under this alternative.
	The No-Build is being carried forward for comparison.

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Alternative M-1A: 4-Lane on Existing Alignment with 30 foot Median	
Description	This alternative includes two 12-foot lanes in each direction with a 30-foot raised median and 10-foot shoulders.
	The alternative maintains the existing centerline of IL 47.
	The alternative takes into account the potential for a 10-ft wide multi-use trail to be located on either side of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
Comments	Based on 2040 Build DHVs provided by IDOT, the IL 47 corridor is projected to operate at LOS C or better on all study segments under this alternative.
	This alternative tied for the lowest cost (\$16.5 Million).
	This alternative has low impacts to right-of-way (11.1 acres).
	This alternative has tied for lowest impacts to farmland (5.8 acres) and has moderate impacts to wetlands (1.9 acres) and floodplains (3.5 acres) as compared to other alternatives carried to Round 2.

Alternative M-1C: 4-Lane on Existing Alignment with Modified 30 foot Median	
Description	The alternative includes two 12-foot lanes in each direction with a 30 foot raised median through most of the corridor.
	The median is reduced to 6 foot through the Hannaford Woods/Nickels Farm Forest Preserve.
	The alternative maintains the existing centerline of IL 47.
	The alternative takes into account the potential for a 10-ft wide multi-use trail to be located on either side of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
Comments	Based on 2040 Build DHVs provided by IDOT, the IL 47 corridor is projected to operate at LOS C or better on all study segments under this alternative.
	This alternative has the lowest impacts to right-of-way (10.6 acres).
	This alternative tied for the lowest cost (\$16.5 Million).
	This alternative tied for the lowest impacts to wetlands (1.3 acres), Hannaford Woods/Nickels Farm Forest Preserve (0.3 acres) and farmland (5.8 acres) as compared to other alternatives carried to Round 2.

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Alternative M-2C: 4-Lane Widened to East with Modified 30 foot Median	
Description	The alternative includes two 12-foot lanes in each direction with a 30 foot raised median through most of the corridor.
	The median is reduced to 6 feet through the Hannaford Woods/Nickels Farm Forest Preserve.
	The alternative shifts the centerline north of the forest preserve to the east to avoid residences.
	The alternative takes into account the potential for a 10-foot wide multi-use trail to be located on both sides of IL 47.
	All intersections would be improved geometrically to accommodate design traffic volumes and design vehicles.
Comments	Based on 2040 Build DHVs provided by IDOT, the IL 47 corridor is projected to operate at LOS C or better on all study segments under this alternative.
	This alternative has a low impacts to right-of-way (11.7 acres).
	This alternative has the second highest cost of the alternatives in Round 2 (\$18.3 M)
	This alternative tied for the lowest impacts to wetlands (1.3 acres) and Hannaford Woods/Nickels Farm Forest Preserve (0.3 acres). It has the lowest impacts to floodplains (2.6 acres) as compared to other alternatives carried to Round 2.
	This alternative impacts no residential displacements.

3.4.2.4 Preliminary Screening of Interchange Alternatives

The IL 47 and I-88 Interchange Alternatives include the no-build, conventional diamond interchange, conventional diamond interchange with roundabouts, diverging diamond interchange, partial cloverleaf in the northeast quadrant, partial cloverleaf in the northeast and southwest quadrants, partial cloverleaf in the southwest quadrant, and a partial cloverleaf with a loop ramp terminating at Finley Road.

The alternatives were then screened against right-of-way required, operational reviews, cost, impacts to the existing IL 47 Bridge, environmental resources, and socio-economic impacts. For the interchange design alternatives, the operational review for the ramp intersections was based on IDOT BDE design standards and a preliminary opinion of the probable geometric configurations that would be required to accommodate the projected DHVs. Note that LOS analyses were not performed as a part of this initial screening process, since the selected geometric layouts for each alternative are expected to yield acceptable operational characteristics and conform to BDE criteria. The impacts are presented in **Table 3.4** and do not include impacts for the IL 47 widening.

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Table 3.4: Interchange Impact Matrix

	Right of Way (acres)	Operational Review	Estimated Cost in Millions (2016 Dollars)	Existing IL 47 over I-88 Bridge Impacts (square feet) ¹	Wetlands (acres) ²	Waters of the U.S. (linear feet)	Floodplains (acres) ³	Forest (acres)	Farmland (acres) ⁴	Carry Forward
No-Build	0	Not Acceptable	0	None	0	0	0	0	0	Yes
Alternative I-1: Conventional Diamond	0.7	Acceptable	\$16.2	2622	<0.1	0	0	<0.1	0.9	Yes
Alternative I-2: Conventional Diamond w/ Roundabouts	0	Acceptable	\$15.9	1261	<0.5	10	0	<0.1	<0.1	Yes
Alternative I-3: Diverging Diamond	0	Acceptable	\$15.8	0	<0.1	0	0	<0.1	0	Yes
Alternative I-4: Partial Cloverleaf-NE Quadrant	0.7	Acceptable	\$19.8	2606	<0.1	0	0.1	0	0.8	Yes
Alternative I-5: Partial Cloverleaf-NE and SW Quadrant	2.9	Acceptable	\$21.7	3218	<0.6	<100	0.1	0.2	3.3	No
Alternative I-6: Partial Cloverleaf-SW Quadrant	2.3	Acceptable	\$20.3	2608	<0.6	<100	0	0.2	2.5	No
Alternative I-7: Partial Cloverleaf-Loop Ramp terminating at Finley Road intersection	7.5	Acceptable	\$20.2	2608	<0.1	<1000	0	2.4	6.1	No

Note: Impacts were calculated based on a 45 foot buffer from edge of pavement for each alternative.

1. Additional square feet of bridge surface area required.
2. Wetlands and Waters of the U.S. were determined based on the INHS Wetland Survey conducted in 2016.
3. Floodplains were based on Federal Emergency Management Agency’s Flood Insurance Rate Maps (FIRM).

	Low Impact	Impacts are calculated based on the range of the numbers in each category excluding the No-Build. Those impacts falling in the lower 33 rd Percentile are low impact, those between 33 rd and 66 th Percentiles are moderate and those above the 66 th Percentile of the range are high impact. No-Build numbers were not included in the range.
	Moderate Impact	
	High Impact	

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3.4.2.5 Interchange Alternatives Eliminated

Environmental and socioeconomic impacts were minutely different between interchange alternatives and are weighted less in the evaluation due to their small ranges of impacts. The bridge superstructure was fully reconstructed in 2007. Due to the recent reconstruction of the bridge, preservation of the structure is weighted heavily. The cost and right-of-way required also received a heavier weight. Each interchange alternative eliminated is described below:

Alternative I-5: Partial Cloverleaf with Loop Ramp in Northeast and Southwest Quadrants	
Description	The partial cloverleaf with loop ramp in the northeast and southwest quadrant interchange would include an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
	It also includes a loop ramp for northbound IL 47 traffic to enter I-88 westbound, and a loop ramp for southbound IL 47 traffic to enter I-88 eastbound.
	Finley Road would be a right-in/right-out road onto IL 47.
	This alternative requires a tapered exit lane for southbound vehicles to access the I-88 EB entrance loop ramp. The taper begins on the bridge, and requires additional widening beyond the existing structure. To provide the required lane geometry and 10-ft multi-use path on both sides of the roadway, the existing structure will require an additional 3,218-SF of bridge surface area.
Reasons for Elimination	This alternative has the highest cost (\$21.7 Million).
	This alternative has the highest impacts to the existing IL 47 bridge over I-88 (3,218 square feet).
	This alternative has moderate impacts to right-of-way (2.9 acres).
	This alternative ties for the highest impacts to wetlands (<0.6 acres) and floodplains (0.1 acres) and has moderate impacts to farmland (3.3 acres).
	There is no operational need for a loop ramp in the northeast or southwest quadrants based on 2040 traffic data. Due to the increased cost, impacts to the bridge, and environmental impacts, it is eliminated.

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Alternative I-6: Partial Cloverleaf with Loop Ramp in Southwest Quadrant	
Description	The partial cloverleaf with loop ramp in the southwest quadrant interchange would include an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
	It also includes a loop ramp for southbound IL 47 traffic to enter I-88 eastbound.
	Finley Road would be a right-in/right-out road onto IL 47.
	The SW quadrant requires a tapered exit lane for southbound vehicles to access the I-88 EB entrance loop ramp. The taper begins on the bridge, and requires additional widening beyond the limits of the existing structure. To provide the required lane geometry and 10-ft multi-use path on both sides of the roadway, the existing structure will require an additional 2,608-SF of bridge surface area.
Reasons for Elimination	This alternative has the second highest cost (\$20.3 Million).
	This alternative has high impacts to the existing IL 47 bridge over I-88 (2,608 -SF).
	This alternative ties for the highest impacts to wetlands (<0.6 acres) and has moderate impacts to farmland (2.5 acres).
	There is no operational need for a loop ramp in the southwest quadrant based on 2040 traffic data. Due to the increased cost, impacts to the bridge, and environmental impacts, it is eliminated.

Alternative I-7: Partial Cloverleaf with Loop Ramp Terminating at Finley Road Intersection	
Description	The partial cloverleaf with loop ramp terminating at Finley Road intersection would include an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
	It modifies the I-88 east bound exit ramp to IL 47 into a loop ramp that terminates at an intersection with Finley Road.
	This alternative requires dual-left turn lanes for IL 47 traffic to access the I-88 entrance ramps at both ends of the bridge. The existing structure width of 91'-8" is insufficient and will need to be widened 7.75-ft on both sides in order to accommodate the proposed IL 47 lane geometry, as well as a 10-ft multi-use path on both sides. This results in an additional 2,608-SF of bridge surface area.
Reasons for Elimination	This alternative has the highest impacts to right-of-way, more than twice as much as the next closest alternative (7.5 acres).
	This alternative has a high cost (\$20.2 Million).
	This alternative has high impacts to the existing IL 47 bridge over I-88 (2,608 SF).
	This alternative has the highest impacts to WOUS (<1000 linear feet), forest (2.4 acres), and farmland (6.1 acres) and low impacts to wetlands (<0.1 acres).
	There is no operational need for a loop ramp in the southeast quadrant based on 2040 traffic data. Due to the increased right-of-way, cost, impacts to the bridge, and environmental impacts, it is eliminated.

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3.4.2.6 Interchange Alternatives to be Carried Forward

The interchange alternatives to carry forward were based on minimizing right-of-way, cost, bridge impacts, and environmental and socioeconomic impacts. The alternatives to carry forward were approved at the February 22, 2017 NEPA/404 Merger Meeting. A letter of concurrence from the USACE is provided in **Appendix A**.

No Build Alternative	
Description	The No-Build Alternative would maintain the existing facility without any improvements except for routine maintenance (i.e. shoulder resurfacing or pavement patching and resurfacing) and those projects currently planned and programmed.
	The No-Build Alternative would continue to operate as a partial interchange.
Comments	This alternative does not meet purpose and need as it does not improve system linkage by providing a full access interchange however; for comparison, it will be carried forward.

Alternative I-1: Conventional Diamond Interchange	
Description	The conventional diamond interchange would include an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
	Finley Road will be a right-in/right-out road onto IL 47.
	This alternative requires dual-left turn lanes for IL 47 traffic to access the I-88 entrance ramps at both ends of the bridge. The existing structure width of 91'-8" is insufficient and will need to be widened 7.9-ft on both sides in order to accommodate the proposed IL 47 lane geometry, as well as a 10-ft multi-use path on both sides. This results in an additional 2,622-SF of bridge surface area.
Comments	This alternative has low impacts to right-of-way (0.7 acres).
	This alternative has a low cost (\$16.2 Million).
	This alternative has high impacts to the existing IL 47 bridge over I-88 (2622 square feet).
	This alternative has no impacts to WOUS or floodplains and ties for the lowest impacts to wetlands (<0.1 acre) and has low impacts to forest (<0.1 acre) and farmland (0.9 acres).

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Alternative I-2: Conventional Diamond with Roundabouts	
Description	The conventional diamond with roundabouts interchange would include an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
	Roundabouts would be provided at both ramp terminals.
	Finley Road would be a right-in/right-out road onto IL 47.
	This alternative provides for a 95-ft wide roadway section for IL 47, which includes a 10-ft multi-use path on both sides. The existing structure width of 91'-8" is insufficient and will need to be widened 3.8-ft on both sides in order to accommodate the proposed IL 47 lane geometry, as well as a 10-ft multi-use path on both sides. This results in an additional 1,261-SF of bridge surface area.
Comments	This alternative has no impacts to right-of-way.
	This alternative has the second lowest cost (\$15.9 Million).
	This alternative has moderate impacts to the existing IL 47 bridge over I-88 (1261 square feet).
	This alternative has no impacts to floodplains and low impacts to WOUS (10 linear feet), forest (<0.1 acres), and farmland (<0.1 acres).

Alternative I-3: Diverging Diamond Interchange	
Description	The Diverging Diamond Interchange would include an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
	Opposing lanes of IL 47 crisscross at traffic signals on the north and south side of I-88.
	Finley Road would be a right-in/right-out road onto IL 47.
	This alternative provides for an 88-ft wide roadway section for IL 47, which includes a 10-ft multi-use path within the median. The existing structure width of 91'-8" is sufficient and will not require widening in order to accommodate the proposed IL 47 lane geometry.
Comments	This alternative has no impacts to right-of-way.
	This alternative has the lowest cost (\$15.8 Million).
	This alternative has the no impacts to the existing IL 47 bridge over I-88.
	This alternative has no impacts to WOUS, floodplains and farmland and ties for the lowest impacts to wetlands (<0.1 acre) and has low impacts to forest (<0.1 acre).

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Alternative I-4: Partial Cloverleaf with Loop Ramp in Northeast Quadrant	
Description	The partial cloverleaf with loop ramp in the northeast quadrant interchange would include an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47.
	It also includes a loop ramp for northbound IL 47 traffic to enter I-88 westbound.
	Finley Road would be a right-in/right-out road onto IL 47.
	The NE quadrant requires a tapered exit lane for northbound vehicles to access the I-88 WB entrance loop ramp. The taper begins on the bridge, and requires additional widening beyond the limits of the existing structure. To provide the required lane geometry and 10-ft multi-use path on both sides of the roadway, the existing structure will require an additional 2,606-SF of bridge surface area.
Comments	This alternative has a high cost (\$19.8 Million).
	This alternative has high impacts to the existing IL 47 bridge over I-88 (2,606 square feet).
	This alternative ties for the highest impacts to floodplains (0.1 acres).

The results of the preliminary screening process resulted in the no-build, and three build alternatives being carried forward for the IL 47 Mainline and four build alternatives carried forward for the IL 47/I-88 Interchange.

3.4.3 Detailed Screening Process

3.4.3.1 IL 47 Detailed Screening Process

The IL 47 Mainline Alternatives carried forward were further evaluated and refined based on stakeholder input, geometric studies, and design criteria. The detailed screening of IL 47 Mainline Alternatives consisted of geometric studies and rescreening the revised designs in order to update the environmental and socioeconomic impacts. See **Appendix B** for IL 47 Build Alternatives.

The IL 47 Mainline Alternatives were screened using the most up-to-date geometries. Median widths were revised to address IDOT standards and requirements. Below is a summary of the alternatives used during the detailed screening process:

- The No-Build maintains the existing alignment through the corridor. The current alignment has one through lane in each direction from Old Oaks Road to Finley Road, two lanes in each direction from Finley Road to Seavey Road and one lane in each direction from Seavey Road to Green Road. It does not meet the project P&N; however it is being carried forward for comparison purposes.
- The M-1A alternative is a 30 foot raised median on the existing alignment with two 12 foot lanes in each direction from Old Oaks Road to Green Road and 10-foot shoulders.

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- The M-1C alternative is a 30 foot raised median on the existing alignment; however, the median is reduced to a 14 foot raised median with 4 foot inside shoulders through the Hannaford Woods/Nickels Farm Forest Preserve. M-1C has two 12 foot lanes in each direction from Old Oaks Road to Green Road with 10 foot shoulders.
- The M-2C alternative is a 30 foot raised median on the existing alignment from Old Oaks Road to Thornapple Tree Road, then the alignment shifts to the east. The median is reduced to a 14 foot raised median with 4 foot inside shoulders through the Hannaford Woods/Nickels Farm Forest Preserve.

3.4.3.1.1 IL 47 Intersection Geometries

As stated in Section 3.4.2.3, the IL 47 build alternatives consist of two 12-foot through lanes in each direction with a 30 foot median. These alternatives are being considered a single Build Alternative for these studies due to their similar cross sections. Intersection geometries outside of the interchange area (study intersections are defined as the IL 47 intersections at Green Road, Scott Road, Merrill Road, and Old Oaks Road/College Drive) were studied in more detail for the Build Alternative. As part of this assessment, signal warrant analyses were conducted for all unsignalized study intersections under Year 2025 conditions (presumed to coincide with Opening Day plus five years) and Year 2040 conditions. This approach included the development of a straight-line growth rate for each turning movement (based on existing volumes compared to 2040 DHVs) and applying these rates to 12-hour count data collected in March 2015 in order to yield projected traffic volumes for the two design years being considered. The resulting 12-hour traffic projections were then used to perform signal warrant analyses in accordance with criteria in the *Manual on Uniform Traffic Control Devices (2009)* and IDOT standards for signalization on a SRA route. The results of signal warrant analyses revealed that none of the study intersections are expected to meet signal warrant criteria in Year 2025; as a result, no new traffic signals are expected to be installed for Opening Day of the improved IL 47 corridor. Under Year 2040 conditions, non-interchange area intersections that are expected to warrant the installation of a new traffic signal include IL 47/Scott Road and IL 47/Merrill Road. IL 47 at Green Road is assumed to operate under minor-leg stop control in Year 2040. Given that the IL 47/Old Oaks Road/College Drive intersection is currently signalized, no change in intersection control was contemplated at this location.

In order to develop recommended intersection geometry for the IL 47 corridor that lies outside of the interchange area, reference was made to BDE criteria and to the results of Year 2040 capacity analyses (prepared in both Synchro and HCS 2010 software). As a baseline, it was assumed that left-turn lanes would be provided on IL 47 at all study intersections due to the 30-foot median width proposed as a part of all three build alternatives. Similarly, it was assumed that dedicated right-turn lanes would be provided on IL 47 at all study intersections given the

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shoulder width proposed for this corridor. The resulting intersection geometrics for Year 2040 conditions are listed below:

- IL 47/Green Road:
 - North leg – Dedicated left-turn lane and two through lanes
 - South leg – Two through lanes and dedicated right-turn lane
 - East leg – Separate left- and right-turn lanes
- IL 47/Scott Road:
 - North leg – Two through lanes and a dedicated right-turn lane
 - South leg – Dedicated left-turn lane and two through lanes
 - West leg – Separate left- and right-turn lanes
- IL 47/Merrill Road:
 - North leg – Dedicated left-turn lane and two through lanes
 - South leg – Two through lanes and dedicated right-turn lane
 - East leg – Separate left- and right-turn lanes
- IL 47/Old Oaks Road/College Drive:
 - No change from existing geometry

Highway Capacity Software (HCS) 2010 directly applies the principles in the latest version of Highway Capacity Manual (HCM). Through the various HCS 2010 modules, traffic operation can be analyzed at intersections, on roadway segments, and for various aspects of a freeway system.

Synchro builds on the HCM methodologies by incorporating a proprietary algorithm for evaluating progression between coordinated traffic signals. This algorithm is often used to develop optimized signal timings as a part of intersection capacity analyses on a given roadway corridor.

3.4.3.1.1 IL 47 Resource Impacts

Resource impacts were calculated for the refined IL 47 Mainline Alternatives from Old Oaks Road to Green Road based on preliminary proposed right-of-way. The IL 47/I-88 alternatives overlap the IL 47 alternatives from 845 feet south of Finley Road to 828 feet north of Seavey Road. Where overlap occurs, interchange alternative impacts were assumed to be in addition to impacts already identified with IL 47 alternatives. Provided in **Table 3.5** are the results of the Detailed Screening Round.

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Table 3.5: IL 47 Impact Matrix (Detailed Screening Round)

	Residential Displacements	Right-of-Way Required (acres)	Estimated Cost in Millions (2016 Dollars)	Operational Review	INHS Wetlands (acres) ¹	Floodplains (acres) ²	Farmland (acres) ³	INHS WOUS (acres)	Forest Preserve – 4(f) (acres)
No-Build	0	0	0	Unacceptable	0	0	0	0	0
M-1A 30 Foot Median	6	11.4	\$16.7	Acceptable	1.6	3.5	4.4	0.7	0.9
M-1C Modified 30 Foot Median	6	10.9	\$16.7	Acceptable	1.4	3.0	4.4	0.6	0.6
M-2C Modified 30 Foot Median	0	12.0	\$18.5	Acceptable	1.3	3.0	6.2	0.6	0.6

Note: Impacts were calculated based on proposed right-of-way for each alternative.

1. Wetlands and WOUS were determined based on the INHS 2016 survey.
2. Floodplains were based on FEMA’s FIRM maps.
3. Farmland was based on current land use.

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3.4.3.2 IL 47/I-88 Interchange Detailed Screening Process

The IL 47/I-88 Interchange Alternatives carried forward were refined based on stakeholder input, geometric studies and engineering criteria. The revised alternatives were subjected to the detailed screening round that consisted of traffic and geometric studies and environmental/socioeconomic screening. See **Appendix C** for IL 47/I-88 Interchange Build Alternatives.

3.4.3.2.1 IL 47/I-88 Interchange Traffic and Geometric Studies

The existing IL 47/I-88 interchange consists of two lanes in each direction on IL 47 with an entrance ramp to westbound I-88 from IL 47 and an exit ramp from eastbound I-88 to IL 47. The partial interchange does not allow full access between IL 47 and I-88. The IL 47/I-88 interchange build alternatives all complete the interchange to allow full access between the two roadways. Each of these full access interchanges were evaluated based on ability to handle 2040 traffic projections. The results of this analysis and the potential consequences of each build alternative carried forward are described below:

Alternative I-1 Conventional Diamond

Based on a preliminary review, it is anticipated that adequate capacity could be provided for a conventional diamond interchange to accommodate 2040 DHVs. A consequence of the conventional diamond interchange is the back to back left turn lanes that would be necessary to access the on-ramps. There is a limited distance between these on-ramps within which the left turn lanes and taper lengths need to be placed, which would impose a constraint on the ability to increase capacity in the future. Based on a preliminary assessment of the capacity threshold of the conventional diamond interchange, it is estimated that it could accommodate 30% to 40% additional traffic beyond the 2040 DHVs estimated by IDOT.

Alternative I-2 Conventional Diamond with Roundabouts

Based on a preliminary review (including a roundabout analysis performed by IDOT), it is anticipated that adequate capacity could be provided for a conventional diamond with roundabouts to accommodate 2040 DHVs. It is worth noting that concerns exist about the ability to manage ramp queues under this configuration, particularly for the I-88 westbound exit ramp. In the event of excessive queues, roundabouts would not provide the option to flush traffic from the ramps (as could be done under signalized control) to prevent backups onto the I-88 Mainline. Additionally, concerns were raised regarding potential wrong way drivers on the ramps.

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Alternative I-3 Diverging Diamond

Based on a preliminary review, it is anticipated that adequate capacity could be provided for a diverging diamond interchange to accommodate 2040 DHVs. This design would be expected to include two travel lanes in each direction through the interchange area.

Since IL 47 is an SRA Route with a 55 mph speed limit, IDOT has requested that the crossover intersection angles for the diverging diamond interchange be 45 degrees. This is advisable based on IDOT's recent experience with other Diverging Diamond Interchange intersections. Additionally, the geometrics through the crossover intersections should assume a 45 mph design speed. These requirements lead to curve radii in excess of 1,000 feet, which will impact the existing bridge and would lead to the construction of a new bridge to accommodate one direction of travel. There will also be significant earthwork requirements and new alignment of the roadway.

Alternative I-4 Partial Cloverleaf- NE Quadrant

Based on a preliminary review, it is anticipated that adequate capacity could be provided for a partial cloverleaf with a loop ramp in the northeast quadrant to accommodate 2040 DHVs. This alternative attempts to remediate the drawbacks of the other three alternatives. The loop ramp in the northeast quadrant eliminates the concern of back to back left turn lanes. It would provide signalized interchanges to prevent backups onto I-88. It would also be able to utilize the existing bridge with minimal impacts.

Finley Road Access

The access at the Finley Road/IL 47 intersection will need to be evaluated for all interchanges under consideration. Since Finley Road will be within the Access Control limits of the interchange, access will need to be restricted. Access to Finley Rd. for the various interchange options is discussed below:

- Conventional Diamond: A raised median will be placed in IL 47 at Finley Road, thus restricting Finley Road access to a right-in/right-out at the intersection.
- Conventional Diamond with Roundabouts: A raised median will be placed in IL 47 at Finley Road, thus restricting Finley Road access to a right-in/right-out at the intersection.
- Diverging Diamond Interchange: The northbound and southbound directions of IL 47 will be significantly apart at the Finley Road intersection, thus restricting Finley Road access to a right-in/right-out at the intersection.
- Partial Cloverleaf with Loop Ramp: A three-quarter access may be permitted at the Finley Road intersection in this configuration. The movement not permitted would be a left turn from eastbound Finley Road to northbound IL 47.

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3.4.3.2.2 Alternative I-4 Partial Cloverleaf Capacity Analysis

In order to develop recommended geometrics for a partial cloverleaf interchange with a loop ramp in the northeast quadrant, capacity analyses were prepared for the IL 47/I-88 ramp intersections and for the adjacent IL 47 intersections at Seavey Road and at Finley Road. As a basis for this capacity assessment, signal warrant analyses were performed for each intersection that comprises the interchange area. It was assumed that the IL 47/Finley Intersection would be restricted to three-quarter access (left-in, right-in, and right-out movements only with the provision for southbound U-turns on IL 47 between Finley Road and Scott Road); this intersection was therefore not evaluated for signalization.

Using the same signal warrant methodology detailed in Section 3.4.3.2.1, it was determined that traffic signals will not be warranted at the two interchange ramps or at Seavey Road under Year 2025 conditions. By Year 2040, it is anticipated that signal warranting criteria will be met at all three of these intersections.

Recommended lane geometrics were then developed for the interchange area with reference to BDE criteria and to the results of Year 2040 capacity analyses (prepared in both Synchro and HCS 2010 software). As a baseline, it was assumed that left-turn lanes would be provided on IL 47 at all study intersections due to the 30-foot median width proposed as a part of all three build Alternatives carried forward to this point. Similarly, it was assumed that dedicated right-turn lanes would be provided on IL 47 at all study intersections given the shoulder width proposed for this corridor. The resulting intersection geometrics for Year 2040 conditions are listed below:

- IL 47/Seavey Road:
 - North leg – Dedicated left-turn lane, two through lanes, and an exclusive right-turn lane
 - South leg – Dedicated left-turn lane, two through lanes, and an exclusive right-turn lane
 - East leg – Dedicated left-turn lane and shared through/right-turn lane
 - West leg – Dedicated left-turn lane and shared through/right-turn lane
- IL 47/I-88 W ramps:
 - North leg – Two through lanes and a dedicated right-turn lane
 - South leg – Two through lanes and a dedicated right-turn lane
 - East leg – Dual left-turn lanes and a dedicated right-turn lane
- IL 47/I-88 E ramps:
 - North leg – Dedicated left-turn lane and two through lanes
 - South leg – Two through lanes and a dedicated right-turn lane
 - West leg – Dedicated left-turn lane and dual right-turn lanes

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These intersection geometrics were also analyzed for Year 2025 conditions in both Synchro and HCS 2010 software; this vetting assumed that any dual turn lanes recommended for 2040 conditions would be striped as a single lane in Year 2025.

3.4.3.2. Interchange Resource Impacts

As shown on the Environmental Inventory Map included in **Exhibit 9**, there are several environmental resource areas within the IL 47/ I-88 study area including the Hannaford Woods/ Nickels Farm Forest Preserve, Blackberry Creek and Seavey Run Road, wetlands, floodplains, and farmland. The majority of these environmentally sensitive areas are located south of the IL 47/I-88 Interchange. Environmental resources were evaluated for potential impacts from the alternatives to be carried forward based on preliminary proposed right-of-way and are shown in **Table 3.6**.

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Table 3.6: Interchange Impact Matrix (Detailed Screening Round)

	Right-of-Way Required (acres)	Estimated Cost in Millions (2016 Dollars)	Operational Review	Existing IL 47 over I-88 Bridge Widening (square feet) ¹	Wetlands (acres) ²	WOUS (acres)	Floodplains (acres) ³	Forest (acres)	Farmland (acres) ⁴
No-Build	0	0	Unacceptable	None	0	0	0	0	0
Alternative I-1: Conventional Diamond	0.7	\$15.6	Acceptable	1,311	<0.1	0	0	<0.1	0.9
Alternative I-2: Conventional Diamond w/ Roundabouts	0	\$15.4	Acceptable	631	0.5	0	0	<0.1	<0.1
Alternative I-3: Diverging Diamond	7.2	\$23.6	Acceptable	0*	0.9	<0.1	0	0.9	5.2
Alternative I-4: Partial Cloverleaf-NE Quadrant	0.7	\$19.8	Acceptable	0	<0.1	0	<0.1	0.1	0.7

Note: Impacts were calculated based on proposed right-of-way.

1. Additional square feet of bridge surface area required. See **Appendix D** for more details.
 2. Wetlands and WOUS were determined based on the INHS Wetland Survey conducted in 2016.
 3. Floodplains were based on FEMA’s FIRM maps.
 4. Farmland was based on current land use.
- * 14,640 square feet of new structure is required for the Diverging Diamond, but it does not impact the existing structure.

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3.4.4 Preferred Alternative

A Preferred Alternative was selected for both IL 47 Mainline and the IL 47/I-88 Interchange. The Preferred Alternative was based on operational reviews, capacity studies, environmental impacts, and project constraints. The Preferred Alternative was concurred upon by the resource and regulatory agencies at the June 19, 2017 NEPA/404 Merger Meeting. Meeting minutes reflecting concurrence are provided in **Appendix A**.

3.4.4.1 IL 47 Mainline Preferred Alternative

It is recommended that the Preferred Alternative for the IL 47 Mainline be Alternative M-2C; which consists of two 12-foot lanes in each direction, a 30-foot raised median through the majority of the corridor but reduced through the Hannaford Woods/ Nickels Farm Forest Preserve, and shifts the alignment to the east, north of Thornapple Tree Road. The Preferred Alternative is proposing a five-foot sidewalk on the west side of IL 47 and a 10-foot multi-use path on the east side.

All three IL 47 build alternatives provide adequate capacity for 2040 traffic volumes with the provision of two through lanes in each direction for the entirety of the study corridor. M-1A does not minimize impacts to the Hannaford Woods-Nickels Farm Forest Preserve and therefore impacts more forest, wetlands, and WOUS. M-1C and M-2C have minimized their footprints through the forest preserve and therefore have similar impacts in that area. The differences in M-1C and M-2C include the cost, residential impacts and agricultural land impacts. M-2C has an increase in cost and agricultural impacts due to the shift of the centerline to the east, but by doing so, has eliminated potential residential displacements. Considering the elimination of residential displacements M-2C is the recommended Preferred Alternative.

3.4.4.2 IL 47/I-88 Interchange Preferred Alternative

It is recommended that the Preferred Alternative for the IL 47/I-88 Interchange be Alternative I-4, the partial cloverleaf with loop ramp in northeast quadrant of the interchange. This alternative creates a full service interchange by adding an entrance ramp from IL 47 to I-88 eastbound and an exit ramp from westbound I-88 to IL 47. It also includes a loop ramp in the northeast quadrant for northbound IL 47 traffic to enter I-88 westbound. The loop ramp improves the operations of travelers utilizing the entrance ramps of the interchange.

The IL 47/I-88 Interchange build alternatives all provide adequate capacity for 2040 traffic volumes. Also, since the majority of the land is already either IDOT or Tollway right-of-way, the difference in environmental impacts is small. The concerns of the IL 47/I-88 Interchange are then based on cost, previous experience, and functionality. Specifically, the concerns include back to back left turn lanes, backups onto I-88 Mainline, and the existing IL 47 bridge over I-88, which had the superstructure fully reconstructed in 2007.

The I-1 Conventional Diamond Interchange was eliminated due to back to back left turn lanes needed to access the on-ramps. There is a limited distance between these on-ramps within which the left turn lanes and taper lengths need to be placed, and this configuration constrains

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the ability to provide increased capacity in the future. The addition of a loop ramp in the I-4 alternative eliminates the concern of back to back left turn lanes and provides greater flexibility to accommodate future increases in demand.

The I-2 Conventional Diamond Interchange with Roundabouts was eliminated due to its inability to manage ramp queues, particularly for the I-88 west bound exit ramp. In the event of excessive queues, roundabouts would not provide the option to flush traffic from the ramps (as could be done under signalized control) in order to prevent backups onto the I-88 Mainline. The I-4 Alternative would provide signalized interchanges which would eliminate the concern of backups to I-88 Mainline. The I-2 Alternative would also require separate bypass lanes for all right-turn movements onto and off of the I-88 ramps for movement to operate at LOS B or better; however without bypass lanes, movements would operate at a LOS C or better and there would not be much excess capacity to accommodate future traffic growth at the interchange.

The I-3 Diverging Diamond Interchange has crossover angles of 45 degrees and a curve radius in excess of 1,000 feet. This will lead to the construction of a new bridge to accommodate one direction of travel. Due to the construction cost, new right-of-way, and additional environmental impacts, this alternative was eliminated. Therefore the I-4: Partial Cloverleaf with Loop Ramp in Northeast Quadrant of the interchange is the preferred alternative.

3.4.4.3 Preferred Alternative Impact Analysis

After selecting the Preferred Alternative and all other alternatives were eliminated, the Project Study Group began their detailed analysis of the Preferred Alternative. **Table 3.7** shows updated impacts as a result of Project development and refined geometric studies as well as the refinement of critical cross sections. These impacts are further discussed in Section 4.

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Table 3.7: Preferred Alternative Impact Matrix

	Residential Displacements	Right of Way Required (acres)	Estimated Cost in Millions (2016 Dollars)	Operational Review	Existing IL 47 over I-88 Bridge Widening(square feet) ¹	Wetlands (acres) ²	Floodplains (acres) ³	Farmland (acres) ⁴	Waters of the U.S. (acres) ²	Forest Preserve – 4(f) (acres)
M-2C Modified 30 Foot Median	0	15.2	\$18.5	Acceptable	N/A	1.7	4.7	5.4	0.7	1.5
I-4: Partial Cloverleaf-NE Quadrant	0	0.9	\$19.8	Acceptable	0	<0.1	<0.1	0.7	0.1	0
TOTAL	0	16.1	\$38.3	Acceptable	0	1.7	4.7	6.1	0.8	1.5

1. Additional square feet of bridge surface area required. See **Appendix D** for more details.
2. Wetlands and Waters of the U.S. were determined based on the INHS 2016 survey.
3. Floodplains were based on Federal Emergency Management Agency’s Flood Insurance Rate Maps (FIRM)
4. Farmland was based on current land use.

4. Environmental Resources, Impacts, and Mitigation

The project study area was inventoried for environmental resources. The environmental inventory map **Exhibit 9** identifies all sensitive cultural, natural, physical, and socioeconomic resources in the project study area. Resources potentially impacted by proposed action or that require discussion pursuant to applicable laws and regulations are addressed in this Section.

Impacts reported in Section 4 reflect the combined impacts the IL 47 Mainline improvements and the IL 47/I-88 Interchange improvements. It is possible that these two will be separated for design and construction with the Illinois Tollway leading the IL 47/I-88 Interchange and IDOT leading the IL 47 Mainline. Impacts were calculated based on proposed right of way limits for all resources except wetlands. Wetlands were calculated based on construction limits.

4.1 Social/Economic

The project study area is located in Kane County, IL in both the Village of Elburn and the Village of Sugar Grove. The project study area is zoned for estate districts, annexation agreement territories, open space, and single family residential (**Exhibit 2**). The Future Land Use Plan (**Exhibit 3**) for Sugar Grove has the area zoned as estate residential, single family residential, corridor commercial, business park, and open space.

The project study limits are along IL 47 with a southern terminus at Old Oaks Road/College Drive and a northern terminus at Green Road. The study limits also extend a half mile to the east and west of the interchange along I-88. See **Exhibit 1** for the Project Location Map.

4.1.1 Community Characteristics and Cohesion

Data included and referenced in this Section comes from:

- U.S. Bureau of the Census, 2000 Decennial Census
- U.S. Bureau of the Census, 2010 Decennial Census

Analysis of the data revealed that the project study area consists primarily a homogeneous population comprised of middle aged, middle class, white families living in their own single family home.

4.1.1.1 Population

According to the U.S. Census, the population of the State of Illinois was 12,830,632 in 2010. This represents a 3.3% increase from the State of Illinois' 2000 population of 12,419,293 (See **Table 4.1**). This is a much lower rate of growth than Kane County, which increased 27.5%. During the 2000 to 2010 time frame, the Villages of Sugar Grove and Elburn experienced a rate of growth of 130.2% and 103.3%, respectively.

Chapter 4 Environmental Resources, Impacts, and Mitigation

Table 4.1 2000-2010 Population Change

Location	2000	2010	Change	
			Number	%
State of Illinois	12,419,293	12,830,632	411,339	3.3
Kane County	404,119	515,269	111,150	27.5
Village of Sugar Grove	3,909	8,997	5,088	130.2
Village of Elburn	2,756	5,602	2,846	103.3

4.1.1.2 Age

Comparing the State of Illinois, Kane County, and the Villages of Sugar Grove and Elburn, the populations are similar median ages. In 2010, the median age for the State of Illinois was 36.6, Kane County was 34.5, Village of Sugar Grove was 37.2, and the Village of Elburn was 35.1 years of age (See **Table 4.2**).

Table 4.2 2010 Age Distribution

Age Group	State of Illinois	Kane County	Village of Sugar Grove	Village of Elburn
Under 10	13%	16%	16%	19%
10 to 19	14%	15%	15%	15%
20 to 64	60%	59%	61%	58%
65 Years and Older	13%	10%	8%	8%
Total	100%	100%	100%	100%
Median Age	36.6	34.5	37.2	35.1

4.1.1.3 Home Ownership and Occupancy

Within the State of Illinois 67.5% of housing units were owner occupied in 2010. This compares to 76.6% of housing units being owner occupied in Kane County, 90.6% in the Village of Sugar Grove, and 84.6% in the Village of Elburn (see **Table 4.3**). Within the county and villages of the project, the rates of home ownership are higher than the State of Illinois.

Table 4.3 2010 Home Ownership and Occupancy

Characteristic	State of Illinois	Kane County	Village of Sugar Grove	Village of Elburn
Total Population	12,830,632	515,269	8,997	5,602
Total Households (Occupied HU)	4,836,972	170,479	3,095	1,892
Owner Occupied Housing Units	3,262,639	130,570	2,804	1,601
% Owner Occupied	67.5	76.6	90.6	84.6

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4.1.1.4 Income and Poverty

A review of the median household incomes showed that Kane County, Village of Sugar Grove and the Village of Elburn had higher median incomes than the State of Illinois (See **Table 4.4**). A review of the poverty levels show that the county and two villages also have a lower poverty level than the State of Illinois.

Table 4.4 2010 Income and Poverty

Characteristic	State of Illinois	Kane County	Village of Sugar Grove	Village of Elburn
Median Household Income	\$56,797	\$69,530	\$103,194	\$81,667
Poverty Status-% of people below poverty level	14.1	11.1	1.0	6.1

4.1.1.5 Race and Ethnicity

A review of the racial composition of the State of Illinois, Kane County, the Village of Sugar Grove, and the Village of Elburn can be seen in **Table 4.5**. The review indicates that while Kane County was similar in racial composition to the State of Illinois with 71.5% and 74.6% white respectively, The Villages of Sugar Grove and Elburn were higher with 93.2% and 93.1% white respectively.

Table 4.5 2010 Racial Composition

Characteristic	State of Illinois		Kane County		Village of Sugar Grove		Village of Elburn	
	Number	%	Number	%	Number	%	Number	%
White	9,177,877	71.5	384,548	74.6	8,387	93.2	5216	93.1
Black or African American	1,866,414	14.5	29,422	5.7	143	1.6	30	0.5
American Indian and Alaska Native	43,963	0.3	2,887	0.6	16	0.2	12	0.2
Asian	586,934	4.6	17,895	3.5	155	1.7	176	3.1
Native Hawaiian or Other Pacific Islander	4,050	0	193	0	0	0	0	0
Some Other Race	861,412	6.7	66,818	13	160	1.8	101	1.8
Two or More Races	289,982	2.3	13,506	2.6	136	1.5	67	1.2

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4.1.1.6 Community Cohesion

The proposed project is located in the Village of Sugar Grove and the Village of Elburn along IL 47 in Kane County, Illinois. These two villages have similar characteristics in their racial composition, age distribution, and economic conditions. The proposed project would increase IL 47 from two-lanes to four-lanes of traffic and it would improve the interchange at IL 47 and I-88 to allow traffic to enter and exit I-88 from both east bound and west bound lanes. This project is not anticipated to divide or cause isolation to any of the project study areas or communities or neighborhoods.

These improvements provide a positive effect on the community cohesion for both Villages by providing a Preferred Alternative that:

- Improves system linkage.
- Accommodates land use and economic development.

4.1.2 Title VI and Environmental Justice

The results of the demographic characteristics discussed in Section 4.1.1 above indicate that the Villages of Sugar Grove and Elburn do not have any significant minority groups. The communities have mostly white populations above the poverty level.

4.1.2.1 Title VI

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

4.1.2.2 Environmental Justice

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

The Department of Transportation (the Department or DOT) issued an update to Departmental Order 5610.2(a) (Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) (originally published April 15, 1997) on May 2, 2012. The Order updates and clarifies environmental justice procedures for the Department in response to the Memorandum of Understanding on Environmental Justice signed by heads of Federal agencies on August 4, 2011, DOT's revised environmental justice strategy issued on March 2, 2012, and

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EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, dated February 11, 1994.

The No-Build Alternative would not have disproportionate adverse impacts on minority or low impact populations.

The Preferred Alternative would not result in property acquisitions or relocations from minority or low-income residents or populations in the project study area nor result in disproportionately adverse impacts to minority or low-income residents or populations.

4.1.3 Public Facilities and Services

All public lands, institutions, schools, libraries, places of worship, and emergency community services located within the project study area have been identified.

4.1.3.1 Public Facilities

Public facilities located within a half mile of the project study area were identified. There are two public facilities located within a half mile of the project study area. Waubensee Community College a two-year public institution of higher learning. The district encompasses nearly 600 square miles and has an assessed valuation of approximately \$8.4 billion. The college is located at the southern termini of the project study area. During construction, access to the college will need to be maintained at all times.

Kaneland Harter Middle School teaches 6th, 7th, and 8th grade students in District #302. The district encompasses 140 square miles in southwestern Kane County and is at the western edge of the Fox River Valley. Within its boundaries are all or parts of the incorporated Villages of Aurora, Cortland, Elburn, Kaneville, Maple Park, Montgomery, North Aurora, Sugar Grove and Virgil. It is located half a mile southwest of the southern termini on Esker Drive. No impacts are anticipated for Kaneland Harter Middle School.

4.1.3.2 Emergency Services

Identification of emergency services, such as police, fire, and hospitals, was made for facilities within one mile of the project study area. There are no emergency service facilities along IL 47.

4.1.3.3 Transit Facilities

There are no transit facilities or services along IL 47.

4.1.4 Changes in Travel Pattern and Access

The Preferred Alternative will increase IL 47 from two-lanes to four-lanes. This should improve traffic congestion along the route once the project is complete. The updated interchange between IL 47/I-88 will provide improved access both entering and exiting I-88. The improved access on I-88 may increase traffic to the area.

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Access to IL 47 will be limited to right-in/right-out at the north and south entrances to Thornapple Tree Road. Additionally, a three-quarter (right-in/right-out/left-in) access will be provided to IL 47 at Finley Road. The eastbound to northbound (left out) movement at Finley Road will be prohibited. All other side roads within the project limits will maintain full access.

Three-Quarter Access

A three-quarters access allows three of the four standard turning movements to/from a minor approach to take place. In most cases, this limited access configuration allows right turns onto and off of the minor street (referred to as “right-in/right-out”) and left turns onto the minor street (“left in”). Left turns off of the minor street (the “left out” movement) are typically restricted in a three-quarters access configuration with the use of a barrier median.

4.1.5 Relocations (Business and Residential)

Construction of the Preferred Alternative will not require relocations of residences or businesses. Easements and partial right-of-way takes will be required from parcels along the corridor, but full parcel takes will not be required. This action is being done in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act, and the IDOT Land Acquisition Procedure Manual.

4.1.6 Economic Impacts

No businesses will be relocated. Impacts to businesses as it relates to sales tax revenue, access changes, or parking are not expected as a result of the project. The Preferred Alternative was designed to facilitate economic development; therefore it is anticipated that economic growth and an increase in tax revenue will be expected. The improved I-88 access and the proposed Future Land Use of the Village of Sugar Grove should bring in commercial and business opportunities to the area.

4.1.7 Land Use

The Land Use Plans for the project study area will be improved by the proposed transportation project. The Future Land Use Maps for the Villages of Sugar Grove (see **Exhibit 3**) indicate creating business districts and commercial corridors around the IL 47 and I-88 Interchange. The Preferred Alternative will improve access to this area and improve the ability of these land use plans. The current land use in the area is residential, agriculture, and open land.

There will be approximately 16.1 acres of new right of way required to facilitate four lanes of traffic and a centerline shift to the east.

4.1.9 Growth and Economic Development

The adjacent land uses within the project study area are mostly undeveloped open spaces and residential subdivisions. Growth is expected as a result of the project and is consistent with the land use plans of the Villages within the project limits. The Preferred Alternative will enhance the

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area's and region's economic stability by providing improved access and mobility, improved access and connections, and improved roadway facilities.

4.1.10 Pedestrian and Bicycle Facilities

There are existing bicycle and pedestrian paths both south and north of the project study limits. Near the south end of the project study area, the Virgil Gilman Trail in Kane County extends to the east side of Waubensee Community College. North of the project limit at Green Road, the Anderson Road Trail exists at the south side of the Village of Elburn. No other significant paths are in the immediate vicinity of the interchange.

The Preferred Alternative is proposing a five-foot sidewalk on the west side of IL 47 and a 10-foot multi-use path on the east side. The accommodations along the IL 47 corridor are consistent with the planning improvements identified in the 2015 Kane/Kendall County Bicycle Planning Map (see **Exhibit 4**). The plan identifies a future extension of the Virgil Gilman Trail, at the western terminus on the Waubensee Community College campus. This trail extension would be connected from the north by a multi-use path along IL 47.

4.2 Agricultural

4.2.1 Farmland and Soils Identification

4.2.1.1 Existing Farmland

The Preferred Alternative would convert 11.0 acres of land identified by CMAP as land use: agricultural. Of this, only 6.1 acres is actively being farmed.

Coordination with the Illinois Department of Agriculture (IDOA) was initiated on November 1, 2017 utilizing a Farmland Conversion Impact Rating (Form AD-1006) (see **Appendix E**).

4.2.1.2 Soils

Soils in the project study area consist primarily of loams, silt loams, and silty clay loams. A loam soil is one that is composed of sand, silt, and clay in relatively even amounts. Loam soils are the most desirable for growing crops because they retain nutrients and water, while still allowing for drainage. This soil type is often associated with prime farmland. Loam soils have engineering properties that make them suitable for road construction and no special design measures would be needed for construction in areas containing these soils.

4.2.1.3 Farm Operations

The proposed improvements would not directly affect farm operations. No parcels would be severed and there are no locations where access to agricultural fields would be impeded. The majority of the 11.0 acres of agricultural land needed for this transportation project is zoned as

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a corporate campus and commercial use; therefore, farming operations are not anticipated in the future for this farmland.

Construction may temporarily cause adverse travel conditions during spring planting and fall harvesting.

4.2.1.4 Prime Farmland

The Natural Resources Conservation Service (NRCS) National Soil Survey Handbook Section 622.04 defines prime farmland as “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses.”

Prime farmland is recognized by the United States Department of Agriculture (USDA) under the Farmland Protection Act. Land does not have to be under agricultural production to be considered prime farmland, but land that is urbanized or developed is not considered prime farmland. Of the 11.0 acres of agricultural land located within the project study area, the NRCS determined that 7.7 acres are prime or unique farmland and 2.0 acres are farmland of statewide importance.

4.2.1.5 Centennial Farms

A Centennial Farm is one that has been owned by the same family for at least 100 years. The family must be in the direct line of descent, such as a child or a grandchild, or of collateral descendent, but is otherwise closely related, such as a brother, sister, uncle, aunt, or cousin. Per the U.S. Consolidated Farmed Service Agency, there are two Centennial Farms in the Blackberry Township and three Centennial Farms in the Sugar Grove Township. Based on coordination with the IDOA, there are no registered Centennial Farms located within the project limits.

4.2.2 Erodible Soils

Information on the soil types present in the project study area was evaluated based on classifications of soils with regards to the slopes identified in the Web Soil Survey (WSS). Highly erodible soils are those soils found in areas with slopes between than 4% and 12%. Extremely erodible soils are those found in areas with slopes greater than 12%. Based on soil classifications provided by the WSS, it was determined that there are 50.7 acres of highly erodible soils and 8.1 acres of extremely erodible soils within the project study area.

During construction, a Storm Water Pollution Prevention Plan (SWPPP) will be developed that will identify best management practices (BMPs) for erosion and sediment control to be used throughout construction. The SWPPP will be developed using guidance from IDOT’s BDE Manual and Section 280 of IDOT’s *Standard Specification for Road and Bridge Construction* (2016).

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The choice of BMPs for use in areas with highly erodible and extremely erodible soils will be developed during the Phase II design and may include erosion control blankets, more robust sediment control fencing, earlier vegetative seeding.

4.3 Cultural

Cultural coordination was initiated through the submittal of an ESR. The State Historic Preservation Officer (SHPO) concurred on November 02, 2016 with IDOT's determination of "no historic properties affected" (**Appendix F**). This completes coordination under Section 106 of the National Historic Preservation Act of 1966.

State Historic Preservation Officer (SHPO) play a critical role carrying out many responsibilities in historic preservation. The SHPO surveys, evaluates and nominates significant historic buildings, sites, structures, districts and objects to the National Register of Historic Places.

4.3.1 Archaeological Sites

The Archaeological Phase I Survey completed by the Illinois State Archaeological Survey, two archaeological sites were documented (11K965 and 11K1404). These sites lack the integrity and information potential to warrant National Register consideration or preservation in place.

Per SHPO concurrence dated November 02, 2016, no archaeological sites subject to protection under Section 106 of the National Historic Preservation Act of 1966 will be affected by the proposed improvements.

4.3.2 Historic Bridges

No bridges eligible for listing on the National Register are present in the project study area. Per SHPO concurrences dated November 02, 2016, no historic bridges subject to protection under Section 106 of the National Historic Preservation Act of 1966 will be affected by the proposed improvements.

4.3.3 Historic Districts and Buildings

Per the older structures photographic log provided with the ESR submitted on April 24, 2015, several structures older than 50 years are present in the project study area. IDOT BDE determined that none of the structures are eligible for listing on the National Register.

Per SHPO concurrences dated November 02, 2016, no sites subject to protection under Section 106 of the National Historic Preservation Act of 1966 would be affected by the proposed improvements.

4.3.4 Unanticipated Discovery during Construction

If any unanticipated discoveries of historic properties, sites, artifacts, or objects occur during the implementation of any project, IDOT will coordinate with FHWA to comply with 36 CFR 800.13

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and the Illinois *Human Skeletal Remains Protection Act* [20 Illinois Compiled Statutes (ILCS)] 3440), as appropriate. This will involve stopping work in the immediate area, and informing the SHPO and County Coroner of the unanticipated discoveries or effects within two business days. IDOT will coordinate with Illinois State Archaeological Survey to ensure that any necessary archaeological investigations are conducted according to the provisions of the Illinois *Human Skeletal Remains Protection Act*.

If any unanticipated effects on historic properties are found to be occurring during the implementation of any project, IDOT will coordinate with FHWA to comply with 36 CFR 800.13 and inform the SHPO immediately.

4.4 Air Quality

A summary of microscale analysis, air quality conformity, mobile source air toxics (MSATs), and construction related particulate matter for the project is below.

4.4.1 Microscale Analysis

In accordance with the IDOT/Illinois Environmental Protection Agency (IEPA) “Agreement on Microscale Air Quality Assessments for IDOT Sponsored Transportation Projects,” this project is exempt from a project-level carbon monoxide air quality analysis because the highest design-year approach volume is less than 5,000 vehicles per hour (vph) or 62,500 ADT.

4.4.2 Conformity Statement

The National Ambient Air Quality Standards (NAAQS), established by the U.S. Environmental Protection Agency (USEPA), set maximum allowable concentration limits for six criteria air pollutants. Areas in which air pollution levels persistently exceed the NAAQS may be designated as “nonattainment.” States where a nonattainment area is located must develop and implement a State Implementation Plan (SIP) containing policies and regulations that will bring about attainment of the NAAQS. Areas that had been designated as nonattainment, but that have attained the NAAQS for the criteria pollutant(s) associated with the nonattainment designation, will be designated as maintenance areas

All areas of Illinois currently are in attainment of the standards for four of the six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.

For the eight-hour ozone and PM2.5 standards, Cook, DuPage, Kane, Lake, McHenry, and Will Counties, as well as Aux Sable and Goose Lake Townships in Grundy County and Oswego Township in Kendall County, have been designated as nonattainment areas. Jersey, Madison, Monroe, and St. Clair Counties in the St. Louis area also have been designated as moderate nonattainment areas for the eight-hour ozone standard. In addition, Madison, Monroe, St Clair, and Baldwin Township in Randolph County are nonattainment for PM2.5.

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The Lake Calumet area and Lyons Township in Cook County have been designated as a maintenance area for the particulate matter (PM10) standard. In addition, Oglesby and several adjacent townships in LaSalle County and Granite City Township and Nameoki Township in Madison County have been designated as maintenance areas for the PM10 standard. All other areas of Illinois currently are in attainment for the ozone and PM10 standards.

This project is included in the FY 2014-2019 Transportation Improvement Program (TIP) endorsed by the Metropolitan Planning Organization Policy Committee of the CMAP for the region in which the project is located. Projects in the TIP are considered to be consistent with the 2040 regional transportation plan endorsed by CMAP. The project is within the fiscally constrained portion of the plan.

On October 9, 2014, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) determined that the 2040 regional transportation plan conforms with the SIP and the transportation-related requirements of the 1990 Clean Air Act Amendments. On October 9, 2014, the FHWA and the FTA determined that the TIP also conforms with the SIP and the Clean Air Act Amendments. These findings were in accordance with Determining Conformity of Federal Actions to State or Federal Implementation Plans 40 CFR Part 93.

The project's design concept and scope are consistent with the project information used for the TIP conformity analysis. Therefore, this project conforms to the existing State Implementation Plan and the transportation-related requirements of the 1990 Clean Air Act Amendments.

The TIP number for this project is 09-14-0010. Phase II and Phase III funding is identified in the TIP.

4.4.3 Mobile Source Air Toxics (MSAT)

On October 18, 2016, the US Department of Transportation and FHWA issued an updated interim guidance on when and how to analyze Mobile Source Air Toxics (MSAT) in the NEPA process for highway project. See "Updated Interim Guidance Update on Mobile Source on Air Toxic Analysis in NEPA Documents" for additional guidance.

The Clean Air Act identified 188 air toxics, also known as hazardous air pollutants. USEPA has assessed this expansive list of toxics and identified a group of 93 compounds emitted from mobile sources, listed in the USEPA Integrated Risk Information System (IRIS). USEPA also identified a subset of this list of 93 that are considered the seven priority MSATs. These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considered these to be the priority MSATs, USEPA stresses that the list is subject to change and may be revised in future rules.

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FHWA developed a tiered approach for analyzing MSATs in NEPA documents, depending on the specific project circumstances. FHWA has identified three levels of analysis:

- no analysis for projects with No Potential for Meaningful MSAT Effects,
- qualitative analysis for projects with Low Potential for MSAT Effects, or
- quantitative analysis to differentiate alternatives for projects with Higher Potential MSAT Effects.

FHWA's interim guidance provides examples of "Projects with Low Potential for MSAT Effects." The types of projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. The Preferred Alternative for the IL 47 at I-88 project was categorized as a project with "Low Potential for MSAT Effects," because the project serves to improve operations of a highway without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. The design year traffic is also projected to be less than 140,000 to 150,000 Average Annual Daily Traffic (AADT).

For the Preferred Alternative in this EA, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables (e.g., fleet mix) are the same for each alternative. The VMT estimated for the Preferred Alternative is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT

Air Quality: Air Quality is protected by the Clean Air Act (CAA) and air quality standards called the National Ambient Air Quality Standards (NAAQS), established by the USEPA. Predicted air quality resulting from a roadway project is compared to the NAAQS established by the USEPA for carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM2.5 and PM10), and sulfur dioxide. These standards are set at levels designed to protect public health. If any of the standards are not met, the area is called "non-attainment" and air quality is required to be improved.

emissions for the Preferred Alternative, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to USEPA's MOVES 2014 model, emissions of all of the priority MSAT decrease as speed increases.

Because the estimated VMT under the Preferred Alternative is slightly higher No Build Alternative, varying by less than nine percent, it is expected there would be no appreciable difference in overall MSAT emissions. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by more than 90 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected

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reductions is so great, even after accounting for VMT growth, that MSAT emissions in the project study area are likely to be lower in the future in nearly all cases.

The additional travel lanes procured as part of the Preferred Alternative will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under the Preferred Alternative there may be localized areas where ambient concentrations of MSAT could be higher than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the roadway sections that would be widened closer to existing neighborhoods along IL 47 under the Preferred Alternative. However, the magnitude and the duration of these potential increases compared to the No Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts.

In summary, where a highway is widened, the localized level of MSAT emissions for the Preferred Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion, which are associated with lower MSAT emissions. Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

4.4.4 Construction Related Particulate Matter

Demolition and construction activities can result in short-term increases in fugitive dust and equipment-related particulate emissions in and around the project study area. (Equipment-related particulate emissions are usually insignificant when equipment is well maintained). The potential air quality impacts will be short-term, occurring only while demolition and construction work is in progress and local conditions are appropriate.

The potential for fugitive dust emissions typically is associated with building demolition, ground clearing, site preparation, grading, stockpiling of materials, on-site movement of equipment, and transportation of materials. The potential is greatest during dry periods, periods of intense construction activity, and during high wind conditions.

The Department's Standard Specifications for Road and Bridge Construction include provisions and requirements on dust control. Under these provisions, dust and airborne dirt generated by construction activities will be controlled through dust control procedures or a specific dust control plan, when warranted. The contractor and the Department will meet to review the nature and extent of dust-generating activities and will cooperatively develop specific types of control techniques appropriate to the specific situation. Techniques that may warrant consideration include measures such as minimizing track-out of soil onto nearby publicly-traveled roads, reducing speed on unpaved roads, covering haul vehicles, and applying chemical dust

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suppressants or water to exposed surfaces, particularly those on which construction vehicles travel.

4.5 Noise

Noise is composed of different frequencies, each of which is perceived differently by the human ear. Human hearing is not sensitive to low and very high frequencies. To compensate for low and very high frequencies, insensitivity, and to render noise levels readings more meaningful, an “A-weighting” scale is used to approximate the response of the human ear. The A-weighted decibel (dB(A)) unit measures perceptible sound energy, factors out the fringe frequencies, and is the typical unit of measure for environmental noise.

The IL-47 at I-88 project is classified by 23 CFR 772 as a Type I Project, and therefore traffic noise from the proposed action must be studied. Type I projects are proposed Federal or Federally-Aided projects that entail the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through traffic lanes.

Because the intensity of noise fluctuates with time, the equivalent noise level (L_{eq}) is used. L_{eq} is defined as the steady-state, A-weighted sound level which, in a stated period of time, contains the same acoustic energy as the time-varying sound level during the same period. $L_{eq}(h)$ is the hourly value of L_{eq} . Changes in decibels are measured on a logarithmic scale. A 3 dB(A) increase in noise is barely perceptible, while an increase in 10 dB(A) is perceived as twice as loud.

The Noise Assessment for this project was conducted in accordance with 23 CFR 772, FHWA “Procedures for Abatement of Highway Traffic Noise and Construction Noise” and the IDOT Highway Traffic Noise Assessment Manual 2017 Edition. The FHWA Traffic Noise Model (TNM) 2.5 was used to assess the existing noise levels and to predict the noise levels for the 2015 Existing, 2040 No-Build and 2040 Preferred Alternative conditions. The following summarizes the Traffic Noise Analysis that was completed for this project.

4.5.1 Noise Abatement Criteria

The FHWA established Noise Abatement Criteria (NAC) to determine where noise abatement should be evaluated (**Table 4.7**). The FHWA defines seven (7) noise activity categories based on land use and existing sound levels. Each land use has its own NAC, except Activity Categories F and G. If the project would result in traffic noise levels that approach, meet or exceed the NAC or if the project would result in substantial increases, a traffic noise impact is identified at that location and abatement measures must be evaluated.

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Table 4.7: FHWA Noise Abatement Criteria (NAC) Hourly “A-Weighted” Sound Level; Decibels (dB(A))

Activity Category	Leq _(h)	Description of Activity
A	57 dBA (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of these qualities is essential if the area is to continue to serve its intended purpose.
B ⁽¹⁾	67 dBA (Exterior)	Residential.
C ⁽¹⁾	67 dBA (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 dBA (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E ⁽¹⁾	72 dBA (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	-	Undeveloped lands that are not permitted.

(1) Includes undeveloped lands permitted for this activity category

Source: FHWA, 23 CFR, Part 772 [2]

The FHWA regulations allow State Highway Authorities to define what noise level constitutes an approach to the NAC. IDOT defines “approach” as 1 dB(A) less than the NAC. States are also allowed to define what constitutes substantial increase in noise. The IDOT defines noise impacts as follows:

- Design-year traffic noise levels that approach, meet or exceed the NAC, with approach defined as 66 dB(A) for the residential property and 71 dB(A) for the commercial property.
- Design-year traffic noise levels that are 15 dB(A) or more over the existing noise level.

4.5.1.1 Methodology

Existing noise levels along the IL-47 at I-88 Project were determined through TNM 2.5 modeling analysis for the areas near the existing roadway, using 2015 traffic data and existing roadway design information. For the Design Year 2040 noise analysis, No-Build and Build Scenario noise levels were predicted at nearby receptors representing the eight Common Noise Environments (CNEs) identified in the project study area.

CNE: A CNE is a group of receptors in the same Activity Category that are exposed to similar noise sources and levels, traffic volumes, traffic mix, traffic speed, and topographic features.

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4.5.1.2 Existing Noise Levels

The existing noise levels for each CNE ranged from 60 dB(A) to 70 dB(A) and were compared to the NAC. There are three (3) CNEs representing 74 noise sensitive receptors that are currently experiencing noise levels that approach, meet or exceed the NAC. Existing noise levels are shown in **Table 4.8**.

Table 4.8: IL-47 at I-88 Noise Impact Summary with 2015 & 2040 DHV

Receptor /Common Noise Environment ID & Land Use		Activity Category	Number of Receptors Represented	2015 Existing		2040 No Build Alternative	2040 Preferred Alternative		
				Dist. To Nearest Edge of Pavement (ft)	Existing Noise Level (dBA)	Noise Level (dBA)	Dist. To Selected Alternative (ft)	Noise Level (dBA)	Noise Impact
Res 1/ CNE 1	SFR	B	4	140	60	62	148	65	No
Res 2/ CNE 2	SFR	B	36	45	70	72	55	72	Yes
Res 3/ CNE 3	SFR	B	12	74	68	70	74	72	Yes
Res 4/ CNE 4	SFR	B	3	85	50	59	85	58	No
Res 5/ CNE 5	SFR	B	26	56	69	72	56	71	Yes
Res 6/ CNE 6	SFR	B	2	170	60	63	118	66	Yes
Res 7/ CNE 7	SFR	B	6	217	59	62	161	63	No
Res 8/ CNE 8	SFR	B	8	122	62	66	122	67	Yes

SFR = Single-Family Residential

NOTE: Traffic noise impacts shown in bold font

NOTE: Data estimated from aerial photography

4.5.1.3 Design Year Noise Levels

The 2040 Preferred Alternative noise levels for each CNE ranged from 58 dB(A) to 72 dB(A) and were compared to the NAC. There are five (5) CNEs, representing 84 noise sensitive receptors, that are predicted to experience noise levels that approach, meet or exceed the NAC in the 2040 Preferred Alternative. These five (5) CNEs were determined to have traffic noise impacts from

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the proposed action. The Preferred Alternative results also indicate no substantial increases in noise (15 dBA or greater) over the existing noise levels will occur. Preferred Alternative 2040 noise levels are shown in **Table 4.8**.

4.5.2 Evaluation of Abatement Measures

The proposed project would result in noise impacts at five (5) CNEs. The noise abatement measures considered at these sites include traffic management measures, alteration of horizontal and vertical alignments, construction of noise barriers, and the acquisition of undeveloped land for buffer zones.

The implementation of traffic management measures for the purpose of noise abatement is not deemed reasonable or likely for this project. Traffic management measures that limit motor vehicle types, travel speed, traffic volume, or time of operation may be used as noise abatement measures, but were not found to be feasible for this project. A reduction in speed would affect the roadway's ability to accommodate anticipated traffic volumes, thus not fulfilling a purpose of this project to increase capacity. Furthermore, limiting truck volumes or their time of operation would be restrictive to the existing industrial and commercial businesses within the project study area and impede the potential economic opportunities associated with the upgrade of IL-47 at I-88.

The rural nature of the proposed project and intermittent spacing of potential noise receptors presents opportunities to alter horizontal and vertical alignments along the Preferred Alternative that will only serve to introduce new noise receptor impacts to the noise study area that weren't previously included. As such, alterations of the horizontal and vertical alignment are not likely to reduce traffic noise impacts. Alterations of horizontal and vertical alignments are not deemed reasonable or likely noise abatement measures for this project.

Buffer zones are undeveloped, open spaces that border a highway. Buffer zones occur when land or developments rights are purchased, in addition to the normal right-of-way to prohibit the construction on noise-sensitive land uses close to the highway. Currently, undeveloped land is not available to act as a buffer zone between IL-47 and the impacted noise receptors. As a result, the acquisition of real property to act as a buffer zone is not a feasible noise abatement measure for this project.

There are no Activity Category D land uses located along the IL-47 at I-88 Project corridor; therefore, noise insulation of Activity Category D land uses was not evaluated.

4.5.2.1 Noise Barrier Analysis

Noise barriers can reduce noise levels by blocking the sound propagation path between a roadway and a noise sensitive site. The IDOT Highway Traffic Noise Assessment Manual requires that the noise barriers be both feasible and reasonable. Feasibility deals with the

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practicality of building a barrier, with regard to specific site characteristics, safety and maintenance requirements, and the ability of the barrier to provide a noise reduction. In order to be considered a feasible, a barrier must achieve at least a five-dB(A) reduction for at least two impacted receptors.

The reasonableness evaluation for noise barriers consists of three parts: the noise reduction design goal, economic reasonability, and the viewpoints of the benefitted receptors. The noise reduction goal requires that at least one benefitted receptor behind the noise wall receive at least an eight-dB(A) reduction in traffic noise.

Benefitted Receptor: The recipient of an abatement measure that receives a noise reduction of 5 dB(A) or greater. A benefitted receptor does not need to be an impacted receptor.

Economic reasonableness is the cost-effective evaluation of the noise barrier. This considers the overall cost of the noise barrier, the number of benefitted receptors, and the cost per benefitted receptor. According to the IDOT Highway Traffic Noise Assessment Manual, benefitted receptors are those properties that would receive at least a five-dB(A) reduction regardless of whether or not they are identified as impacted. The base value for the allowable cost is \$30,000 per benefitted receptor. Three other reasonableness factors are considered to potentially adjust the allowable noise abatement value per benefitted receptor. Please see **Tables 4.9, 4.10, and 4.11**.

Table 4.9: Absolute Noise Level Consideration

Predicted Build Noise Level before Noise Abatement	Dollars Added to Base Value Cost per Benefitted Receptor
Less than 70 dBA	\$0
70 to 74 dBA	\$1,000
75 to 79 dBA	\$2,500
80 dBA or greater	\$5,000

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Table 4.10: Increase in Noise Level Consideration

Incremental Increase in Noise Level Between the Existing Noise Level and the Predicted Noise Level Before Abatement	Dollars Added to Base Value Cost per Benefitted Receptor
Less than 5 dBA	\$0
5 to 9 dBA	\$1,000
10 to 14 dBA	\$2,500
15 dBA or greater	\$5,000

Table 4.11: New Alignment/ Construction Date Consideration

Project is on new alignment OR the receptor before the original construction of the highway	Dollars Added to Base Value Cost per Benefitted Receptor
No for both	\$0
Yes for either	\$5,000

Only one value from each of the three factors may be used for each receptor, resulting in a maximum allowable cost of \$45,000 per benefitted receptor.

Potential noise barriers were considered at five (5) receptor locations under the predicted 2040 Preferred Alternative condition (CNE 2, CNE 3, CNE 5, CNE 6 and CNE 8). The noise barriers evaluated at CNE 6 and CNE 8 are not feasible, as they do not satisfy the five-dB(A) noise reduction for at least two (2) impacted receptors. **Table 4.12** below summarizes the three (3) feasible noise barriers that were assessed for reasonableness (CNE 2, CNE 3 and CNE 5).

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Table 4.12: Summary of Feasible Noise Barriers

CNE and Receptor (s)	Barrier Height (feet)	Barrier Length (feet)	Total Barrier Cost	Modeled Reduction (dBA)	Feasibility Goal Achieved? (5 dBA Reduction at two impacted receptors)	Noise Reduction Design Goal Achieved? (8 dBA Reduction at one benefitted receptor)	Likely to be Implemented
CNE 2 (Res 2)	6 - 10	2,186	\$471,156	0 - 8	Yes	Yes	No – the cost per benefitted receptor (\$39,263) exceeds the adjusted allowable cost per benefitted receptor (\$31,000).
CNE 3 (Res 3)	9 - 11	762	\$217,785	0 - 10	Yes	Yes	No – the cost per benefitted receptor (\$54,446) exceeds the adjusted allowable cost per benefitted receptor (\$30,750).
CNE 5 (Res 5)	10 - 14	1,441	\$508,099	1 - 14	Yes	Yes	No – the cost per benefitted receptor (\$65,512) exceeds the adjusted allowable cost per benefitted receptor (\$30,500).

The three (3) feasible noise barriers are not reasonable because the cost per benefitted receptor exceeds the adjusted allowable cost per benefitted receptor (CNE 2, CNE 3, and CNE 5). **Table 4.13** below summarizes the cost reasonableness analysis for the three noise barriers.

Table 4.13: Noise Barrier Cost Reasonableness

CNE and Receptor (s)	Number of Receptors	Total Barrier Cost	Number of Benefitted Receptors	Cost per Benefitted Receptor	Base Allowable Cost per Benefitted Receptor	Adjusted Allowable Cost per Benefitted Receptor	Recommendation
CNE 2 (Res 2)	36	\$471,156	12	\$39,263	\$30,000	\$31,000	Not Cost Effective
CNE 3 (Res 3)	12	\$217,785	4	\$54,446	\$30,000	\$30,750	Not Cost Effective
CNE 5 (Res 5)	26	\$508,099	8	\$63,512	\$30,000	\$30,500	Not Cost Effective

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Cost averaging of noise abatement among CNEs also may be used when conducting the economic reasonableness evaluation. For a single noise abatement measure to be considered a part of a cost averaging evaluation, the estimated build cost of noise abatement per benefitted receptor may not exceed two times the adjusted allowable noise abatement cost per benefitted receptor. For cost averaging analyses, the noise abatement measures achieve the cost reasonableness criterion if the common CNE collective average estimated build cost of noise abatement per benefitted receptor is less than the collective average adjusted allowable cost per benefitted receptor. The three (3) feasible noise barriers were not found to be reasonable through cost averaging (CNE 2, CNE 3, and CNE 5).

The third component of reasonableness is obtaining the viewpoints of benefitted receptors. The viewpoints will be sought for noise abatement measures determined to be feasible, cost effective and achieving the noise reduction design goal. In order for a proposed noise abatement measure to be implemented, greater than 50 percent of the benefitted receptors responding must be in favor of the proposed abatement measures. Since the noise barriers evaluated failed meet the IDOT feasibility or reasonableness criteria, obtaining the viewpoints of benefitted receptors is not required.

4.5.3 Coordination with Local Government Officials

The purpose of coordinating with local officials is to provide information and promote compatible land development and land use planning adjacent to proposed highway projects. Compatible land use is an important tool for preventing future noise impacts. The traffic noise study results will be presented to the local officials within the noise project study area.

Noise contours were generated at several undeveloped locations (Activity Category G) for the 66 dB(A) and 71 dB(A) noise levels. The agriculture land uses (Activity Category F) adjacent to the proposed project was also assessed to determine their potential for future development into uses that have an established NAC. The results of the undeveloped land analyses are located in the Noise Report.

4.5.4 Construction Noise

Trucks and machinery used for construction produce noise which may affect some land uses and activities during the construction period. Residents along the alignment will at some time experience perceptible construction noise from implementation of the project. To minimize or eliminate the effect of construction noise on these receptors, mitigation measures have been incorporated into the Illinois Department of Transportations' Standard Specifications for Road and Bridge Construction as Article 107.35.

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4.5.5 Likelihood Statement

Based on the traffic noise analysis and noise abatement evaluation conducted, highway traffic noise abatement measures are not likely to be implemented based on preliminary design. The proposed project is anticipated to have traffic noise impacts, but the noise barriers studied and identified in **Table 4.12** and **Table 4.13** do not meet the feasibility and reasonableness criteria. If it subsequently develops during final design that constraints not foreseen in the preliminary design or public input substantially change, the abatement measures may need to be modified or removed from the project plans. A final decision on the installation of abatement measure(s) will be made upon the completion of the project's final design and the public involvement process.

4.6 Natural Resources

4.6.1 Upland Plant Communities

The project study area is composed primarily of residential or agricultural land. Natural areas comprise only approximately 9.8 acres of the 133.1 total acres within the project study area. Upland grassland plant communities within the project study limit show signs of degradation and are dominated by invasive plants species, including white clover (*Trifolium repens*), tall fescue (*Festuca arundinacea*), dandelions (*Taraxacum officinale*), Kentucky bluegrass (*Poa pratensis*), crown vetch (*Securigera varia*), reed canary grass (*Phalaris arundinacea*), cutleaf teasel (*Dipsacus laciniatus*), Queen Anne's Lace (*Daucus carota*), and wild parsnips (*Pastinaca sativa*).

Wooded upland natural areas are dominated by trees including bur oak (*Quercus macrocarpa*), mockernut hickory (*Carya tomentosa*), white oak, (*Quercus alba*), black walnut (*Juglans nigra*), black cherry (*Prunus serotina*), American elm (*Ulmus americana*), and Siberian elm (*Ulmus pumila*). The understory was dominated by invasive Amur honeysuckle (*Lonicera maackii*), Tartarian honeysuckle (*Lonicera tatarica*), winter creeper (*Euonymus fortunei*), garlic mustard (*Allaria petiolata*), common burdock (*Arctium minus*), common buckthorn (*Rhamnus cathartica*), and poison ivy (*Toxicodendron radicans*).

Landscape trees are scattered throughout the residential areas within project study area. The most common landscape trees are white oak (*Quercus alba*) and blue spruce (*Picea pungens*).

4.6.2 Wildlife Resources

Wildlife habitat present is moderate and consist of forests, crops, mowed lawn, and ornamental plantings. Wildlife habitat, the types of wildlife expected to be present, and the impacts to these resources are discussed below.

4.6.2.1 Habitat in the Project Study Area

Land use in the project study area is primarily residential or agricultural with forested areas on the southern end. Generally, the available wildlife habitat are the upland woods/riparian

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habitats associated with Seavey Road Run and the upland woods/riparian habitats associated with Blackberry Creek and Hannaford Woods/Nickels Farm Forest Preserve which is part of the Bliss Woods Forest Preserve (see Exhibit 9). Below is a discussion of the wildlife habitat located in the project study area. **Table 4.14** summarizes the locations and attributes of the larger habitat areas.

Table 4.14: Wildlife Resources in Project Study Area

Location	Available Habitat/Resource	Perennial Water Available	Animals Most Likely Present
North of Old Oak Road to approximately 550 feet south of Thornapple Tree Road	Blackberry Creek and Hannaford Woods/Nickels Farm Forest Preserve is an upland wooded site that transitions to riparian woods and wet meadow along Blackberry Creek	Yes	Small and large mammals, amphibians, reptiles, and birds
750 feet north of Scott Road to Finley Road	Upland wooded site that transitions to riparian woods and wet meadow along Seavey Road Run	Yes	Small and large mammals, amphibians, reptiles, and birds

The transition between upland woods, grasslands, and riparian habitat provide edge habitats as the soil and topography change. These naturally occurring edge habitats can increase the biodiversity by providing multiple niches for different species.

4.6.2.2 Wildlife Present in Project Study Area

Wildlife present in the project study area is represented by species that are adapted to suburban or agricultural environments and are common, disturbance tolerant species. Common mammals include white-tailed deer, coyote, raccoon, eastern cottontail, squirrels, mice, and Virginia opossum. Common amphibians include frogs, toads, and salamanders. Common reptiles include snakes and turtles. Aquatic inhabitants include a variety of micro and macroinvertebrates and fish.

The project study area is within the eastern half of the Mississippi flyway, which is used by neotropical migrant birds in the United States and Canada. A tree clearing restriction will be in place from April 1 to October 14, which will protect migratory birds during their breeding season.

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4.6.2.3 Wildlife Impacts by Cover Type

Below is a discussion of the proposed project's impact on wildlife and habitat in the project study area by cover type.

4.6.2.3.1 Agricultural Land

Impacts to agricultural land are not anticipated to result in measurable impacts to any species present.

4.6.2.3.2 Residential Land

Residential lands are located primarily along the west side of the project study area. Residential areas provide habitat for species that tolerate human activities, such as rabbits, squirrels, and mice. The proposed improvements would result in minimal impacts to residential land and is not anticipated to result in measurable impacts to wildlife.

4.6.2.3.3 Riparian Habitat

Riparian areas are lands that occur along watercourses and water bodies. Typical examples include floodplains and streambanks. They are distinctly different from surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by the presence of water. The riparian zones also provide wildlife habitat, increased biodiversity, and wildlife corridors, enabling aquatic and riparian organisms to move along river systems avoiding isolated communities. Riparian vegetation can also provide forage for wildlife and livestock.

The Preferred Alternative would not increase fragmentation of any existing riparian habitat and would only result in small net loss of 4.0 acres of existing habitat. Because the proposed improvements would result in a minimal amount of impacts to riparian habitat, it is not anticipated that measureable impacts would occur to any species utilizing this habitat.

4.6.2.3.4 Forested Areas

Forests are a large and important environmental resource in Illinois. Forests provide a considerable economic contribution, providing timber, employment, outdoor recreation, protection of soil and water resources, and habitat for many plant and animal species. Wildlife within forested areas may consist of white-tailed deer, common raccoon, and various species of birds and a variety of other species.

In Illinois, a Memorandum of Understanding (MOU) between the Illinois DNR and IDOT (IDOT Bureau of Design and Environment [BDE] Manual, 2013) requires IDOT to determine whether an alignment bisects or fragments forested areas greater than 20 acres. **Exhibit 9** depicts the location of forested areas greater than 20 acres within the corridor. The proposed improvements would impact 4.0 acres of forested area immediately adjacent to IL 47 that is currently greater than 20 acres in size. These impacts will not cause fragmentation or bisect any of the forested areas. The impact does include impacts to the Hannaford Woods/Nickels Farm

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Forest Preserve. Due to the forest already being fragmented by the existing roadway and residential areas the small amount of impact will not cause a significant impact to any species utilizing this habitat.

4.6.2.3.5 Wetland and WOUS Habitats

The project study area crosses two creeks that are Relatively Permanent Waters (RPW), Blackberry Creek and Seavey Road Run. According to the June 2016 INHS *Wetland Determination Report: FAP 326/FAI 88 (IL 47) Kane County, Illinois IDOT Sequence Number: 19435*, both creeks are categorized as Kane County ADID High Functional Values wetlands. Blackberry Creek was also identified in the ADID study as ADID 3105 and as a HQAR, contains wetland sites 4, 5, and 6 as delineated by INHS. The wetland at Seavey Road Run, identified by the Kane County ADID study as wetland 2569 contains Wetland Site 10 as delineated by INHS. All these wetlands were identified as wet floodplain forest.

The wetlands and two creeks provide habitat to a variety of wildlife including mammals, reptiles, amphibians, and fish. The INHS Fish Collection has collected nearly 50 species of fish from Blackberry Creek, all are common inhabitants of Northern Illinois streams. The mussel survey conducted by INHS revealed two species of mussels in Blackberry Creek: Giant Floater (*Pyganodon grandis*) and Fatmucket (*Lampsilis siliquoieda*). Minimal impacts to these species may be caused with the replacement of IL 47 bridges.

4.6.2.4 Wildlife Crossing

The Bridge Condition Report (BCR) dated March 2017 recommends complete replacement of the current bridge located over Blackberry Creek (Structure Number 045-0024). In order to reduce the potential of vehicle/wildlife conflicts, any replacement structure will consider incorporating a 20 foot wide shelf with at least 9 feet of vertical clearance from the bottom of the structure. The shelf elevation would be at least two feet above ordinary high water in order to facilitate a dry crossing except during infrequent events. The crossing will be able to accommodate all wildlife that could potentially cross at this location.

4.6.3 Threatened & Endangered Species

Federal Threatened and Endangered species are protected under the Endangered Species Act (ESA) (16 U.S.C. 1531-1544, 1973). The ESA provides for the conservation of species that are endangered and threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The law requires federal actions, including actions authorized or funded by a federal agency, to ensure that those actions are not likely to jeopardize the continued existence of any listed species, or result in the destruction or adverse modification of designated critical habitat of such species. Threatened and Endangered species identified by the State of Illinois are protected by the Illinois Endangered Species Protection Act.

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Consultation for the protection of state-listed species is required by 17 Illinois Administrative Code (IAC) Part 1075.

4.6.3.1 Federally Listed Species

Federally-listed threatened and endangered species assessments were conducted through the use of the U.S. Fish and Wildlife Service's (USFWS) web-based Information for Planning and Consultation (IPaC) for planning purposes only. According to USFWS, three federally-protected species are known to occur within Kane County, the eastern prairie fringed orchid (*Platanthaera leucophaea*), rusty patched bumble bee (*Bombus affinis*), and northern long-eared bat (*Myotis septentrionalis*).

According to the September 2016 INHS *Botanical Survey and Assessment of the IDOT 2016 Illinois Route 47 Eastern Prairie Fringed Orchid Study Area*, a survey for the federally threatened eastern prairie fringed orchid was conducted due to potential habitat identified at Wetland 8. Habitat for the eastern prairie fringed orchid includes mesic prairie, sedge meadows, marsh edges, and bogs in full sunlight. The survey was conducted on June 28 and 30 and July 6, 2016. No individual eastern prairie fringed orchids were found.

The rusty patched bumble bee was listed as endangered under the Endangered Species Act of 1973 (ESA), effective March 21, 2017. Through Interagency Cooperation under Section 7(a)(2) of the ESA, Voluntary Implementation Guidance was issued March 21, 2017 for the rusty patched bumble bee. This guidance states, "if the species is not on the list of endangered species generated for the action area by IPaC, it is unlikely to be present in the action area." The rusty patched bumblebee is not identified by IPaC within the project study area; therefore, no impacts are anticipated.

The northern long-eared bat (NLEB) winters in caves and mines (hibernacula) and spend the summer foraging and breeding season in live or dead trees in forests areas. The northern long-eared bat 4(d) rule prohibits incidental take that may occur from tree removal activities within 150 feet of a known occupied maternity roost tree during the pup season (June 1 to July 31) or within a quarter of a mile of a hibernation site, year round. There are no hibernacula in Kane County. The 4(d) consultation form was submitted to USFWS on September 15, 2017 (**Appendix G**). No tree clearing will occur between April 1st and October 14 of any year per IDOT commitment to IDNR.

See **Table 4.15** for a list of T&E species in the project study area.

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Table 4.15: Federally Listed T&E Species in Project Study Area

Species	Habitat Preferences	Habitat Present in Corridor	Status
<i>Platanthaera leucophaea</i> (eastern prairie fringed orchid)	Moderate to high quality wetlands, sedge meadows, marshes, and mesic to wet prairies.	No	Federally Threatened
<i>Bombus affinis</i> (rusty patched bumble bee)	Dry to mesic prairies with gravelly soil.	No	Federally Endangered
<i>Myotis septentrionalis</i> (northern long-eared bat)	Caves, mines (hibernacula); live or dead trees, woods/forests.	Possible, No Tree Clearing from April 1 to October 14	Federally Threatened

4.6.3.2 State-Listed Species

Five state protected species were identified in the project study area utilizing the Natural Heritage Database and surveys conducted by INHS: the Blanding's turtle (*Emydoidea blandingii*), Wilson's phalarope (*Phalaropus tricolor*), American Bittern (*Botaurus lentiginosus*), Least Bittern (*Ixobrychus exilis*), and Northern Harrier (*Circus cyaneus*).

According to the August 2016 INHS *Survey and Habitat Assessment for Blanding's Turtle, Emydoidea blandingii, along Illinois Route 47*, a survey was conducted for the Blanding's turtle which is listed as an endangered species in Illinois. Six sites were identified and examined for habitat suitability for the Blanding's turtle. No T&E reptiles or amphibians were encountered, and no suitable habitats for Blanding's turtle were documented in the project study area.

According to the August 2017 INHS Three-season Avian Surveys at IL-47/I-88 Interchange Report, there is no breeding habitat for the Wilson's phalarope, Least Bittern, American Bittern, or Northern Harrier within the project study area. The Avian Survey was conducted over three seasons.

These species are listed in **Table 4.16**.

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Table 4.16: State Listed T&E Species in Project Study Area

Species	Habitat Preference	Habitat Present in Corridor	Status
<i>Emydoidea blandingii</i> (Blanding's turtle)	Wet prairie or wetlands, near water.	No	State Endangered
<i>Phalaropus tricolor</i> (Wilson's phalarope)	Shallow waters of smaller lakes and rivers with grassy surrounding, shallow pools, mud flats, rain pools in pasture and meadowland.	No	State Endangered
<i>Botaurus lentiginosus</i> (American Bittern)	Fresh water marshes with tall vegetation.	No	State Endangered
<i>Ixobrychus exilis</i> (Least Bittern)	Freshwater or brackish marshes with tall emergent vegetation	No	State Threatened
<i>Circus cyaneus</i> (Northern Harrier)	freshwater and brackish marshes, lightly grazed meadows, old fields, dry upland prairies, drained marshlands, and riverside woodlands	No	State Endangered

4.6.4 Invasive Species

Invasive species are defined by the Federal EO 13112 as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health”. Kane County is the fifteenth leading county in the State of Illinois with the most invasive species. According to the Early Detection and Distribution Mapping System the invasive species likely to occur in Kane County include

- spotted knapweed (*Centaurea stoebe ssp. micranthos*)
- leafy spurge (*Euphorbia esula*)
- Japanese knotweed (*Reynoutria japonica*)
- watercress (*Nasturtium officinale*)
- European buckthorn (*Rhamnus cathartica*)
- multiflora rose (*Rosa multiflora*)
- oriental bittersweet (*Celastrus orbiculatus*)
- poison-hemlock (*Conium maculatum*)
- garlic mustard (*Alliaria petiolata*)
- dalmatian toadflax (*Linaria dalmatica*)
- perennial ryegrass (*Lolium perenne*)
- bittersweet nightshade (*Solanum dulcamara*)

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Per the Illinois Noxious Weed Law, a noxious weed “means any plant which is determined by the Director, the Dean of the College of Agricultural, Consumer and Environmental Sciences of the University of Illinois and the Director of the Agricultural Experiment Station at the University of Illinois, to be injurious to public health, crops, livestock, land or other property.” (505 ILCS 100/2). Per the U.S. Department of Agriculture Natural Resource Conservation Service state listed noxious weeds and the Illinois Noxious Weed Law, the following are noxious weeds and may be found in Kane County, Illinois.

- *Ambrosia artemisiifolia* L. (common ragweed)
- *Ambrosia trifida* L. (giant ragweed)
- *Cannabis sativa* L. (marijuana)
- *Cardus nutans* (musk thistle)
- *Cirsium arvense* (Canada thistle)
- *Pueraria lobata* (kudzu)
- *Sonchus arvensis* (field thistle)
- *Sorghum almum* (Columbus grass)
- *Sorghum halepense* (Johnson grass)

Construction of the proposed improvements may result in conditions that would allow for the establishment or expansion of populations of invasive species. Many of the invasive species are already occurring within the project study area. Vegetative clearing and ground disturbances can create conditions that promote the establishment or spread of invasive species. IDOT has developed Special Maintenance Provisions to combat invasive plant species. IDOT provisions include the use of herbicides and other measures to control invasive species within the roadway rights of way. These provisions also apply during construction activities. Measures that may be instituted to manage invasive species during construction include immediate seeding of bare soil, cleaning of construction equipment prior to entering areas near sensitive habitats, and active management of invasive plants that become established during construction. Measures that may be instituted to manage invasive species after construction include the use of herbicides, manual cutting, and timely mowing of rights of way. Utilization of these measures would minimize the potential for invasive species to become established. Landscaping and erosion control plans developed for the proposed corridor will not use species listed as invasive species or noxious weeds. In areas adjacent to natural areas, such as the Hannaford Woods/Nickels Farm Forest Preserve, if invasive species or noxious weeds are found in or adjacent to construction areas, precautions will be taken to ensure the proposed improvements do not result in invasive species or noxious weed impacts the adjacent natural area.

4.6.5 State Designated Lands

State Designated Lands include Illinois Natural Areas, Land and Water Reserves, and Nature Preserves. The Bliss Woods Forest Preserve, which includes Hannaford Woods/Nickels Farm, is a

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231 acre forest preserve owned by the Forest Preserve District of Kane County and located in the southern portion of Kane County. Thirty acres of the preserve are considered an Illinois State Nature Preserve due to the outstanding ecological and geographical features. The nature preserve is located southeast of this project, outside of the Hannaford Woods/Nickels Farm Forest Preserve, and will not be impacted by the Preferred Alternative.

There are no other state designated lands within the project study area.

4.7 Water Resources and Aquatic Habitats

4.7.1 Surface Water Resources

The project study area is located within the Lower Fox River drainage basin, hydrologic unit code (HUC) 07120007. The INHS conducted wetland delineations in June of 2016. In their report *FAP 326/FAI 88 (IL 47) Kane County, Illinois IDOT Sequence Number: 19435*, the INHS identified eight streams or creeks as WOUS in the project study area. The WOUS located in the project study area are summarized in **Table 4.17** and their locations can be found in **Exhibit 9**. The project study area is crossed by two relatively permanent WOUS, Blackberry Creek, approximately 771 feet south of Thornapple Tree Road and under I-88 approximately 3,355 feet west of IL 47, and Seavey Road Run (also known as Tributary C of Blackberry Creek), approximately 636 feet northwest of Thornapple Tree Road. There are no wild or scenic rivers located within the project study area.

The Preferred Alternative is proposing to replace the existing bridge over Blackberry Creek on the existing centerline. The median for the roadway is reduced from 30 feet to 18 feet in this area in order to minimize impacts.

Blackberry Creek has been given a Stream Integrity Rating of B and Stream Diversity Rating of C by the IDNR Illinois Biological Stream Characterization Study. No other WOUS in the project study area has been rated in the IDNR Illinois Biological Stream Characterization Study.

A total of 0.8 acres of WOUS will be impacted within the project study area, including 0.4 acres of impact to Blackberry Creek and 0.2 acres to Seavey Road Run. Impacts to the WOUS are not avoidable as the proposed road improvements are adjacent to or crossing these water bodies. Impacts were minimized by reducing the median to 18 feet at the Blackberry Creek.

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Table 4.17: Streams and Ponds in Project Study Area

INHS Site No.	Site Name	Location	Water Type ²	NWI Code	Community Type ¹	Impacts (acres)	Biologically Significant Stream ¹	HQAR ¹	Stream Integrity/Diversity Rating ¹	T&E Species Present	Riffles/ Pools Present ¹	Mussels ¹
W1	Blackberry Creek	Crosses under IL 47 approximately 771 feet south of Thornapple Tree Road	RPW	R2UBH	Stream	0.36	Yes	Yes	B/C	No	Yes/Yes	Yes
W2	Unnamed tributary to Blackberry Creek	Approximately 46 feet west of IL 47	NRPW	Unavailable	Ditch	0.05	No	No	Not Rated	No	No/Yes	No
W3	Seavey Road Run	Crosses under IL 47 approximately 636 feet northwest of Thornapple Tree Road	RPW	Unavailable	Stream	0.16	No	No	Not Rated	No	No/Yes	Yes
W4	Unnamed Tributary to Seavey Road Run	Approximately 51 feet northeast of IL 47	NRPW	Unavailable	Ditch	0.02	No	No	Not Rated	No	No/No	No
W5	Unnamed tributary to Blackberry Creek	Approximately 297 feet south of I-88	NRPW	Unavailable	Ditch	0.00	No	No	Not Rated	No	No/Yes	No
W6	Unnamed Tributary to Seavey Road Run	Crosses under Seavey Road approximately 771 feet northwest of Finley Road	NRPW	Unavailable	Ditch	0.00	No	No	Not Rated	No	No/Yes	No
W7	Unnamed Tributary to Seavey Road Run	Approximately 72 feet northeast of I-88	NRPW	Unavailable	Ditch	0.13	No	No	Not Rated	No	No/No	No
W8	Unnamed tributary to Blackberry Creek	Approximately 13 feet north of Seavey Road	NRPW	Unavailable	Ditch	0.05	No	No	Not Rated	No	No/No	No

¹As determined by the INHS Wetland Reports

²As determined by the INHS, Waters type:

- RPW- relatively permanent waters that flow directly or indirectly to traditionally navigable water
- Isolated – waters isolated from Waters of the US
- NRPW – non-RPWs that flow directly or indirectly to traditional navigable waters

4.7.1.1 Water Quality Assessment

According to the IEPA *Illinois Integrated Water Quality Report and Section 303(d) List- 2016*, no water body in the project study area is listed as impaired and this segment of Blackberry Creek is listed as fully supporting aquatic life and aesthetic quality.

There is a Blackberry Creek Watershed Management Plan. The plan identifies fecal coliform for reduction in the watershed. This project will not contribute to the fecal coliform load.

The INHS conducted a biological, chemical, and physical water quality assessment of Blackberry Creek and Seavey Road Run. INHS conducted site assessments in January 2017 utilizing IEPA's Qualitative Stream Habitat Assessment Procedure (SHAP). The SHAP score ranks stream habitat quality within the ranges below:

SHAP Score Range

Excellent $\geq 90\%$

Good 75-89%

Fair 60-74%

Poor $\leq 59\%$

Seavey Road Run scored a 53.1 on the standardized IEPA SHAP scale, a score associated with Poor values.

Blackberry Creek scored a 78.0 on the IEPA SHAP scale. This is a standardized score associated with the lower range of Good values.

Macroinvertebrate Index of Biotic Integrity (mIBI) represents the relative ecological integrity (or health) of the stream. This is compared with other streams across the state of Illinois to provide a ranking. The mIBI examines three components of the macro-invertebrate community to determine its health: the abundance (total number of macroinvertebrates), the diversity (number of different species), and tolerance to pollution. A high mIBI score indicates biological species are similar to least-impacted sites of comparable size and type within Illinois. A low mIBI score indicates the species are significantly different or degraded compared with compatible sites within Illinois.

mIBI Score Range

Exceptional $\geq 73.0\%$

Good 41.8-72.9%

Fair 20.9-41.7%

Poor $\leq 20.8\%$

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Seavey Road Run scored a 44.2 on the mIBI, which is in the lower range of Good. It consisted of Filter-feeders (45%) and collector-gatherers (32%) together accounted for over ¾ of the individuals in the assemblage.

Blackberry Creek scored a 50.1 on the mIBI, which is in the middle of the Good range. It consisted of Filter-feeders (41%) and collector-gatherers (37%) together accounted for over ¾ of the individuals in the assemblage.

4.7.2 Impacts

4.7.2.1 Construction Impacts

Impacts to water quality can occur as a result of construction. Grading and earth moving activities, the removal of vegetative cover, and other activities that expose the soils create the potential for erosion during storm events. This erosion in turn has the potential to run off into streams, causing sedimentation impacts and increased suspended solids. In addition, in-stream construction for the installation of bridges or culverts can increase turbidity by disturbing the stream bottom.

During construction, water quality impacts would be minimized through the use of a SWPPP. The SWPPP will identify BMPs for erosion and sediment control to be used throughout construction. The SWPPP will be developed using guidance from IDOT's Bureau of Design and Environment Manual and Section 280 of IDOT's *Standard Specification for Road and Bridge Construction* (2016). Standard BMPs will require that any in-stream construction or soil disturbing activities near streams be conducted during low or no-flow conditions. Perimeter sediment control devices, such as silt fencing, would be installed before any soil disturbing activities. Perimeter silt fence, stabilized construction entrances, drainage inlet protection, ditch checks, diversions, sediment traps, and other appropriate BMPs will be used as defined by the SWPPP. The SWPPP will also describe appropriate responses should an accidental spill of hazardous materials occur. Through the use of BMPs during construction, it is anticipated that there will be only minimal impacts to water quality.

4.7.2.2 Operational Impacts

Contaminants, including sediments, metals, oils, and grease may occur on roadway surfaces as a result of vehicle operations. These contaminants can be washed from the roadway into adjacent streams during storm events. Additionally, increased impervious surfaces result in greater amounts of stormwater runoff, which may increase the velocity of the stream and increase erosion. Stormwater management for the proposed improvements has been designed with the intention of minimizing impacts to water quality utilizing BMPs. See Section 4.7.3 for a description of BMPs to be utilized.

4.7.2.3 Maintenance Activity Impacts

Maintenance activities associated with roadways includes deicing during the winter months and herbicide spraying for invasive/noxious weeds in the summer. IDOT and the Tollway use liquid calcium chloride and sodium chloride to deice roadways. The amount of deicing salt that leaves the right-of-way is dependent on the number and severity of winter storms.

IDOT uses the following BMPs to reduce chloride impacts on waterways: 1) IDOT utilizes calibrated spreaders equipped with ground speed sensors that can accurately control the rate of spreading; 2) IDOT determines the rate of salt to be used depending on the amount of ice and snow on the roadway; and 3) IDOT pre-wets the application of chloride to roads which allows the pre-wetted salt to stick to the pavement and is less prone to blowing or bounding off from traffic before it activates.

Impacts from herbicide application would be minimized through the strict adherence to manufacturer's application instructions which will minimize the amount of airborne drift or runoff into receiving waters. The IEPA requires a National Pollutant Discharge Elimination System (NPDES) permit if pesticides, including herbicides, are applied near WOUS. Water quality impacts would be minimized through conformity to permit requirements

4.7.3 Best Management Practices

In order to minimize pollutants from entering either Blackberry Creek or Seavey Road Run, Best Management Practices (BMPs) will be implemented to the extent practical. IL 47 crosses over Blackberry Creek and Seavey Road Run. Currently, there are ditches on both sides of IL 47 that outfall into Blackberry Creek and Seavey Road Run.

Because of new impervious area introduced by the widening of the road and the addition of a future shared use path, IDOT intends to provide stormwater treatment. The stormwater treatment is primarily runoff control (which will require storage/detention). Detention basins and other stormwater features will likely require pollution and volume control BMP's since the discharge will go directly into Blackberry Creek and Seavey Road Run.

Options for runoff control being considered include infiltration trenches, oversized pipes, and detention basins. Each of these features has its own advantages and disadvantages:

1. Infiltration trenches: These are rock filled filter fabric lined trenches where the spaces between rocks are used as storage volume.
 - a. In case rock doesn't provide enough storage an oversized perforated pipe can be placed within the trench.
 - b. The trench provides environmental benefits and volume control because of the infiltration. Sand would be the best media for the trenches to be built on, but it's rare to have such conditions in Illinois. Some of the borings studied in a geotechnical

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- report should include percolation rates in order to determine if infiltration trenches will be effective.
- c. The underground trenches are typically 10 foot wide, so additional ROW may need to be acquired in order to accommodate the width.
 2. Oversized pipes: Large diameter storm sewer pipes that don't just convey storm runoff, but detain runoff during storms with the use of a restrictor structure.
 - a. Limited environmental benefit, but could use expensive oil and grit separators at outfalls. This would be a middle ground solution between the infiltration trenches and detention basin.
 3. Detention basins: Easy to maintain and provide the most storage, but would require greater additional right of way than the other two options. Depending on the soils found through a geotechnical report, these basins could also be considered infiltration basins and account for volume control.

Vegetated swales (bio-swales) will be utilized in order to filter pollutants and provide additional pollution control.

4.8 Groundwater Resources

Kane County uses both groundwater and surface water its potable water supply. The Fox River is the largest surface water resource and supplies drinking water to the cities of Aurora and Elgin. All wells within the County obtain groundwater from either locally recharged shallow aquifers or deeper, regionally recharged. All the drinking water for the Village of Sugar Grove comes from groundwater supplies.

The following geologic, hydrogeologic, and well information was obtained from the Illinois State Geologic Survey's (ISGS) *Preliminary Environmental Site Assessment (PESA) ISGS: 1321*, dated September 13, 2016.

4.8.1 Geology

The topmost bedrock unit in the project study area south of I-88 exit ramp has been mapped as the Ordovician-age Maquoketa Shale Group, which in this area consists primarily of shales and limestones. The topmost bedrock unit in the project study area north of I-88 exit ramp has been mapped as undifferentiated rocks of Silurian age, which in this area consist primarily of limestones and dolomites. There are no known karsts or sinkholes located in the project study area according to the Illinois State Geological Survey.

Surficial materials in the project study area have been mapped as follows: 30-60 m (100-200 feet) thick from the southern project limits to approximate IL 47 station 145+00 LT and RT, approximate IL 47 station 228+00 LT and RT to the northern project limits, and approximate I-88 station 5811+00 LT and RT to the eastern project limits; 15-30 m (50-100 feet) thick between approximate

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IL 47 stations 145+00 to 164+00 LT and RT, between approximate IL 47 stations 189+00 to 228+00 LT and RT, and between approximate I-88 stations 5788+00 to 5811+00 LT and RT; and 8-15 m (25-50 feet) thick between approximate IL 47 stations 164+00 and 189+00 LT and RT and approximate I-88 station 5788+00 LT and RT to the western project limits. From the southern project limits to approximate IL 47 station 100+00 LT and RT, the topmost unit has been mapped as 6-15 m (20-50 feet) of the Henry Formation which overlies 6-15 m (20-50 feet) of the 10 Wedron Group. Between approximate IL 47 stations 100+00 to 110+00 LT and RT, the topmost unit has been mapped as less than six meters (20 feet) of the Cahokia Formation which overlies less than six meters (20 feet) of the Henry Formation which overlies less than six meters (20 feet) of the Wedron Group. In the remaining portion of the project study area, the topmost unit has been mapped as less than six meters (20 feet) of discontinuous Carmi Member of the Equality Formation which overlies less than six meters (20 feet) of discontinuous Henry Formation which overlies 6-15 meter (20-50 feet) of the Wedron Group. The Henry Formation is composed primarily of sand and gravels deposited by glacial outwash. The Wedron Group is composed primarily of glacially deposited silts and clays. The Cahokia Formation is composed primarily of floodplain silts, clays, and silty sands. The Carmi Member is composed primarily of lake-deposited clays and silts.

4.8.2 Hydrogeology

Surficial drainage in the project study area is generally toward the direction of Blackberry Creek (Site 3121-6) and its unnamed tributaries (Sites 3121-15 and 3121-22). Blackberry Creek crosses the project study area underneath IL 47 at approximate IL 47 station 111+00LT and RT. The unnamed tributaries cross underneath IL 47 at approximate station 145+00 LT and RT and I-88 at approximate station 5823+00 LT and RT. However, since the project study area is partially developed and drainage ditches are present, most surficial runoff will be controlled by the drainage system; such systems typically are designed to follow natural drainage patterns. The proposed project is not likely to impact surficial public water supplies.

4.8.3 Groundwater Recharge

The project study area is located in Zone 3 for groundwater recharge potential, where Zone 1 indicates the highest potential for groundwater recharge and Zone 7 indicates the lowest potential as mapped by Keefer and Berg (1990). Groundwater recharge potential information is provided for a general regional perspective only, as this map was prepared at a scale of 1:1,000,000 and is not applicable on a site-specific basis. The project study area does not fall within the watershed for the Mahomet aquifer, the only sole-source aquifer in Illinois according to the USEPA's list of designated sole-source aquifers as defined by Section 1424(E) of the Safe Drinking Water Act. Therefore, the proposed project will not affect any such aquifers in Illinois.

The project study area is located in Zone B1, according to the map "Potential for contamination of shallow aquifers from land burial of municipal wastes" (Berg et al., 1984). Zone B1 is described

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as sand and gravel less than six meters (20 feet) thick over relatively impermeable till or bedrock. Zones A indicate the highest potential for contamination and Zone G the lowest. This information is provided for a general regional perspective only, as the map was prepared at a scale of 1:500,000 and is not applicable on a site-specific basis. No borings were made to a depth of 15 meters (50 feet) to verify the geology of this site.

The project study area is not located within an Illinois EPA designated Class III Special Resource Groundwater or identified sensitive ecological systems.

4.8.4 Wellhead Protection Areas

This project crosses a wellhead protection recharge area for a public well for the Waubensee Community College. The wellhead protection area is crossed by IL 47 between approximate IL 47 stations 96+00 and 108+50.

4.8.5 Wells

ISGS well records indicate that water in the project study area is obtained from sand and gravel and limestone at depths ranging from 25 to 85 meters (80 to 280 feet) below the surface. Eighteen wells were mapped and were associated with residences and farmsteads along IL 47. Other wells not in the ISGS database may be present near the project study area. The location of the known wells in the project study area is shown in **Exhibit 10**.

All water wells that are on or adjoining the Preferred Alternative will be properly capped and abandoned. Consequently, the proposed improvements would not create any new potential routes for groundwater pollution (e.g., dry wells, borrow pits) or any new potential sources of groundwater pollution (e.g., storage facilities for bulk road oil or deicing salt). The proposed improvements are therefore not anticipated to result in any impacts to any wells, and the project would not be considered a new potential secondary source of groundwater pollution as defined in the IEPA Act (415 ILCS 5/3.350 and 415 ILCS 5/3.355).

Accordingly, the project would not be subject to compliance with the minimum setback requirements for community water supply wells or other potable water supply wells as set forth in 415 ILCS 5/14, et seq.

4.8.6 Groundwater Quality

According to the Illinois State Water Survey's (ISWS) *Shallow Groundwater Quality Sampling in Kane County, October 2003*, Kane County has generally good shallow groundwater quality, especially in the western and central thirds of the County. Nitrate-N concentrations were low and no atrazine was detected in any well, suggesting that any degradation of groundwater quality from agricultural activities is slight enough that it does not present a human health hazard. Arsenic was above the drinking water standard in slightly more than 10% of the wells. Iron and manganese were elevated in most wells, but this is common in aquifers throughout Illinois. Toxic metals other

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than arsenic were not present at concentrations exceeding their standards in any well. The Total Dissolved Solids (TDS) and major ion concentrations of samples from the urban corridor were significantly greater than elsewhere in Kane County. Road-salt runoff, vehicular exhaust, and industrial discharges are the most likely sources of these elevated solutes.

According to *Illinois Integrated Water Quality Report and Section 303(d) List, 2016 Clean Water Act Sections 303(d), 305(b) and 314 Water Resource Assessment Information and List of Impaired Waters Volume II: Groundwater July 2016*, no Community Water Supply (CWS) well in the project study area is listed as impaired.

The proposed improvements would not create any new potential routes for groundwater pollution (e.g., dry wells, borrow pits) or any new potential sources of groundwater pollution (e.g., storage facilities for bulk road oil or de-icing salt). Any minor increases in contaminants in stormwater runoff, the result of increasing the amount of pavement, are not anticipated to result in groundwater pollution because these increases would be minimal.

4.9 Floodplains

Federal EO 11988, Floodplain Management, requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Floodplains provide numerous values and benefits, including the storage of excess water during storm events, water quality benefits such as the filtering of nutrients and sediments, recharge of groundwater through infiltration, fish and wildlife habitat, and open space/recreational opportunities.

A regulatory floodplain is an area that is subject to flooding during a 100-year frequency storm. Regulatory floodplains within the project study area are associated with Blackberry Creek and Seavey Road Run. All of these floodplains are located within the Lower Fox River drainage basin, HUC watershed 07120007. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were used to identify the location of floodplains in the project study area. The locations of these floodplains are shown on **Exhibit 9** and summarized in **Table 4.18**. There are three types of flood hazard categories identified in the project study area. AE flood hazard is 100-year floodplain that has a base elevation established, A flood hazard is 100-year floodplain without a base elevation established, and X flood hazard is an area of moderate flood hazard between the 100 year and 500 year floodplain.

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Table 4.18: Floodplain Locations and Impacts in the Project Study Area

Floodplain Location	Waterway Association	Impacts (acres)	Transverse or Longitudinal Crossing
Crosses under IL 47 approximately 771 feet south of Thornapple Tree Road	Blackberry Creek	2.9	Transverse
Crosses under IL 47 approximately 636 feet northwest of Thornapple Tree Road	Seavey Road Run	1.5	Transverse
Parallel to IL-88, approximately 1790 feet west of IL 47	Blackberry Creek	0.3	Longitudinal
Total Acres		4.7	

Impacts to floodplains would be minimized in several ways:

- Stream crossings will be designed to minimize the amount of fill within the floodplain.
- The median will be reduced to 18 feet on IL 47 through Blackberry Creek portion of the floodplain.

Compensatory storage will be provided at the IL 47 crossings with Blackberry Creek and Tributary C to Blackberry Creek to account for any fill of floodplains in these areas. Compensatory storage will be provided at the Blackberry Creek crossing by replacing the existing structure with a larger bridge that provides a wider effective waterway opening. The compensatory storage volume can be provided by grading the overbanks between the existing tops of banks to the proposed toes of abutments. Since the Seavey Road Run culvert is being extended rather than replaced, the compensatory storage at the tributary location will be provided within proposed ditch/basin grading along the proposed IL 47 embankment, adjacent to the regulatory floodway.

Compensatory Storage

When fill or buildings are placed in the floodplain, the flood storage areas are lost and flood heights will go up because there is less room for the floodwaters. One approach that may be used to address this issue is to require compensatory storage to offset any loss of flood storage capacity (volume).

An IDNR/ Office of Water Resources (OWR) permit will be obtained for any construction in the regulatory floodplain (tributary area no less than 1 square mile) prior to any work within the floodplain.

Impacts from the loss of floodplain will not result in increased flood risks due to the incorporation of detention and compensatory storage. Natural and beneficial values, such as wildlife habitat and water quality functions, will not be substantially impacted because these values are already

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minimized due to the presence of the existing road. The proposed roadway improvements will not promote incompatible floodplain development any more than currently exists.

4.10 Wetlands

Executive Order (EO) 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. The USACE regulates the discharge of dredged or fill material into WOUS, including wetlands, pursuant to Section 404 of the Clean Water Act (CWA).

Wetlands are also protected under the Illinois' Interagency Wetland Protection Act of 1989.

4.10.1 Project Study Area Wetlands

In order to ensure compliance with EO 11990 and the CWA, wetland delineations were conducted by INHS on April 13-14 and May 3-5, 2016 following the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0) (USACE 2010). In total, INHS investigated 33 sites and determined that 18 of these sites are wetlands. The locations of the wetland sites identified during all delineation efforts are included in **Exhibit 9**. Five of the wetlands are highly disturbed and are currently or have been recently farmed. Eight of the wetlands have been identified by Kane County as ADID wetlands for having High Functional Value (HFV) for water quality/stormwater functions. Seven of the eight ADID wetlands were also identified as HQAR wetlands with a high habitat value. Only wetland 9 was identified as an ADID site, but not a HQAR wetland because it was an excavated wetland pond that was no longer part of the natural wetland complex. Wetland site 8 was determined to be potential habitat for the endangered eastern prairie fringed orchid (EPFO), but subsequent threatened and endangered species surveys found no EPFO's. INHS Wetlands 4, 5, 6, 7, 8, and 9 coincides with ADID wetland 3105 and INHS Wetland 10, coincides with ADID wetland 2573 and 2569.

All areas of agricultural land use within the project study area were delineated following the NRCS method of wetland determination (for more information, see: USDA-NRCS 2015). Briefly, this method involves examining 5 years of aerial photography taken during the early summer for evidence of saturation or inundation (wetland signature). The years used are determined to be 5 years during which precipitation was closest to the long term precipitation averages. In addition, when possible, the NRCS wetland maps were consulted to find areas previously delineated by the NRCS as wetland. Any area which showed a wetland signature in three years out of five, or in two years out of five if the site was also mapped as wetland by the NWI, was investigated by a site visit. If hydric soils were present at the site, the site was determined to be wetland. The site was then delineated from the aerial photography based on an average of the years during which a wetland signature was evident.

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A Floristic Quality Assessment (FQA) was performed for each wetland area to assess the quality of the wetland. Each native plant found in a wetland is assigned a number from 1-10. This number is called a “coefficient of conservatism” or C-value (Swink and Wilhelm 1994). A low C value indicates the plants grow in areas commonly disturbed by humans; whereas a high C-value means the plant grows in more pristine areas. A mathematical analysis is conducted on the average of the c-values (defined as Mean-C) to produce a number called a Floristic Quality Index (FQI). The FQI rates the wetland for its quality of native vegetation. An FQI from 1-19 means a low quality, 20-35 indicates high quality and over 35 indicates a “natural area” quality.

High Quality Aquatic Resources are defined by the *2012 Chicago District Regional Permit Program* as an area having an FQI 20 or greater or a Mean-C value of 3.5 or greater. ADID wetlands are also considered high quality aquatic resources. Wetlands that meet this criteria are typically mitigated at a higher ratio than lower quality wetlands.

Table 4.19 summarizes the wetlands identified by the INHS.

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Table 4.19: Wetlands Identified by INHS

Site No.	NWI Code ¹	Community Type	Area Inside Project Limits (Acres)	FQI	Mean C	ADID	HQAR	Functions Performed	USACE Jurisdictional	Dominate Plant Species	Water Type ²
1	U	Wet Meadow	0.22	8.1	2.9	None	No	Surface water storage, aquatic and terrestrial wildlife habitat	Yes	bald spike rush (<i>Eleocharis erthropoda</i>), reed canary grass (<i>Phalaris arundinacea</i>)	NRPWW
2	U	Farmed Wetland	0.16	9.2	3.3	None	No	Limited wildlife habitat	Yes	cursed buttercup (<i>Ranunculus sceleratus</i>)	NRPWW
3	U	Farmed Wetland	0.34	5.8	2.6	None	No	Limited wildlife habitat	Yes	cursed buttercup (<i>Ranunculus sceleratus</i>)	NRPWW
4	U	Wet Floodplain Forest	1.75	18.8	3.1	HFV	Yes	Surface water storage, good aquatic and terrestrial wildlife habitat	Yes	reed canary grass (<i>Phalaris arundinacea</i>), downy hawthorn (<i>Crataegus mollis</i>), eastern cottonwood (<i>Populus deltoides</i>)	RPWWD
5	U	Wet Floodplain Forest	0.008	8.4	2.4	HFV	Yes	Surface water storage, fair aquatic and terrestrial wildlife habitat	Yes	downy hawthorn (<i>Crataegus mollis</i>), bur oak (<i>Quercus macrocarpa</i>), reed canary grass (<i>Phalaris arundinacea</i>), Tatarian honeysuckle (<i>Lonicera tatarica</i>), red osier dogwood (<i>Cornus sericea</i>), highbush cranberry (<i>Viburnum opulus</i>), garlic mustard (<i>Alliaria petiolata</i>), riverbank grape (<i>Vitis riparia</i>)	RPWWN

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Site No.	NWI Code ¹	Community Type	Area Inside Project Limits (Acres)	FQI	Mean C	ADID	HQAR	Functions Performed	USACE Jurisdictional	Dominate Plant Species	Water Type ²
6	PEMC, U	Wet Meadow	1.03	12.1	2.9	HFV	Yes	Surface water storage, good aquatic and terrestrial wildlife habitat	Yes	downy hawthorn (<i>Crataegus mollis</i>), reed canary grass (<i>Phalaris arundinacea</i>), common buckthorn (<i>Rhamnus cathartica</i>), boxelder (<i>Acer negundo</i>), spotted touch-me-not (<i>Impatiens capensis</i>), stinging nettle (<i>Urtica procera</i>)	RPWWN
7	PEMC, U	Wet Meadow	0.49	8.7	2.9	HFV	Yes	Surface water storage, fair aquatic and terrestrial wildlife habitat	Yes	reed canary grass (<i>Phalaris arundinacea</i>)	RPWWN
8	U	Sedge Meadow	0.66	18.5	4.6	HFV	Yes	Surface water storage, fair aquatic and terrestrial wildlife habitat	Yes	upright sedge (<i>Carex stricta</i>)	RPWWN
9	U	Wetland Pond	0.16	0.6	0.3	HFV	No	Surface water storage, aquatic habitat	Yes	narrowleaf cattail (<i>Typha angustifolia</i>), reed canary grass (<i>Phalaris arundinacea</i>)	NRPWW
10	PEMCd, PSS1A, U	Wet Floodplain Forest	1.79	11.8	2.3	HFV	Yes	Surface water storage, good aquatic and terrestrial wildlife habitat	Yes	eastern cottonwood (<i>Populus deltoides</i>), black willow (<i>Salix nigra</i>), boxelder (<i>Acer negundo</i>) common buckthorn (<i>Rhamnus cathartica</i>), reed canary grass (<i>Phalaris arundinacea</i>), fowl manna grass (<i>Glyceria striata</i>)	RPWWD
11	U	Wet Meadow	0.66	6.6	2.1	None	No	Surface water storage, aquatic and terrestrial wildlife habitat	Yes	reed canary grass (<i>Phalaris arundinacea</i>), narrowleaf cattail (<i>Typha angustifolia</i>)	NRPWW

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Site No.	NWI Code ¹	Community Type	Area Inside Project Limits (Acres)	FQI	Mean C	ADID	HQAR	Functions Performed	USACE Jurisdictional	Dominate Plant Species	Water Type ²
12	PEMCD, U	Wet Meadow	0.63	6	2	None	No	Surface water storage, aquatic and terrestrial wildlife habitat	Yes	reed canary grass (<i>Phalaris arundinacea</i>)	NRPWW
13	U	Farmed Wetland	0.3	N/A	N/A	None	No	Surface water storage, aquatic and terrestrial wildlife habitat	Yes	No hydrophytic vegetation present (active cropland)	NRPWW
15	U	Wet Meadow	0.64	2.8	2	HFV	Yes	Surface water storage, aquatic and terrestrial wildlife habitat	Yes	reed canary grass (<i>Phalaris arundinacea</i>)	RPWWD
16	U	Wet Shrubland	1.11	8.5	2.7	None	No	Surface water storage, aquatic and terrestrial wildlife habitat	Yes	sandbar willow (<i>Salix interior</i>), reed canary grass (<i>Phalaris arundinacea</i>), eastern cottonwood (<i>Populus deltoides</i>)	NRPWW
17	U	Farmed Wetland	1.45	N/A	N/A	None	No	Limited wildlife habitat	Yes	No hydrophytic vegetation present (active cropland)	NRPWW
18	PEMC, U	Marsh	1.12	8.5	2.7	None	No	Surface water storage, aquatic and terrestrial wildlife habitat	No	narrow-leaf cattail (<i>Typha angustifolia</i>)	ISOLATE
19	U	Farmed Wetland	0.26	N/A	N/A	None	No	Limited wildlife habitat	No	No hydrophytic vegetation present (active cropland)	ISOLATE

- NWI Code: U=Upland, PEMC= Palustrine, Emergent, Seasonally Flooded; PEMCD= Palustrine, Emergent, Seasonally Flooded, Partially Drained Ditch; PSS1A= Palustrine, Scrub-Shrub, Broadleaf Deciduous, Temporarily Flooded
- RPWWN= Wetlands adjacent to but not directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waters (TNWs)
 NRPWW= Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 RPWWD= Wetlands directly abutting ROWs that flow directly or indirectly into TNWs
 ISOLATE= Isolated interstate or intrastate waters including isolated wetlands

4.10.2 Wetland Impacts

The Preferred Alternative will impact a total of 1.7 acres of wetlands. Impacts were calculated based on proposed construction limits (**Appendix I**). The Preferred Alternative will impact 0.9 acres of ADID and HQAR wetlands. **Table 4.20** summarizes the wetland impacts, the floristic quality, the ADID number of the wetland (if applicable), and provides the proposed amount of mitigation that would be provided. Mitigation ratios are based on previous experience and are subject to change pending further coordination with resource agencies. Typically wetlands that are considered High Quality Aquatic Resources are mitigated at a higher ratio.

Chapter 4 Environmental Resources, Impacts, and Mitigation

Table 4.20: Wetland Impacts

Site	Wetland Acreage Inside Project Limits (acre)	extends outside Right-of-Way	FQI	Mean C	ADID	Community Type	Impacts	Proposed Mitigation Ratio ¹	Proposed Mitigation Acreage
4	1.75	Yes	18.8	3.1	HFV	Wet Floodplain Forest	0.25	3.0 : 1	0.75
5	0.08	Yes	8.4	2.4	HFV	Wet Floodplain Forest	0.02	3.0 : 1	0.06
6	1.03	Yes	12.1	2.9	HFV	Wet Floodplain Forest	0.17	3.0 : 1	0.51
7	0.49	Yes	8.7	2.9	HFV	Wet Meadow	0.03	3.0 : 1	0.09
8	0.66	Yes	18.5	4.6	HFV	Sedge Meadow	0.17	5.5 : 1	0.94
10	1.79	Yes	11.8	2.3	HFV	Wet Floodplain Forest	0.26	3.0 : 1	0.78
11	0.66	Yes	6.6	2.1	None	Wet Meadow	0.25	1.5 : 1	0.38
16	1.11	Yes	8	2	None	Wet Shrubland	0.22	1.5 : 1	0.33
17	1.45	Yes	N/A	N/A	None	Farmed Wetland	0.23	1.5 : 1	0.35
18	1.12	Yes	8.5	2.7	None	Marsh	0.04	1.5 : 1	0.06
19	0.26	Yes	N/A	N/A	None	Farmed Wetland	0.01	1.5 : 1	0.02
Total							1.65		4.27

¹Mitigation Ratios are subject to change pending resource agency coordination.

4.10.3 Avoidance/Minimization/Compensatory Mitigation

The proposed improvements were designed to minimize the amount of wetland impacts to the greatest extent practicable. Once the alternatives were selected, they were further refined in order to minimize impacts. The median at the Blackberry Creek crossing has been narrowed from 30 feet to 18 feet which will reduce wetland, WOUS, and floodplain impacts.

For those wetland impacts that cannot be avoided, compensatory mitigation must be provided. IDOT will provide compensatory mitigation through coordination with and approval from USACE and IDNR. Mitigation ratios are determined by both the USACE and the IDNR. The USACE mitigation ratios will be determined during submittal of the CWA Section 404 Permit, which occurs after the Environmental Assessment has been approved and design engineering is almost complete. Under the Programmatic Agreement that IDOT has with the IDNR for compliance with the Interagency Wetland Protection Act, mitigation ratios are determined based on whether or not the mitigation is provided within the watershed basin of the impacted wetland.

4.10.4 Only Practicable Alternative Finding

Federal EO 11990 requires the avoidance of adverse impacts to wetlands wherever there is a practicable alternative. The proposed improvements were designed to avoid and minimize wetland impacts to the greatest extent possible. There are no practicable alternatives that could avoid wetland impacts entirely. The roadway corridor is constrained to the setting where the current IL 47 is located. Construction on an entirely new corridor was studied in Alternatives M-3 and M-4, both will create new crossings of Blackberry Creek and Seavey Road Run, which increases wetland, WOUS, and floodplain impacts. All impacts have been avoided and minimized to the greatest extent practicable, as discussed above. Based upon these considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

4.11 Special Waste

The ISGS performed a PESA for the project study area, their finding can be found in ISGS PESA #3121, dated September 19, 2016. **Table 4.21** identifies sites along the project route that were determined to contain recognized environmental conditions (RECs).

Based on the results from the PESA, it has been determined that a preliminary site investigation (PSI) is required if any identified REC involves any of the following situations:

- New right-of-way or easement (temporary or permanent);
- Railroad right-of-way, other than single rail rural with no maintenance facilities; or
- Building demolition / modification.

Chapter 4 Environmental Resources, Impacts, and Mitigation

Further environmental studies will be conducted if the proposed improvements require excavation on or adjacent to a property identified with a recognized environmental condition (REC) or requires excavation, including subsurface utility relocation, on a property with an easement. **Table 4.21** indicates the anticipated impacts for the RECs. There are areas of proposed right-of-way for several of the RECs. Other areas are within existing right-of-way but work is proposed for those areas.

Table 4.21: Recognized Environmental Conditions

Property name IDOT parcel #	ISGS site #	Recognized Environmental Conditions	Regulatory database(s)	Land use	Impacts
Waubensee Community College NA	3121-1	Former Underground Storage Tanks (USTs) with documented releases; potential (USTs); Above Ground Storage Tanks (ASTs); evidence of chemical use; metals; transformers; natural gas pipeline; potential Asbestos Containing Materials (ACM) and lead paint	Resource Conservation and Recovery Act (RCRA), USTs, Leaking Underground Storage Tanks (LUSTs), Bureau of Land (BOL), Illinois Emergency Management Agency (IEMA), Activity and Use Limitations (AULs)	Commercial	No impacts
Agricultural land NA	3121-2	Metals; transformer; likely pesticide or herbicide use	None	Agricultural	No impacts
Right-of-Way NA	3121-3	Spill; metals	None	Transportation	Work proposed in this area
Residences NA	3121-4	Metals; natural gas pipeline; potential ACM	None	Residential	Proposed ROW for this parcel
Blackberry Creek NA	3121-6	Spill	IEMA	Stream	Proposed ROW for this parcel
Right-of-Way NA	3121-23	Fill	None	Transportation	Existing Tollway ROW, work proposed in area.
Illinois State Tollway Highway Authority M-11 Salt Dome NA	3121-24	AST; former USTs with a documented release; former monitoring wells; evidence of chemical use; road salt; transformers; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA	Transportation	Existing Tollway ROW, work proposed near area.

4.12 Special Lands

Special lands are those lands that have Land and Water Conservation Fund (LAWCON) or Open Space Lands Acquisition and Development (OSLAD) grants involved in their purchase or development. LAWCON is a federal-financed grant program and OSLAD is a state-financed grant program. Both programs provide funding assistance to local government agencies for acquisition

Chapter 4 Environmental Resources, Impacts, and Mitigation

or development of land for public parks and open space. In Illinois, both grants are managed by IDNR.

Portions of the Bliss Woods-Waubonsee College Forest Preserve were purchased using OSLAD and LAWCON funds. Portions of the Hannaford Woods/Nickels Farm Forest Preserve did utilize these funds; however, Kane County Forest Preserve has confirmed that the parcels bordering both east and west of IL 47 did not utilize OSLAD/LAWCON funds. A Map showing the border of OSLAD/LAWCON fund properties is included as **Exhibit 11**.

4.13 Section 4(f) Evaluation

Significant publicly-owned parks, recreational areas, wildlife and waterfowl refuges, and historic sites of national, state, or local significance, are afforded special protection under Section 23 CFR 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f)).

Bliss Woods, which contains the Hannaford Woods/Nickels Farm Forest Preserve, is owned by the Forest Preserve District of Kane County. It is located within the project study area on both sides of IL 47 south of Merrill Road and north of Waubonsee Community College. The Preserve is 402 acres. Recreational activities include picnic areas, hiking, and bike/nature trails totaling 2.89 miles.

The Kane County Forest Preserve purchased the portion of the forest preserve on the east side of IL 47 from Waubonsee Community College on August 9, 2012. As a part of the Special Warranty Deed, a 60 foot strip of land along the east side of IL 47 was planned to be purchased by IDOT at a fair market value, if IL 47 is widened. The portion of forest preserve west of IL 47 was not planned for transportation use, but the Kane County Forest Preserve has stated that there is no planned use preventing it from being purchased by IDOT.

The Preferred Alternative will impact approximately 1.5 acres of the Hannaford Woods/Nickels Farm Forest Preserve. A total of 0.2 acres on the west side of IL 47 and 1.3 acres on the east side of IL 47. All of the 1.3 acres on the east side of IL 47 are inside the 60 foot strip of land planned for transportation purposes. After subtracting the acreage of land that is planned for transportation purposes, the approximate impacts are 0.2 acres. This impact is not anticipated to adversely affect the activities, features, or attributes of the Hannaford Woods/Nickels Farm Forest Preserve.

4.14 Permits/Certifications Required

Table 4.22 summarizes the permits, certifications and resource reviews that are expected to be required for the IL 47/I-88 Interchange project based on the information available and the preliminary geometries. Other permits may be required as the project design is refined and if impacts change.

Chapter 4 Environmental Resources, Impacts, and Mitigation

Table 4.22: Permits and Certifications

Permit	Responsible Agency	Reason
Floodway Construction Permit	IDNR, Office of Water Resources	Construction of widened or new bridge structures within a floodway and temporary construction activities with the floodway/floodplain.
National Pollution Discharge Elimination System Permit (NPDES)	IEPA	Land disturbance area is greater than 1 acre.
Section 401, Clean Water Act, Water Quality Certification	IEPA	Required in conjunction with Section 404 permit process by Clean Water Act due to the impacts to wetlands and WOUS.
Section 402, Clean Water Act, NPDES ^a	IEPA	Disturbance and construction impact to an area greater than one acre.
Individual Section 404 Permit, Clean Water Act	USACE, Chicago District	Discharge of dredged or fill material into Waters of the U.S., including jurisdictional wetlands and streams. Determination whether regional or individual permit applies is determined by the USACE. Wetland and some WOUS impacts requires mitigation.

4.15 Other Issues

4.15.1 Aesthetics

The view shed along IL 47 is composed of primarily flat, open space land and residential areas. In the southern and northern portions of the project study area, residential and agricultural areas are the primary view shed. The southeast portion of the view shed is dominated by Waubensee College. In the central portion of the corridor, the landscape is primarily open space interspersed with wooded areas and grasslands primarily associated with Blackberry Creek and Seavey Road Run.

The proposed construction will not greatly affect the view shed or aesthetics. The project consists of the widening of an existing roadway, and changes will be minimal. The improvements and any associated landscaping will improve the aesthetics of the corridor.

Chapter 4 Environmental Resources, Impacts, and Mitigation

4.15.2 Construction Impacts

Construction activities have the potential to impact travel patterns if lane closures or temporary detours are needed; lane closures can also result in increased congestion. Emergency services should not be interrupted as a result of the proposed project.

Construction has the potential to impact water resources due to increased erosion and sedimentation. Vegetation removal and soil disturbances would increase the potential for erosion, and structures placed within stream crossings can result in increased sedimentation. Increased sedimentation in turn can impact aquatic habitat and species. Erosion and sediment control will be managed per the IDOT *BDE Manual Chapters 41 Construction Site Storm Water Pollution Control* (2010) and *Chapter 59 Landscape Design* (2010). Project specific sediment and erosion control plans and a SWPPP will be developed, coupled with compliance with the NPDES permit, these measures will help minimize sedimentation impacts.

During construction there is the potential for short term increases in fugitive dust and equipment related particulate emissions to impact air quality. Soil disturbance during grading activities and emissions released from construction equipment can contribute to these impacts.

Any air quality impacts that would occur as a result of construction would be short term. Compliance with IDOT's *Standard Specifications for Road and Bridge Construction* (April, 2016) provisions for dust control during construction will minimize these impacts.

During construction, increased noise will be experienced due to vehicles and equipment. These increased noise levels would be confined to normal working hours and would be experienced primarily by residents adjacent to the roadway. Increased noise would be temporary and localized.

Construction activities would generate solid wastes that would require offsite disposal. Wastes most often generated during construction would include vegetation, old pavement, and miscellaneous debris. Disposal of solid waste will be done in accordance with all state and federal laws. It is not anticipated that any hazardous waste will be generated, but if it is, the onsite storage, transportation, and disposal will be done in accordance with all state and federal laws

4.15.3 Energy Consumption

Construction of the proposed improvement would require indirect consumption of energy for processing materials, construction activities, and maintenance for the lane miles to be added within the project study area. Energy consumption by vehicles in the area may increase during construction due to possible traffic delays.

Operation of the proposed improvement would reduce traffic congestion and turning conflicts along the route and thereby reduce vehicular stopping and slowing conditions. Additional benefits would be realized from increased capacity and smoother riding surfaces. This would result in less

Chapter 4 Environmental Resources, Impacts, and Mitigation

direct and indirect vehicular energy consumption for the proposed improvements than for the No-Build Alternative. Thus, in the long term, post-construction operational energy requirements should offset construction and maintenance energy requirements and result in a net savings in energy usage.

5 Environmental Commitments and Mitigation

5.1 Environmental Commitments

- Wetlands and waters of the U.S. will be mitigated per the requirements of the anticipated Clean Water Act Section 404 Permit from the USACE and any additional mitigation requirements from IDNR.
- All tree removal will occur between October 15 and March 31 to avoid impacts to the northern long-eared bat (*Myotis septentrionalis*) habitat.
- Wildlife crossings are recommended for the area near Blackberry Creek.

5.2 Special Design and Construction Considerations

Special waste issues that may arise in the construction phase will be managed in accordance with IDOT's Bureau of Design and Environment Policies and IDOT's Bureau *IDOT Standard Specifications for Road and Bridge Construction and Supplemental Specifications and Recurring Special Provisions*. Further environmental studies will be conducted if the proposed improvements require excavation adjacent to a property identified with a REC or requires excavation, including subsurface utility relocation, on a property with an easement.

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6 Coordination and Public Involvement

Public outreach and coordination has been extensive on this project. Coordination meetings have been conducted with resource and regulatory agencies through regularly conducted NEPA/404 Merger Meetings.

Five CAG have been conducted. A copy of minutes from these meetings can be found in **Appendix H**. In addition, meetings have been conducted with the general public and the local communities. Three Public Meetings have been held during this project. Public comments have been summarized in **Appendix H**. The following sections provide a summary of each of the public outreach meetings.

6.1 Public Information Meeting #1 (July 29, 2015)

The first public information meeting for the project was held on Wednesday, July 29, 2015 at the Academic and Professional Center (APC) Event Room at Waubonsee Community College, Route 47 at Waubonsee Drive, Sugar Grove, IL 60554 (Waubonsee Community College), from 4:00 PM to 7:00 PM. Advertisements for the meeting were published in the Daily Herald and Kane County Chronicles on July 8th, 2015 and July 28th, 2015 and meeting invitations/brochures were sent out in the mail. The meeting was attended by 103 people. Seventeen comment forms were received. For more information, please see **Appendix H**.

There were two rooms, one which contained a continuous audio-visual presentation that described the project, outlined the study process, provided a background and history, provided some information regarding the existing conditions, and described the opportunities for stakeholder involvement. The second room contained information, comment forms, and project study representatives. Information in the second room included boards and strip maps. The boards included information regarding the existing access along I-88, the limits of the project study, land use plans, existing and projected no-build traffic volumes, crash locations and statistics, and the project study timeline.

6.2 Community Advisory Group Meeting #1 (September 1, 2015)

The first CAG meeting for the project was held on Wednesday, September 1, 2015 from 10:00 A.M. to 12:30 P.M. in the APC Event Room at Waubonsee Community College. Twenty-nine CAG members were identified and 21 CAG members attended the meeting.

The meeting included a power point presentation that provided an introduction of the project team and CAG members, an overview of the project, a description of the CSS element, an overview of the Stakeholder Involvement Plan (SIP), and the CSS ground rules. Meeting attendees asked questions related to these topics, and were given the opportunity to work in small groups

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to document issues and concerns as part of a Community Context exercise. Based on the results of this exercise, CAG members crafted a draft Problem Statement through a facilitated discussion. For the detailed CAG meeting summary, see **Appendix H**.

6.3 Community Advisory Group Meeting #2 (November 18, 2015)

The second CAG meeting for the project was held on Wednesday, November 18, 2015 from 10:00 A.M. to 12:15 P.M. in the APC Event Room at Waubonsee Community College. The meeting was attended by 19 CAG members.

The meeting included a power point presentation that reviewed the previous meeting and the results of the community context audit, facilitated discussion on the problem statement, presented technical data, presented the draft purpose and need, and facilitated discussion of potential evaluation criteria. The goal of this meeting was to obtain an approved problem statement, obtain input from the CAG on the Draft Purpose and Need, and to identify potential evaluation criteria. For the detailed CAG meeting summary, see **Appendix H**.

6.4 Community Advisory Group Meeting #3 (March 10, 2016)

The third CAG meeting for the project was held on Thursday, March 10, 2016 from 9:30 A.M. to 11:30 A.M. at the in the APC Event Room at Waubonsee Community College. The meeting was attended by 15 CAG members.

The meeting included a power point presentation that reviewed the previous meeting, reviewed and attained a general understanding of agreement on the purpose and need, presented a primer on interchanges and highway corridor tools, and facilitated an alternatives exercise to help develop the initial range of alternatives. The goal of this meeting was to attain a general understanding of agreement on the Purpose and Need and for the CAG to assist in developing an initial range of alternatives. For the detailed CAG meeting summary, see **Appendix H**.

6.5 Public Information Meeting #2 (May 3, 2016)

The second public information meeting for the project was held on Tuesday, May 3, 2016 in the APC Event Room at Waubonsee Community College, from 4:00 PM to 7:00 PM. Advertisements for the meeting were published in the Daily Herald and Kane County Chronicles on April 7th, 2016 and April 28th, 2016 and meeting invitations/brochures were sent out in the mail. The meeting was attended by 58 people. Eleven comment forms were received. For more information, please see **Appendix H**.

There were two rooms, one which contained a continuous audio-visual presentation that described the project summary, provided the study process and schedule, reviewed the purpose

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and need, and described development of project alternatives. The second room contained information, comment forms, and the project study representatives. Information in the second room included boards, binders and strip maps. The boards included: information regarding the existing access along I-88, the limits of the project study, the purpose and need information, the public involvement process, environmental study overview, existing and projected no-build traffic volumes, existing level of service, crash locations and statistics, the community advisory group summary to date, and the project study timeline. The binders and strip maps included the project location, the CAG interchange alternative sketches, and the range of interchange alternatives. Attendees were provided an opportunity to speak with representatives from the Village of Sugar Grove, IDOT, Kane County, and the Illinois Tollway.

6.6 Community Advisory Group Meeting #4 (November 15, 2016)

The fourth CAG meeting for the project was held on Tuesday, November 15, 2016 from 9:30 A.M. to 11:30 A.M. in the APC Event Room at Waubensee Community College. The meeting was attended by 10 CAG members.

The meeting included a power point presentation that reviewed the previous CAG #3 meeting, Public Information #2 meeting, range of IL 47 Mainline Alternatives and IL 47 and I-88 Interchange Alternatives, and the screening process for the range of alternatives. The goal of this meeting was to present a range of alternatives considered, explain the Alternative Screening Process, and describe and seek input on the range of alternatives to be carried forward for the project. For the detailed CAG meeting summary, see **Appendix H**.

6.7 Public Information Meeting #3 (March 28, 2017)

The third public meeting for the project was held on Tuesday, March 28, in the APC Event Room at Waubensee Community College, from 4:00 PM to 7:00 PM. Advertisements for the meeting were published in the Daily Herald and Kane County Chronicles on March 9th, 2017 and March 16th, 2017 and meeting invitations/brochures were sent out in the mail. The meeting was attended by 99 people and 16 comment forms were received. For more information, please see **Appendix H**.

Attendees signed in and a brochure unique to Public Meeting #3 was provided. There were two rooms for attendees to learn more about the project. One room contained a continuous audio-visual presentation that described the project summary, provided the study process and schedule, outlined the alternative screening process, and described the alternatives carried forward. The second room contained more detailed information, comment forms, and project study team representatives. Information in the second room included exhibit boards and roll plot maps.

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The exhibit boards generally included: the limits of the project study; the purpose and need for the project; the public involvement process and schedule; an environmental study overview; traffic volumes and projections; capacity analysis results, crash locations and statistics; the alternatives evaluation, screening process and results; and the alternatives to be carried forward. Roll plot maps included plan layouts of the IL 47 and I-88 Alternatives Carried Forward which identified impacts.

6.8 Community Advisory Group Meeting #5 (May 31, 2017)

The fifth CAG meeting for the project was held on Wednesday, May 31st from 9:30 A.M. to 11:30 A.M. in the APC Event Room at Waubensee Community College. The meeting was attended by 25 CAG members.

The meeting included a PowerPoint presentation that reviewed the previous public involvement activities and feedback (CAG #4 and Public Meeting #3), presented the potential evaluation criteria suggested by the CAG (from CAG #2) in relation to the alternatives to be carried forward for the interchange at I-88 and the IL 47 corridor, presented the alternatives evaluation, and presented the decision-making process for selection of the Preferred Alternative. The goal of this meeting was to address issues and concerns, identify the Preferred Alternative, and obtain input on the Preferred Alternative for further study, design refinement, and impact identification. For the detailed CAG meeting summary, see **Appendix H**.

6.9 Public Hearing (Tentatively Scheduled)

The next public outreach meeting is the Public Hearing, which is tentatively scheduled for the end of 2017.

6.10 Next Steps

The process IDOT uses to complete a project is broken into three Phases. Phase I is where the purpose and need is developed, an alternative analysis, environmental studies and stakeholder involvement is completed followed by the publication of the EA which is the next step for proposed Project. The EA will be published in order for agencies and the public to review and make comments; then a public hearing will be held. If any changes are needed, IDOT will prepare an Errata to the EA which will also be made public. The public hearing transcript, response to any comments, and the Errata will be submitted to FHWA by IDOT with a recommendation to issue a Finding of No Significant Impact (FONSI). This will conclude the NEPA process. If FHWA issues a FONSI then the Project may proceed to final design and construction. If FHWA determines there are significant impacts, then IDOT will prepare an Environmental Impact Statement (EIS).

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This project is included in the FY 2014-2019 Transportation Improvement Program (TIP) endorsed by the Metropolitan Planning Organization Policy Committee of the CMAP for the region in which the project is located. Phase II and Phase III funding is identified in the TIP. Phase II includes the final design, contract document, and land acquisition process. Construction of the proposed Project will begin in Phase III.

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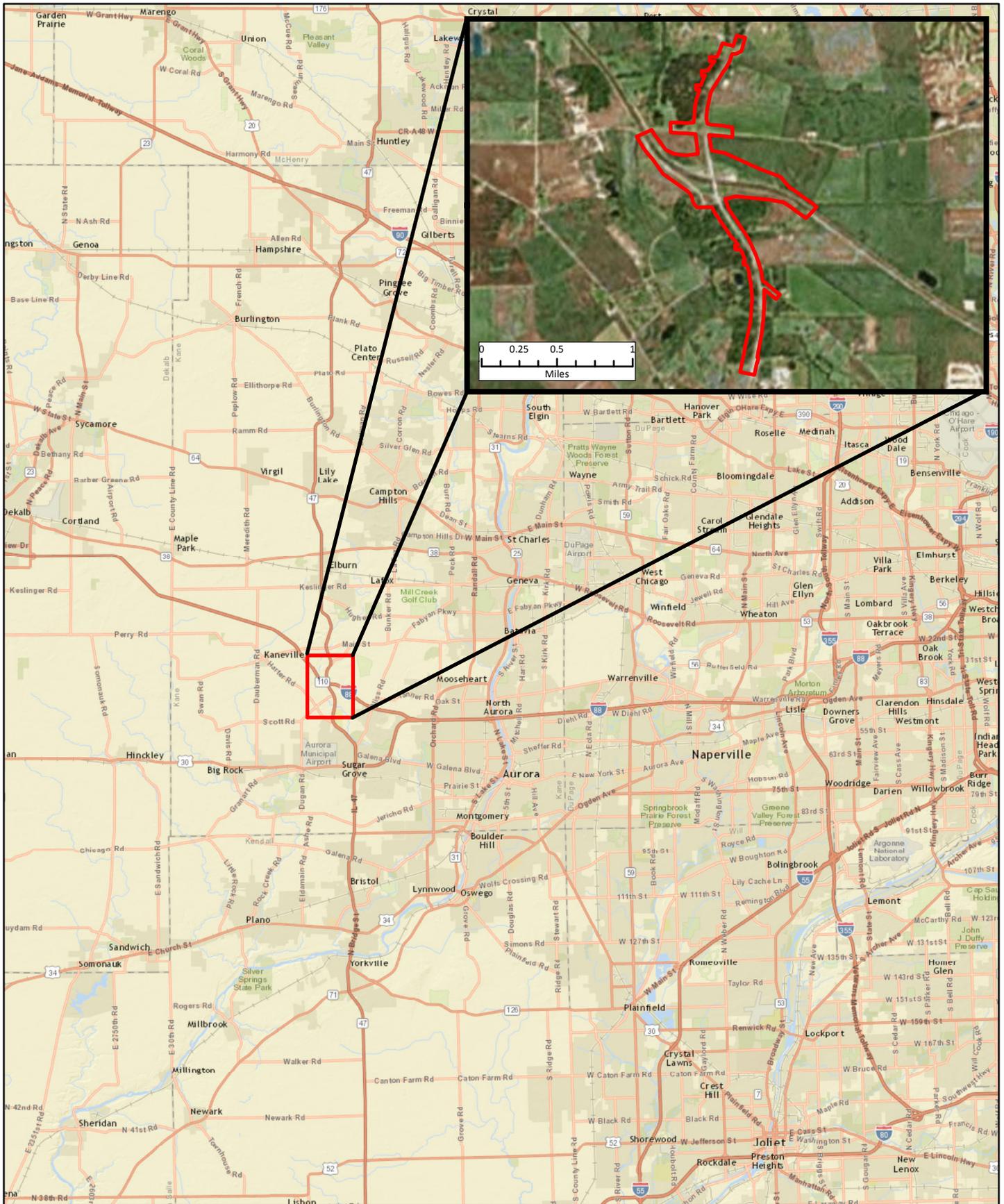
Exhibits

- 1 Project Location Map
- 2 Existing Land Use⁽¹⁾
- 3 Future Land Use⁽¹⁾
- 4 2015 Kane/Kendall County Bicycle Planning Map⁽²⁾
- 5 Projected No Build Traffic Volumes
- 6 Projected 2040 Build Traffic Volumes
- 7 Design Hourly Volumes
- 8 Level of Service Diagrams
- 9 Environmental Inventory Map
- 10 Well Location Map
- 11 Kane County Forest Preserve District Land and Water Conservation Fund Properties

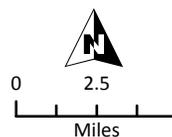
(1) Source: *Village of Sugar Grove Comprehensive Plan*, www.sugar-grove.il.us

(2) Source: *2015 Kane/Kendall County Planning Map*, www.kdot.countyofkane.org/publications/planning

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 Project Location



Project Location Map

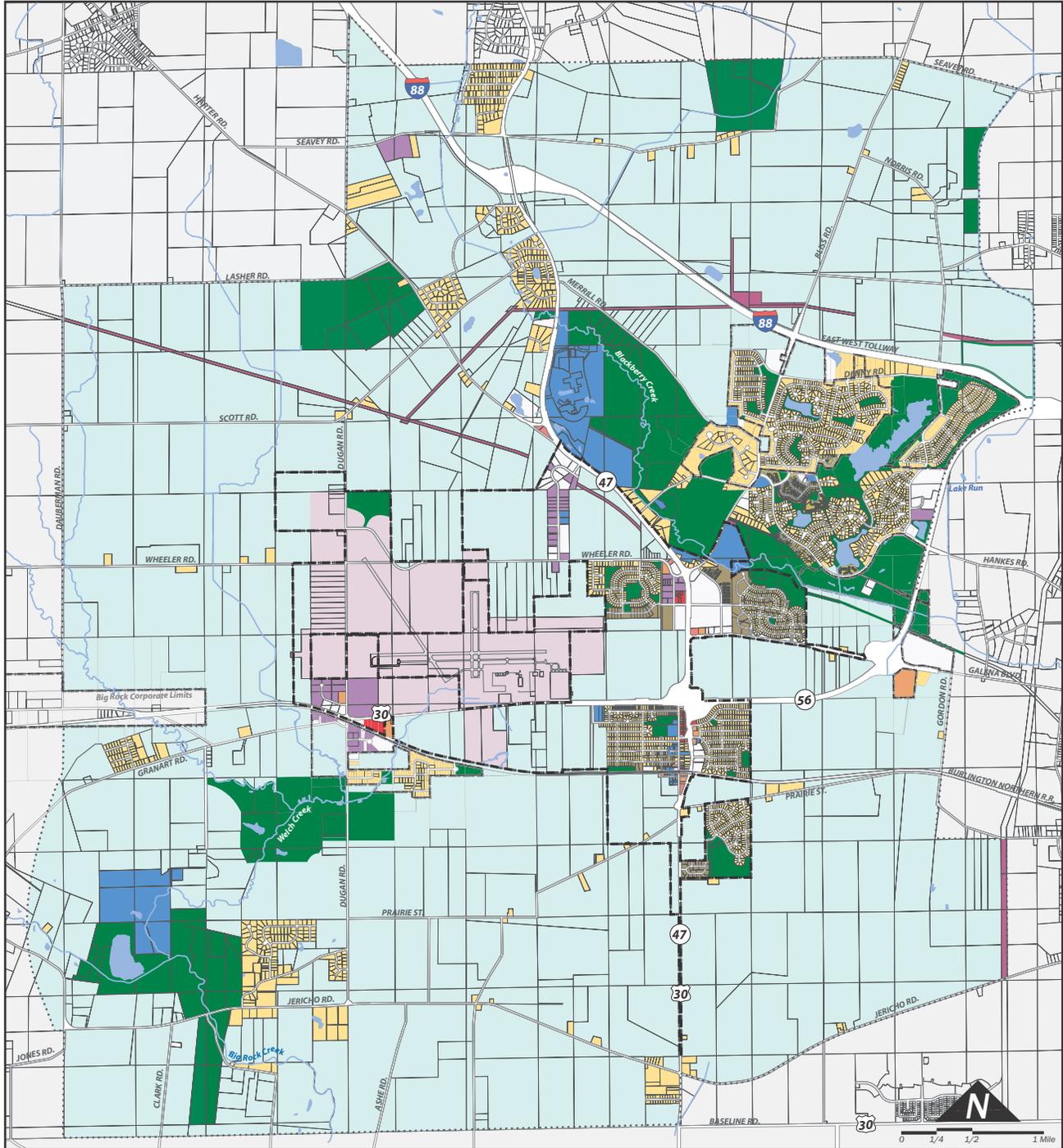
Sugar Grove Parkway
Interchange at I-88 and IL 47
FAP Route 326 Illinois Route 47
at Reagan Memorial Tollway (I-88)

P-91-015-14
Exhibit 1

Service Layer Credits:
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

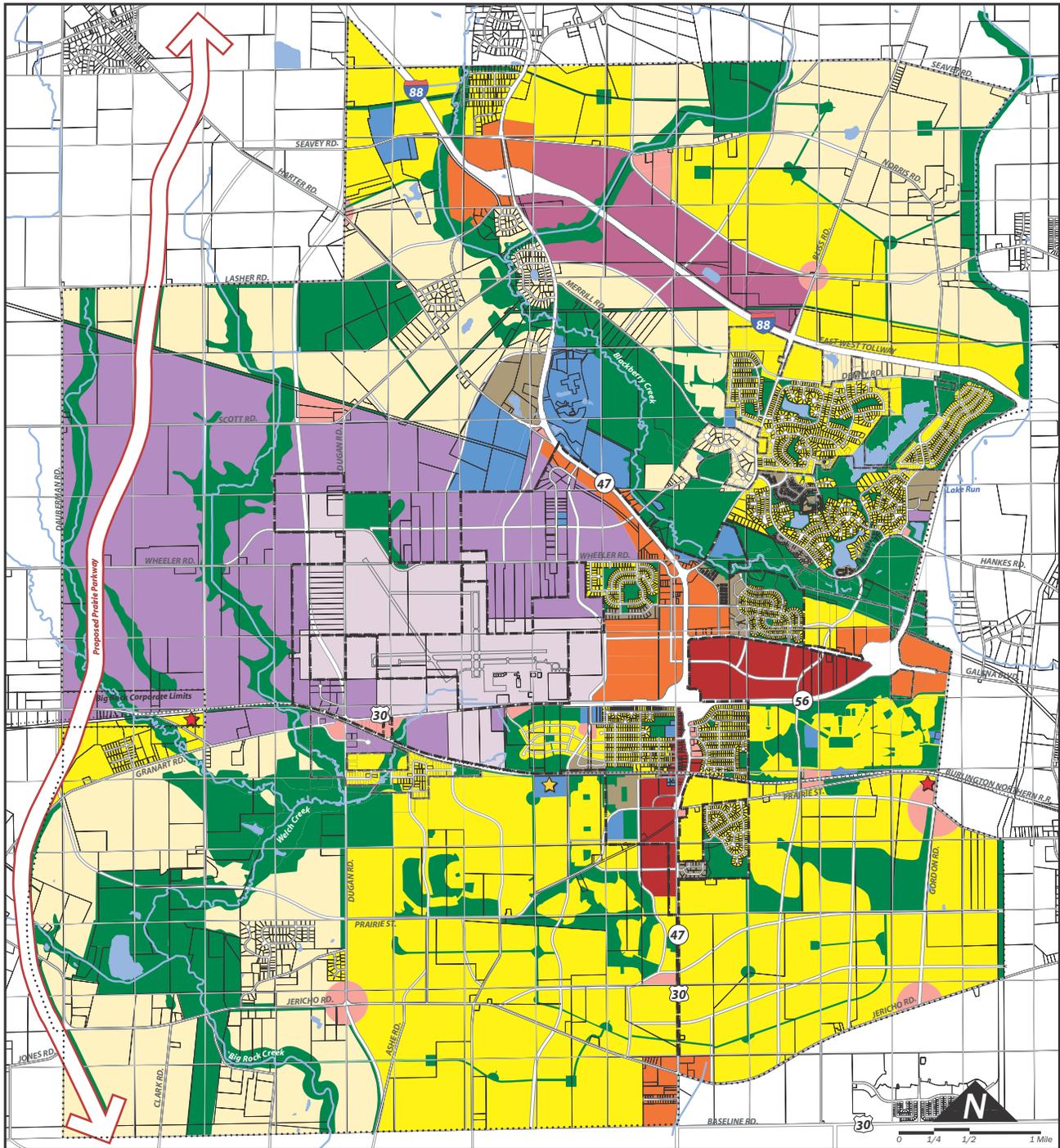
- | | | |
|------------------------------------|---|---|
| Detached Single Family Residential | Industrial | Agricultural Land |
| Attached Single-Family Residential | Aurora Municipal Airport | Village of Sugar Grove Corporate Limits |
| Multi-Family Residential | Public/Semi Public & Institutional Property | Planning Boundary |
| Commercial Retail | Parks/Recreation/Open Space | Stream/Watercourse |
| Commercial Service | Utility | |
| Mixed Commercial | Vacant Land | |

Existing Land Use



- Estate Residential
- Single Family Residential
- Multi-Family Residential
- Neighborhood Commercial
- Town Center Commercial
- Corridor Commercial
- Corporate Campus
- Business Park
- Open Space
- Public/Semi-Public
- Airport
- Stream/Watercourse
- Village of Sugar Grove Planning Area
- Existing Corporate Limits
- Metra Station
- Alternate Metra Stations

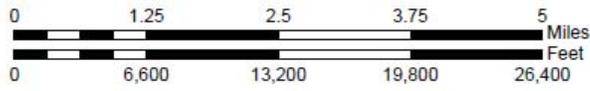
Land Use Plan



Village of Sugar Grove Comprehensive Plan

Prepared By: **URS • TPAP**

2015 Kane/Kendall County Planning Map



Created: 5/5/2015
KKCOM/KDOT - PMK



Bike Facilities

- Existing Bike Route
- Existing Bike Lane
- Existing Path
- Forest Preserve Path
- Programmed Bike Route
- Programmed Bike Lane
- Programmed Path
- Planned Unknown
- Planned Bike Route
- Planned Bike Lane
- Planned Path
- - - Future
- Regional Trail

Roads

- Interstate
- US/State Road
- County Road
- Township Road

Railroad

- Railroad
- Metra Station

Schools



Land Use

- Townships
- Counties
- Forest Preserves
- Water

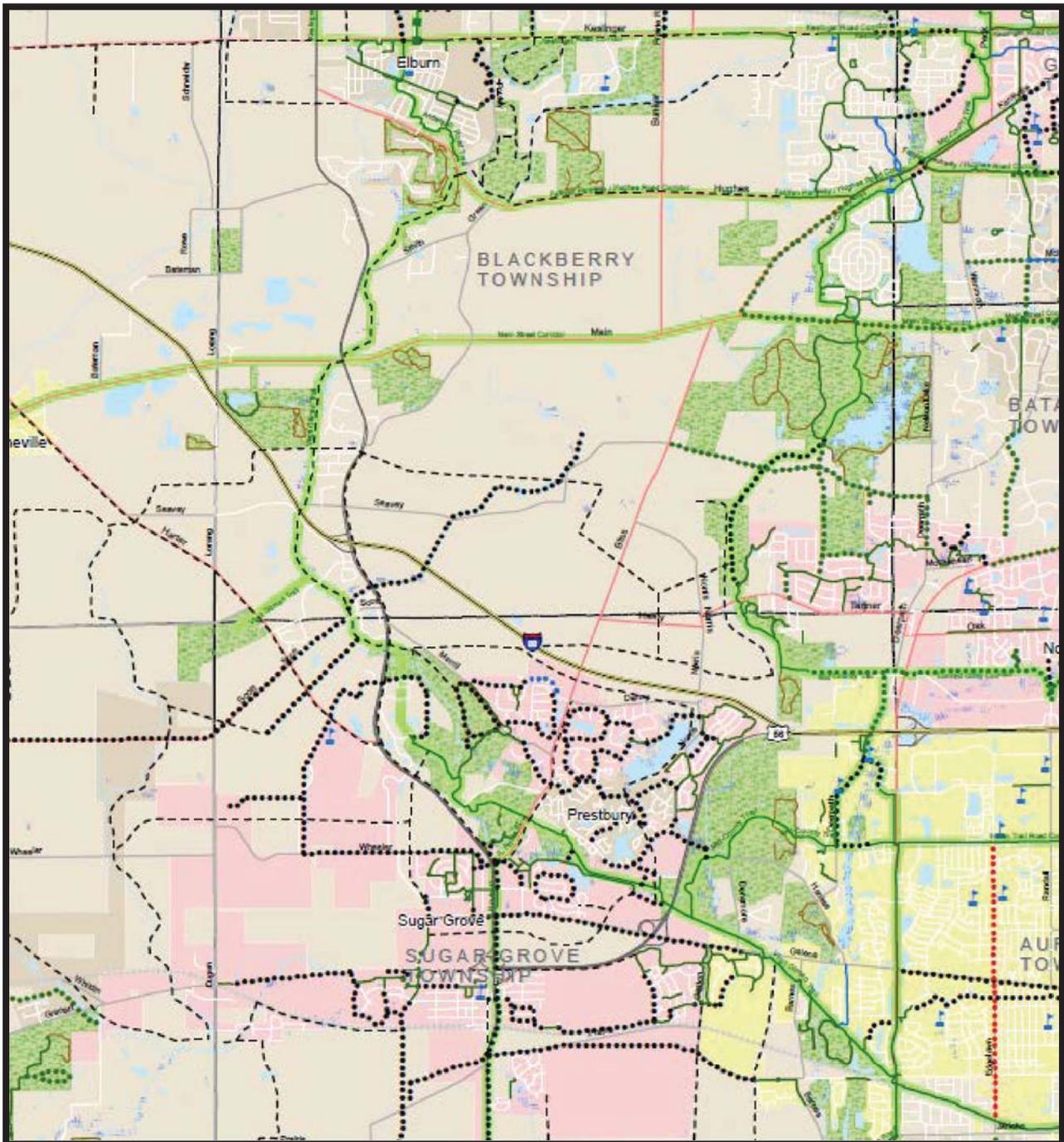
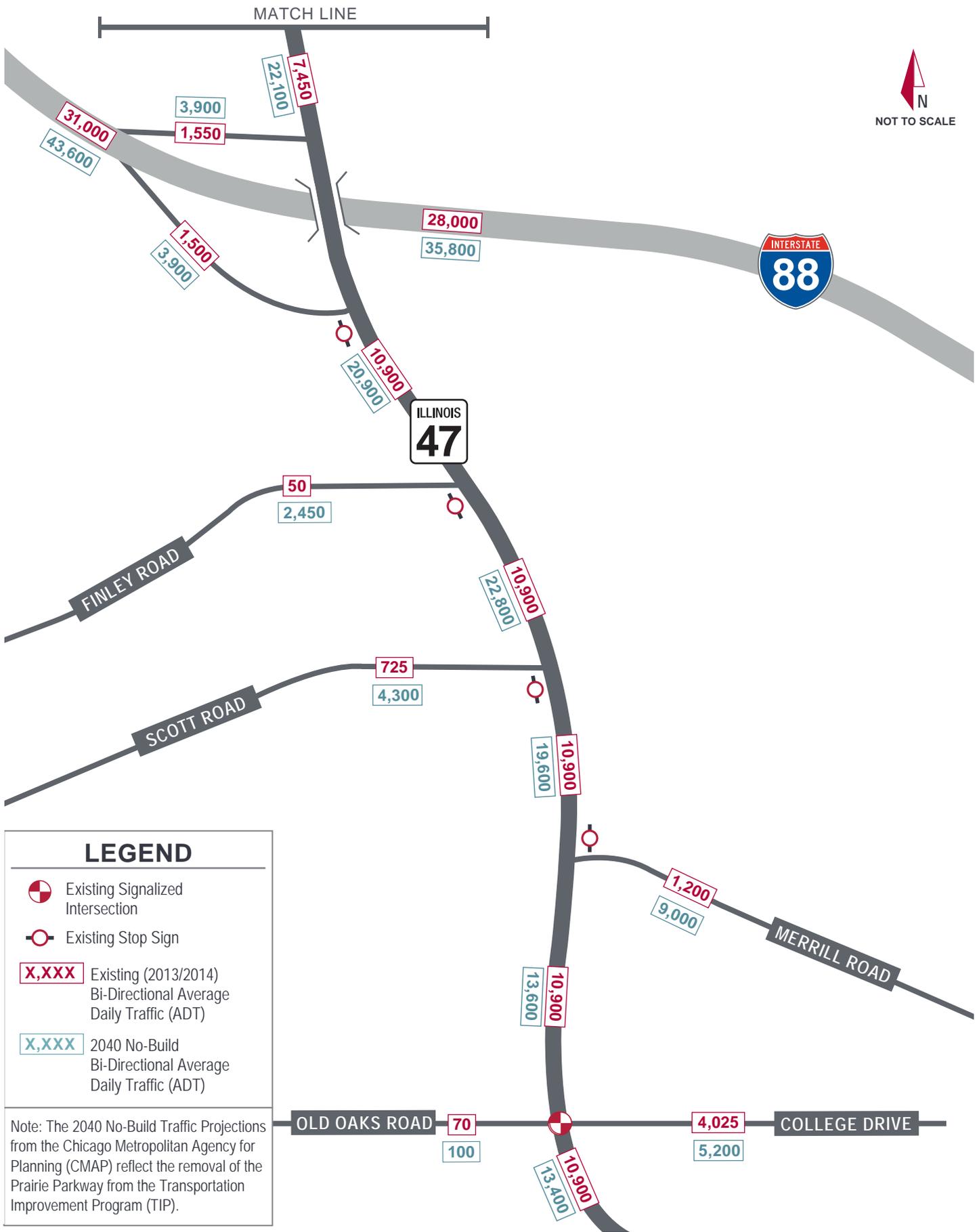


Exhibit 4



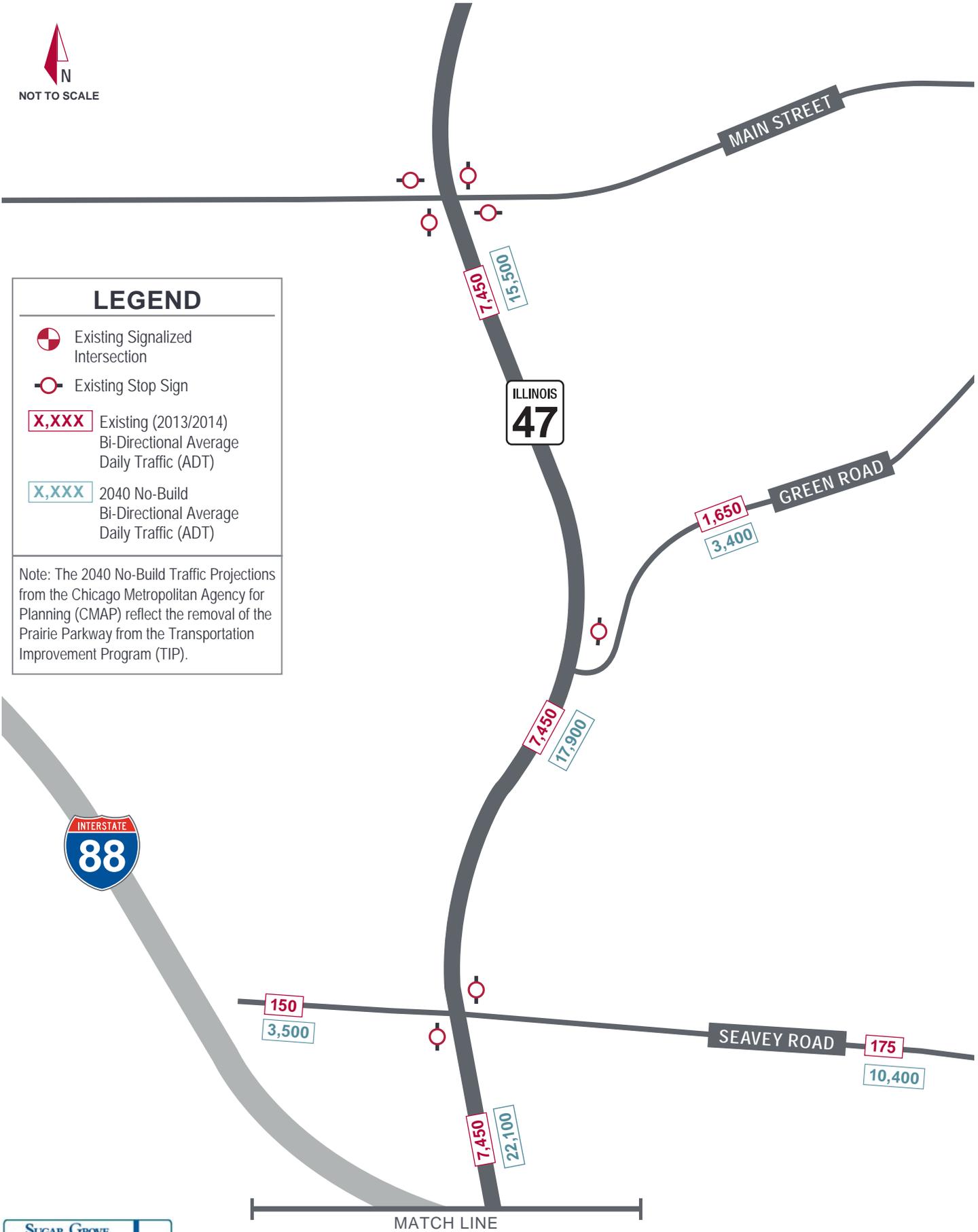
**SOUTH STUDY INTERSECTIONS
EXISTING TRAFFIC VOLUMES - PROJECTED NO-BUILD TRAFFIC VOLUMES**



LEGEND

- Existing Signalized Intersection
- Existing Stop Sign
- X,XXX Existing (2013/2014) Bi-Directional Average Daily Traffic (ADT)
- X,XXX 2040 No-Build Bi-Directional Average Daily Traffic (ADT)

Note: The 2040 No-Build Traffic Projections from the Chicago Metropolitan Agency for Planning (CMAP) reflect the removal of the Prairie Parkway from the Transportation Improvement Program (TIP).



MATCH LINE

NORTH STUDY INTERSECTIONS
EXISTING TRAFFIC VOLUMES - PROJECTED NO-BUILD TRAFFIC VOLUMES

MATCH LINE



LEGEND

-  Existing Signalized Intersection
-  Existing Stop Sign
-  X,XXX 2040 Build Bi-Directional Average Daily Traffic (ADT)

Note: The 2040 Build Traffic Projections from the Chicago Metropolitan Agency for Planning (CMAP) reflect the removal of the Prairie Parkway from the Transportation Improvement Program (TIP).



SOUTH STUDY INTERSECTIONS PROJECTED 2040 BUILD TRAFFIC VOLUMES



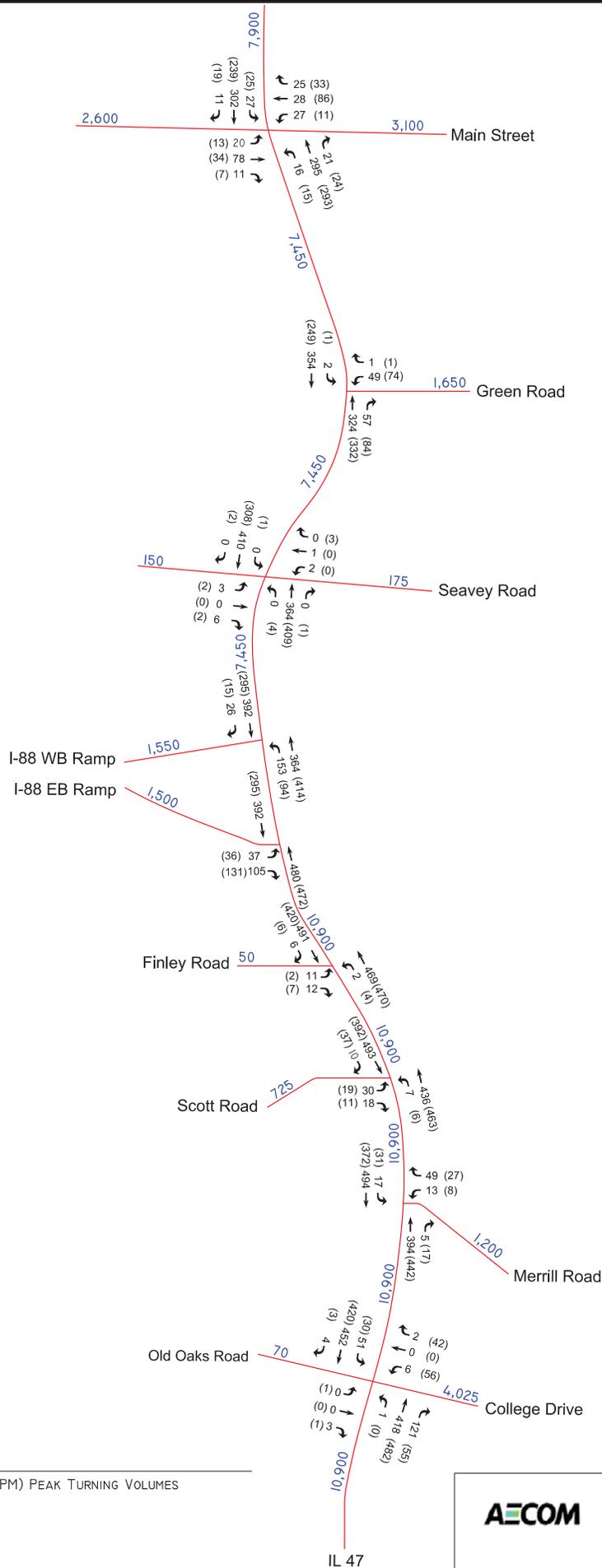
LEGEND

- Existing Signalized Intersection
- Existing Stop Sign
- 2040 Build Bi-Directional Average Daily Traffic (ADT)

Note: The 2040 Build Traffic Projections from the Chicago Metropolitan Agency for Planning (CMAP) reflect the removal of the Prairie Parkway from the Transportation Improvement Program (TIP).



NORTH STUDY INTERSECTIONS PROJECTED 2040 BUILD TRAFFIC VOLUMES



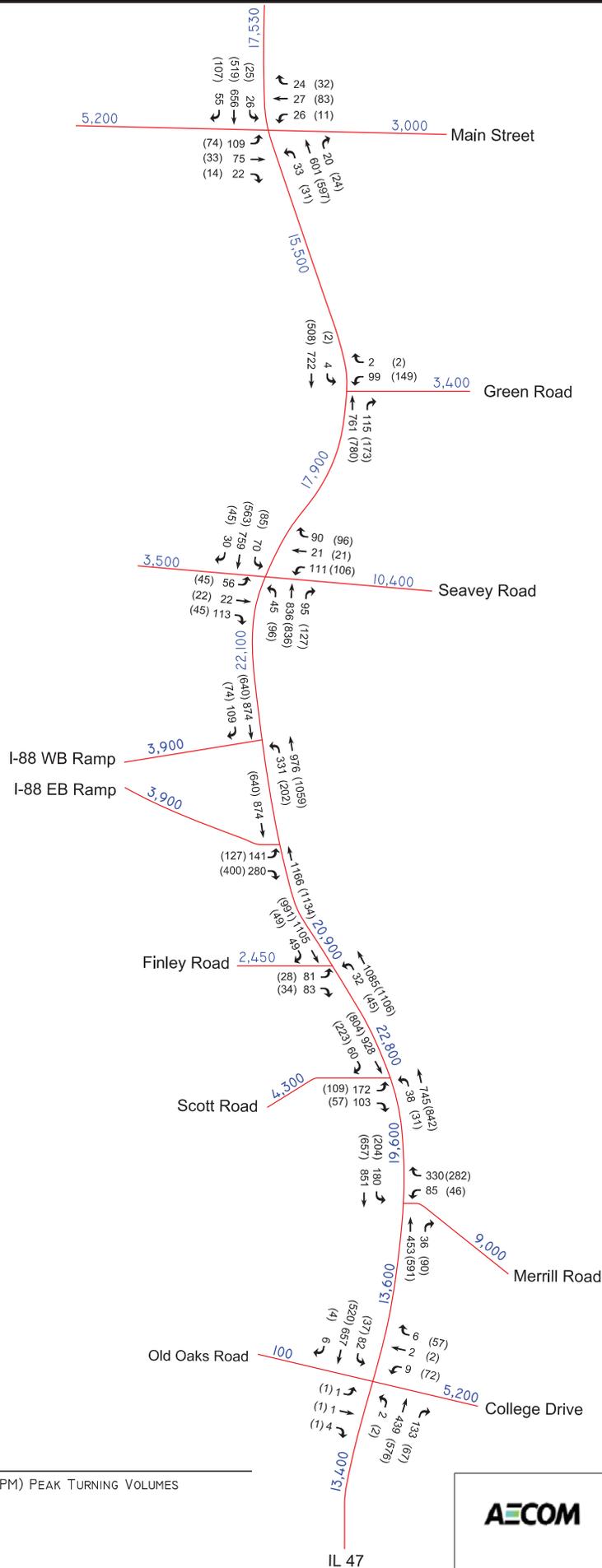
LEGEND
 ## (##) AM (PM) PEAK TURNING VOLUMES
 ## ADT

DRAWING NOT TO SCALE

AECOM

June 2016

Existing
IL 47 @ I-88 Exhibit 7.1



LEGEND

(##) AM (PM) PEAK TURNING VOLUMES
ADT

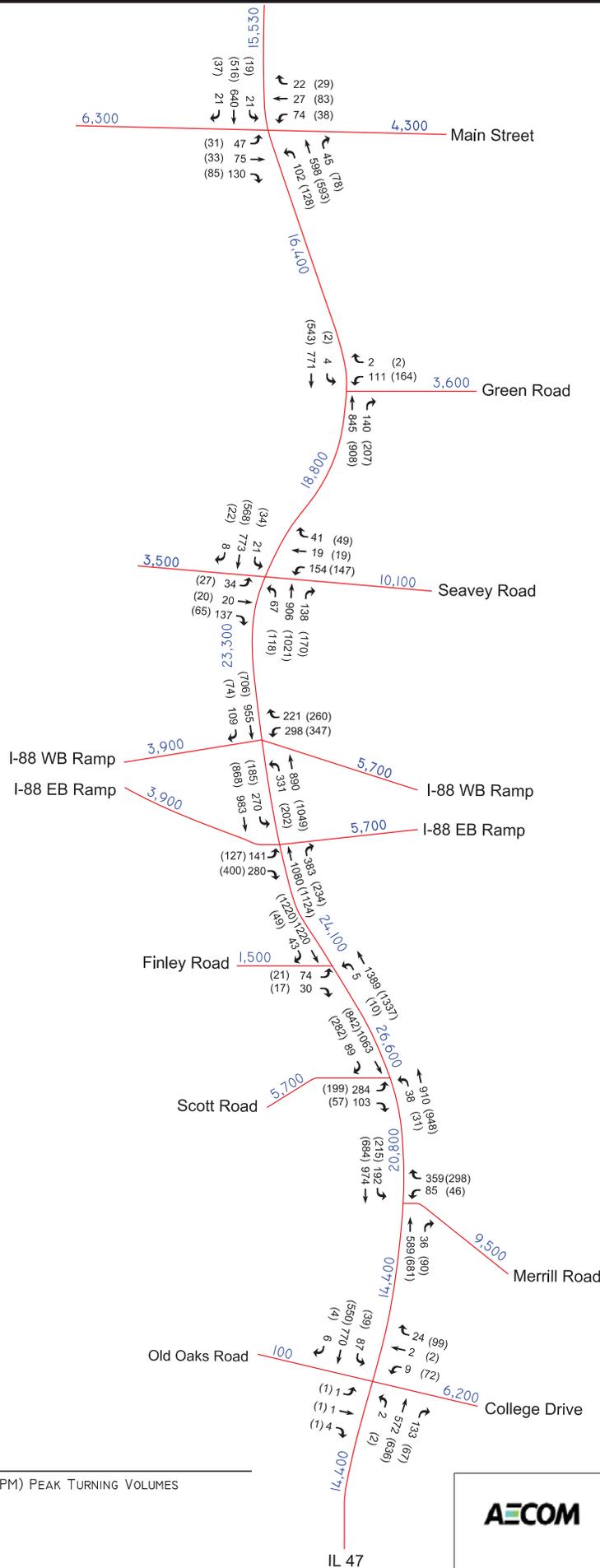
DRAWING NOT TO SCALE

AECOM

June 2016

2040 No Build

IL 47 @ I-88 Exhibit 7.2



LEGEND

(##) AM (PM) PEAK TURNING VOLUMES
ADT

DRAWING NOT TO SCALE



June 2016

2040 Build

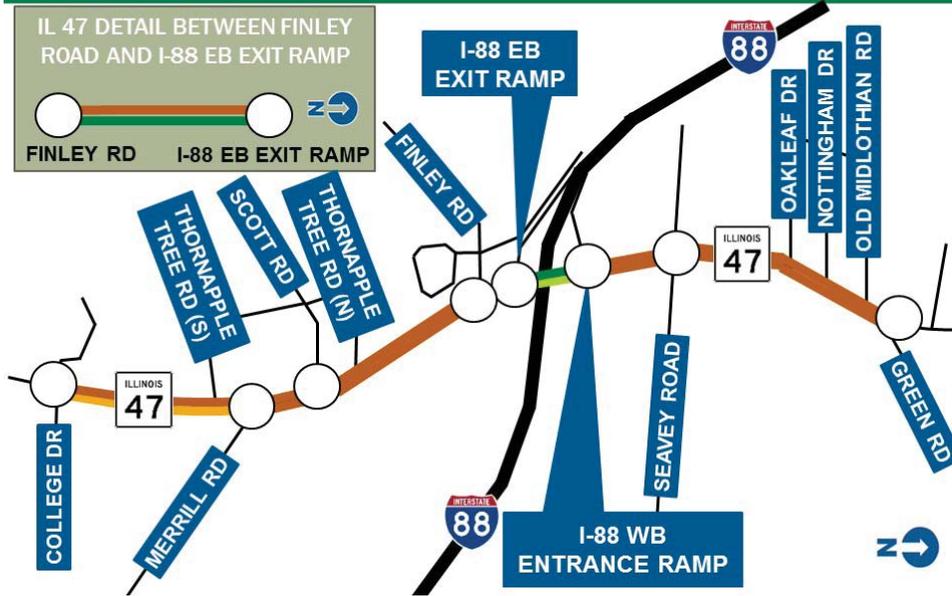
IL 47 @ I-88 Exhibit 7.3

CAPACITY - LEVEL OF SERVICE (LOS)

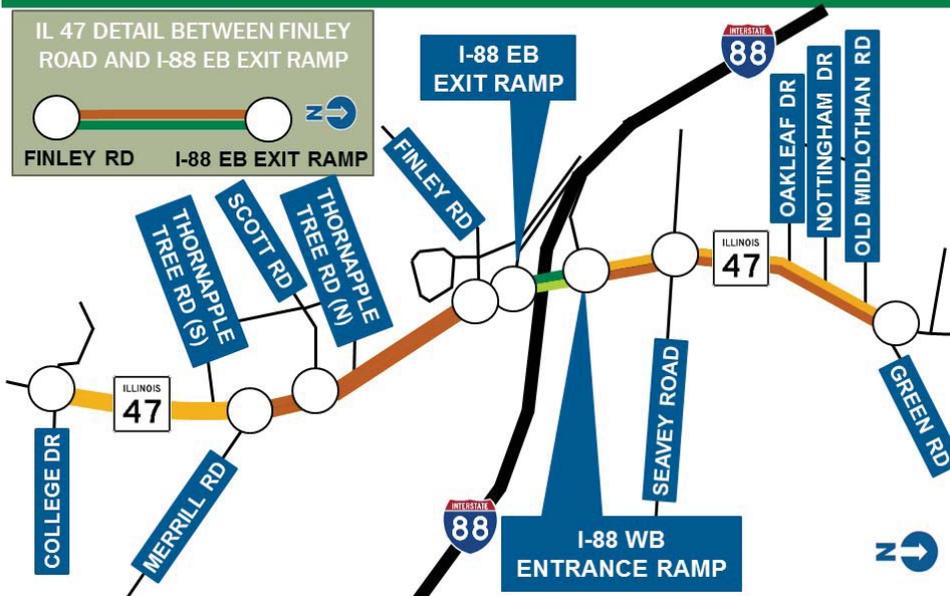


LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
FREE FLOW	FREE FLOW	NEAR FREE FLOW	TRAFFIC FLOW BREAKS DOWN	CONGESTION	GRIDLOCK

CAPACITY - 2040 NO-BUILD AM PEAK LOS



CAPACITY - 2040 NO-BUILD PM PEAK LOS

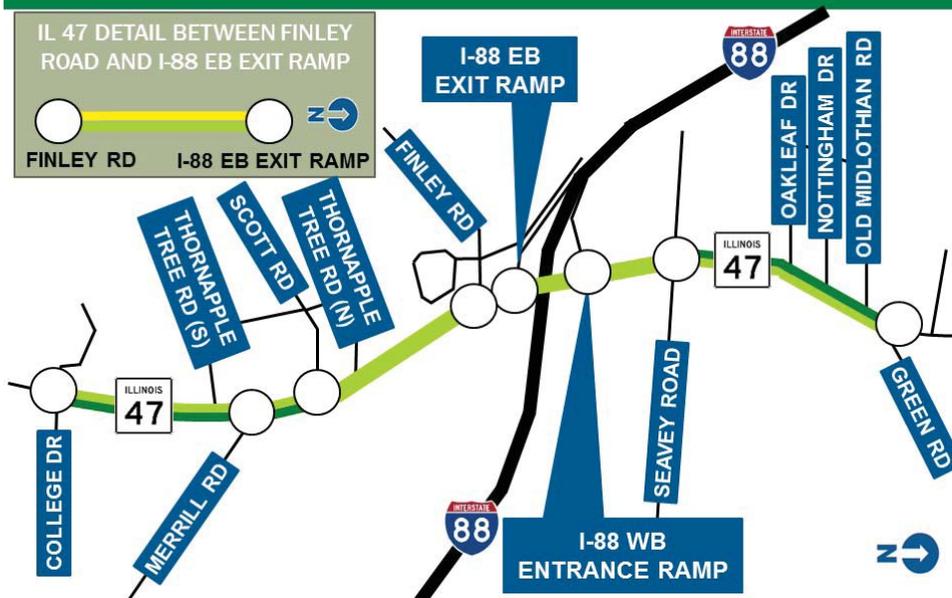


CAPACITY - LEVEL OF SERVICE (LOS)

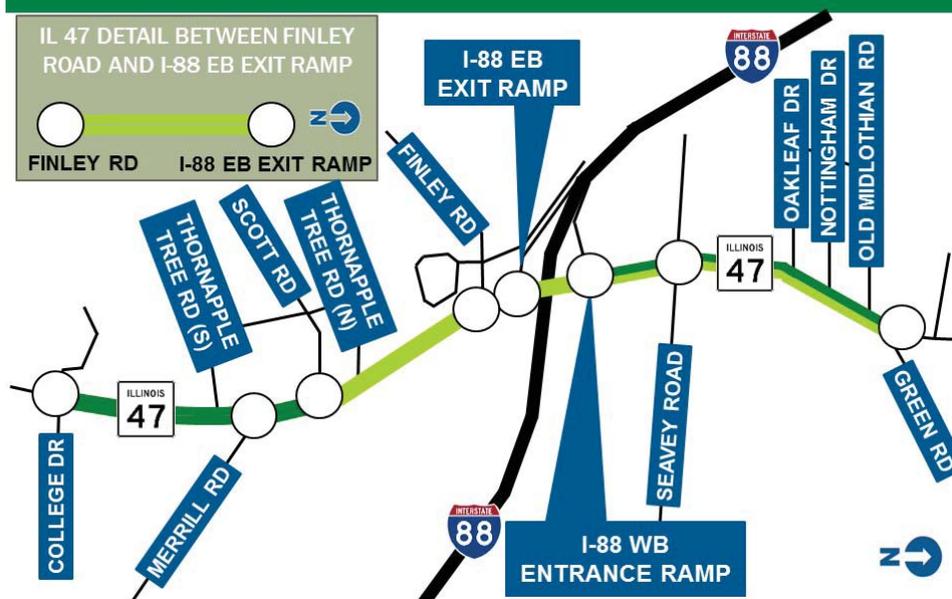


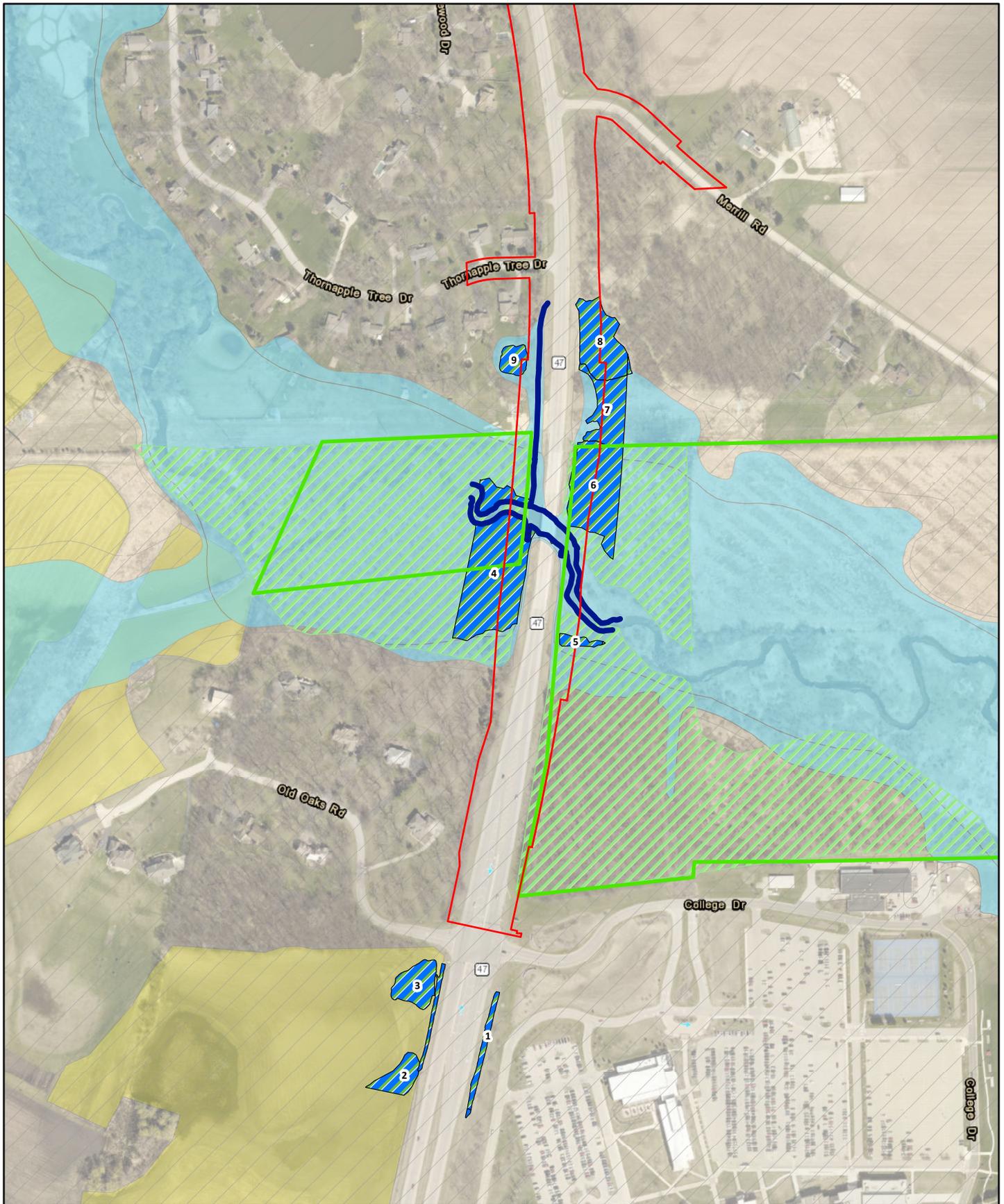
LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
FREE FLOW	FREE FLOW	NEAR FREE FLOW	TRAFFIC FLOW BREAKS DOWN	CONGESTION	GRIDLOCK

CAPACITY - 2040 BUILD AM PEAK LOS

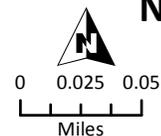


CAPACITY - 2040 BUILD PM PEAK LOS





- Forest Preserve
- Waters of the U.S.
- Flood Hazard AE
- Forested Area
- Wetland Sites
- Flood Hazard X
- Farmland
- Flood Hazard A
- Proposed ROW



Natural Resources Map

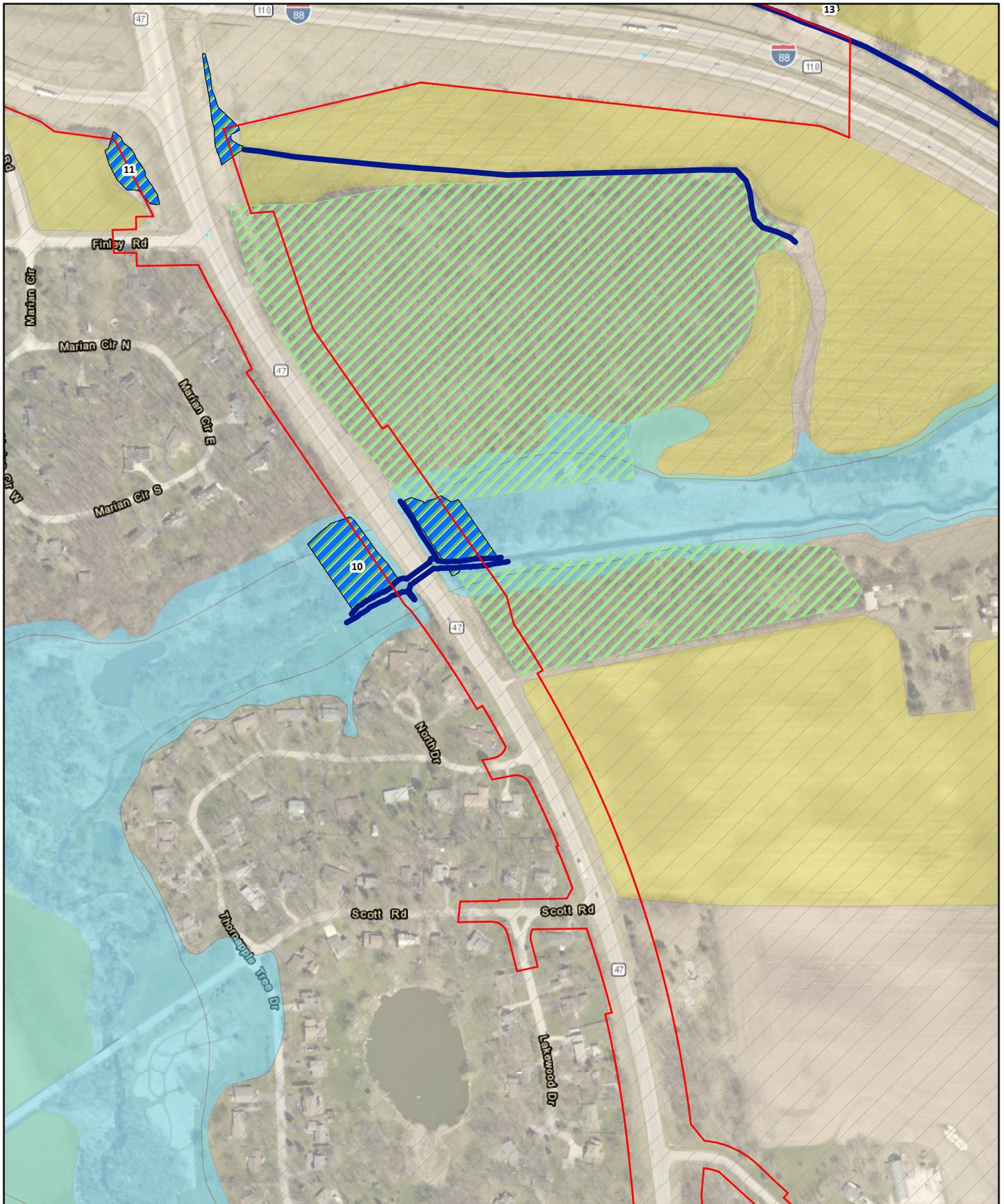
Sugar Grove Parkway
Interchange at I-88 and IL 47
FAP Route 326 Illinois Route 47
at Reagan Memorial Tollway (I-88)

P-91-015-14

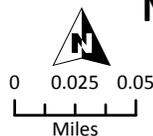
Exhibit 9.1

5/15/2017

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
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- | | | |
|-----------------|--------------------|-----------------|
| Forest Preserve | Waters of the U.S. | Flood Hazard AE |
| Forested Area | Wetland Sites | Flood Hazard X |
| Farmland | Flood Hazard A | Proposed ROW |



Natural Resources Map

Sugar Grove Parkway
Interchange at I-88 and IL 47
FAP Route 326 Illinois Route 47
at Reagan Memorial Tollway (I-88)

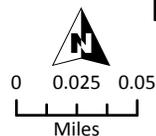
P-91-015-14
Exhibit 9.2

5/15/2017

Service Layer Credits:
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Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



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|-----------------|--------------------|-----------------|
| Forest Preserve | Waters of the U.S. | Flood Hazard AE |
| Forested Area | Wetland Sites | Flood Hazard X |
| Farmland | Flood Hazard A | Proposed ROW |



Natural Resources Map

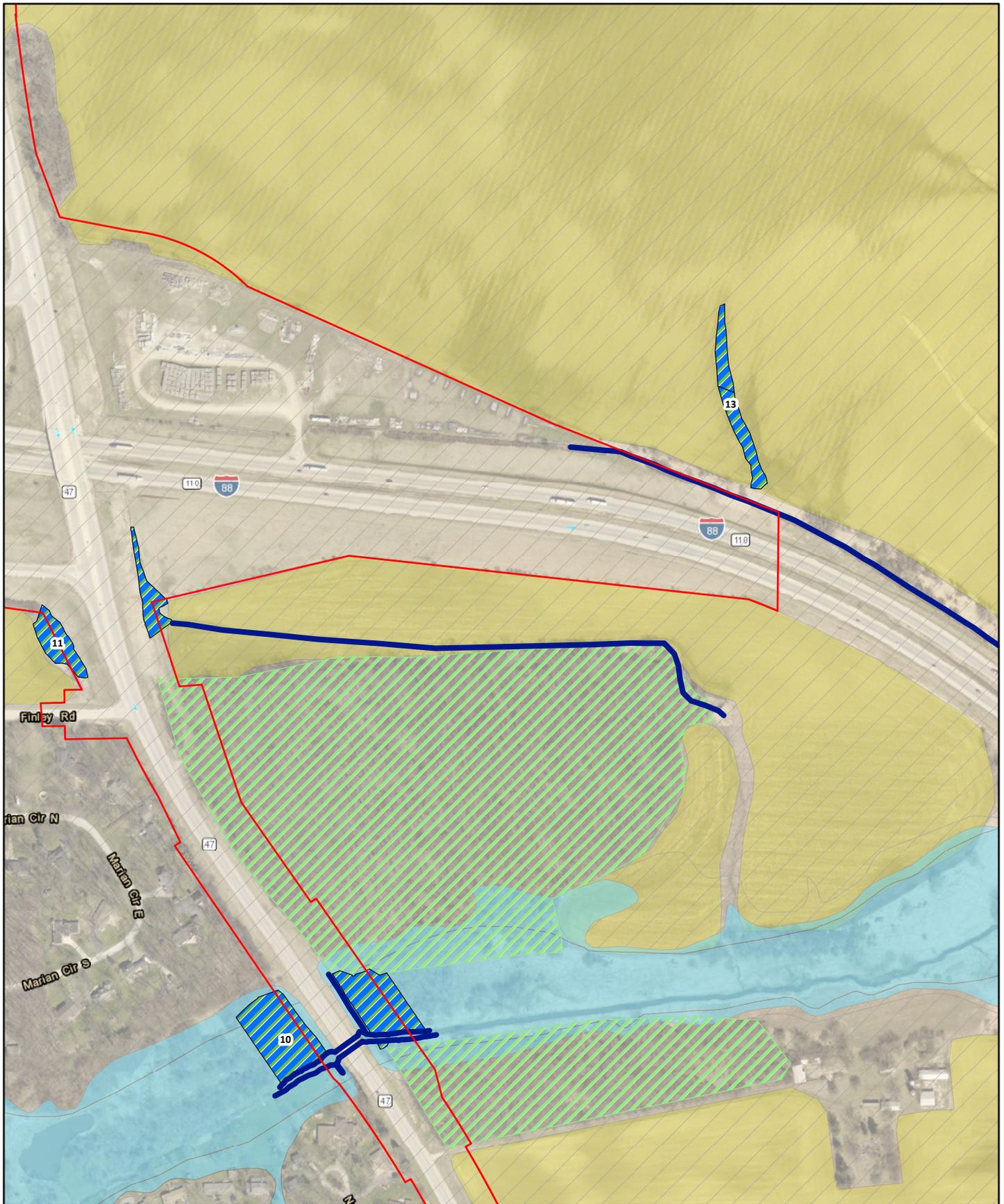
Sugar Grove Parkway
 Interchange at I-88 and IL 47
 FAP Route 326 Illinois Route 47
 at Reagan Memorial Tollway (I-88)

P-91-015-14

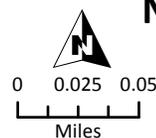
Exhibit 9.3

5/15/2017

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 Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



- | | | |
|-----------------|--------------------|-----------------|
| Forest Preserve | Waters of the U.S. | Flood Hazard AE |
| Forested Area | Wetland Sites | Flood Hazard X |
| Farmland | Flood Hazard A | Proposed ROW |



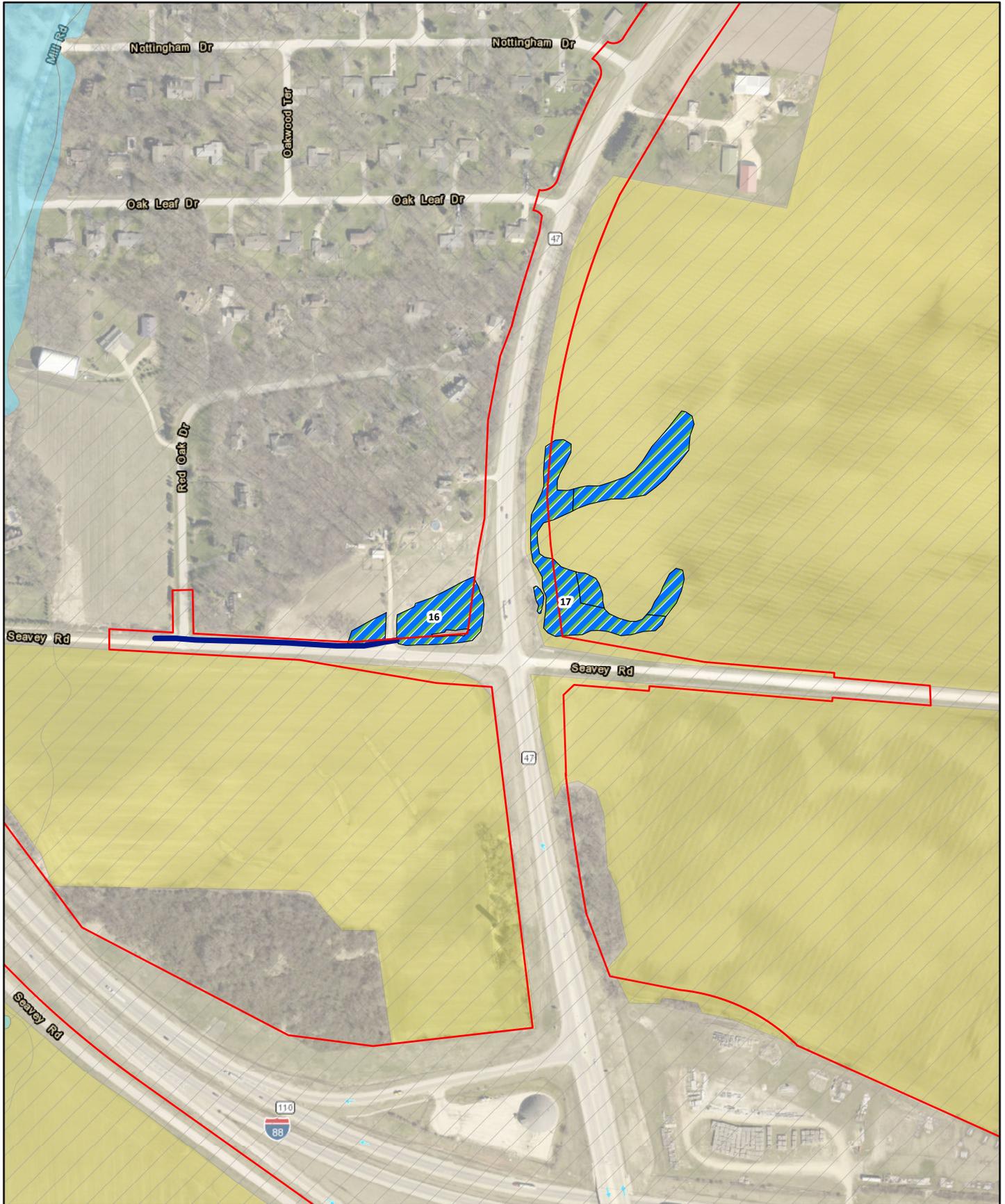
Natural Resources Map

Sugar Grove Parkway
Interchange at I-88 and IL 47
FAP Route 326 Illinois Route 47
at Reagan Memorial Tollway (I-88)

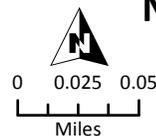
P-91-015-14

Exhibit 9.4

5/15/2017



- | | | |
|-----------------|--------------------|-----------------|
| Forest Preserve | Waters of the U.S. | Flood Hazard AE |
| Forested Area | Wetland Sites | Flood Hazard X |
| Farmland | Flood Hazard A | Proposed ROW |

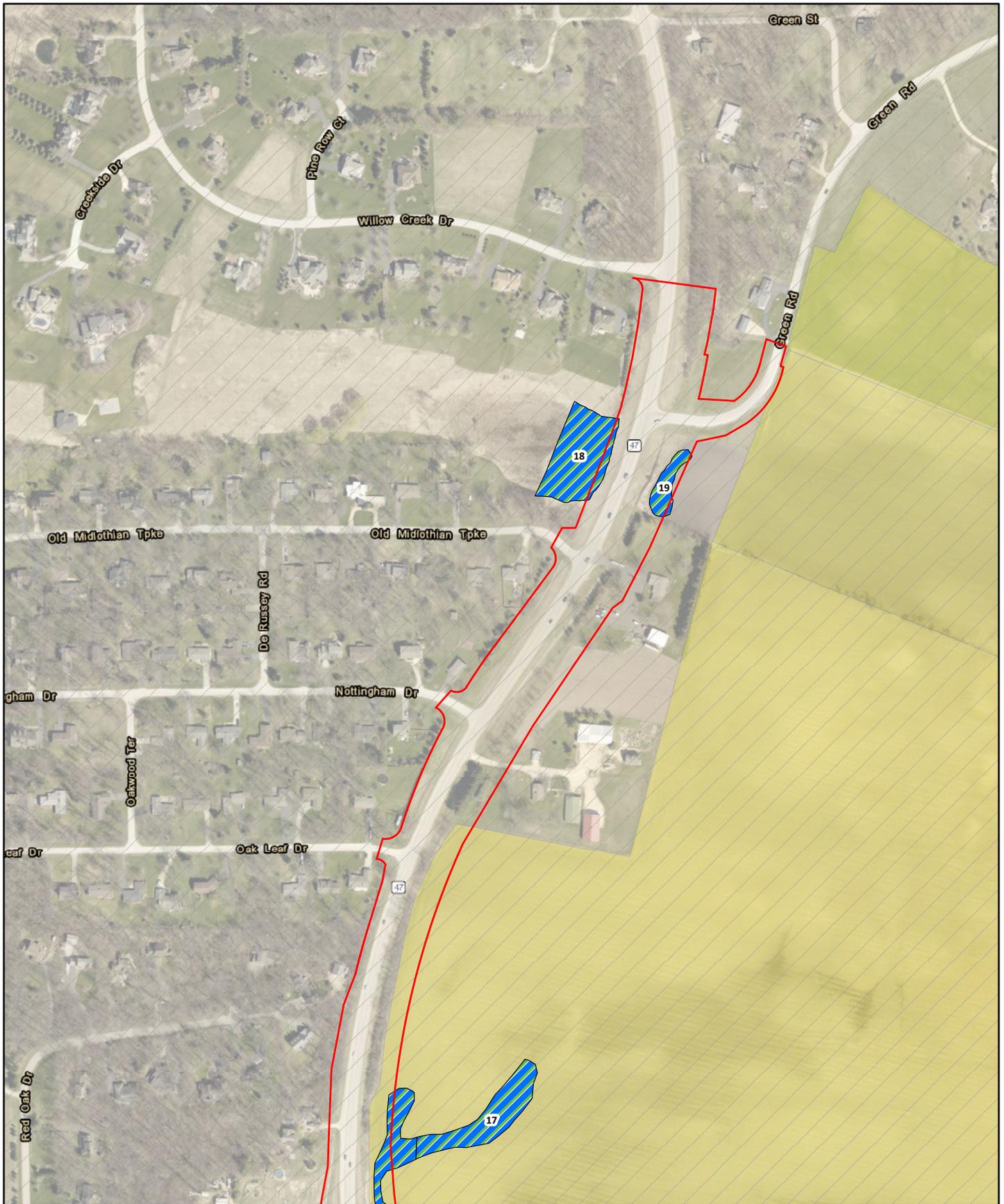


Natural Resources Map

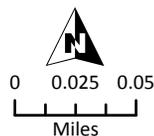
Sugar Grove Parkway
Interchange at I-88 and IL 47
FAP Route 326 Illinois Route 47
at Reagan Memorial Tollway (I-88)

P-91-015-14
Exhibit 9.5

Service Layer Credits:
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- | | | |
|-----------------|--------------------|-----------------|
| Forest Preserve | Waters of the U.S. | Flood Hazard AE |
| Forested Area | Wetland Sites | Flood Hazard X |
| Farmland | Flood Hazard A | Proposed ROW |



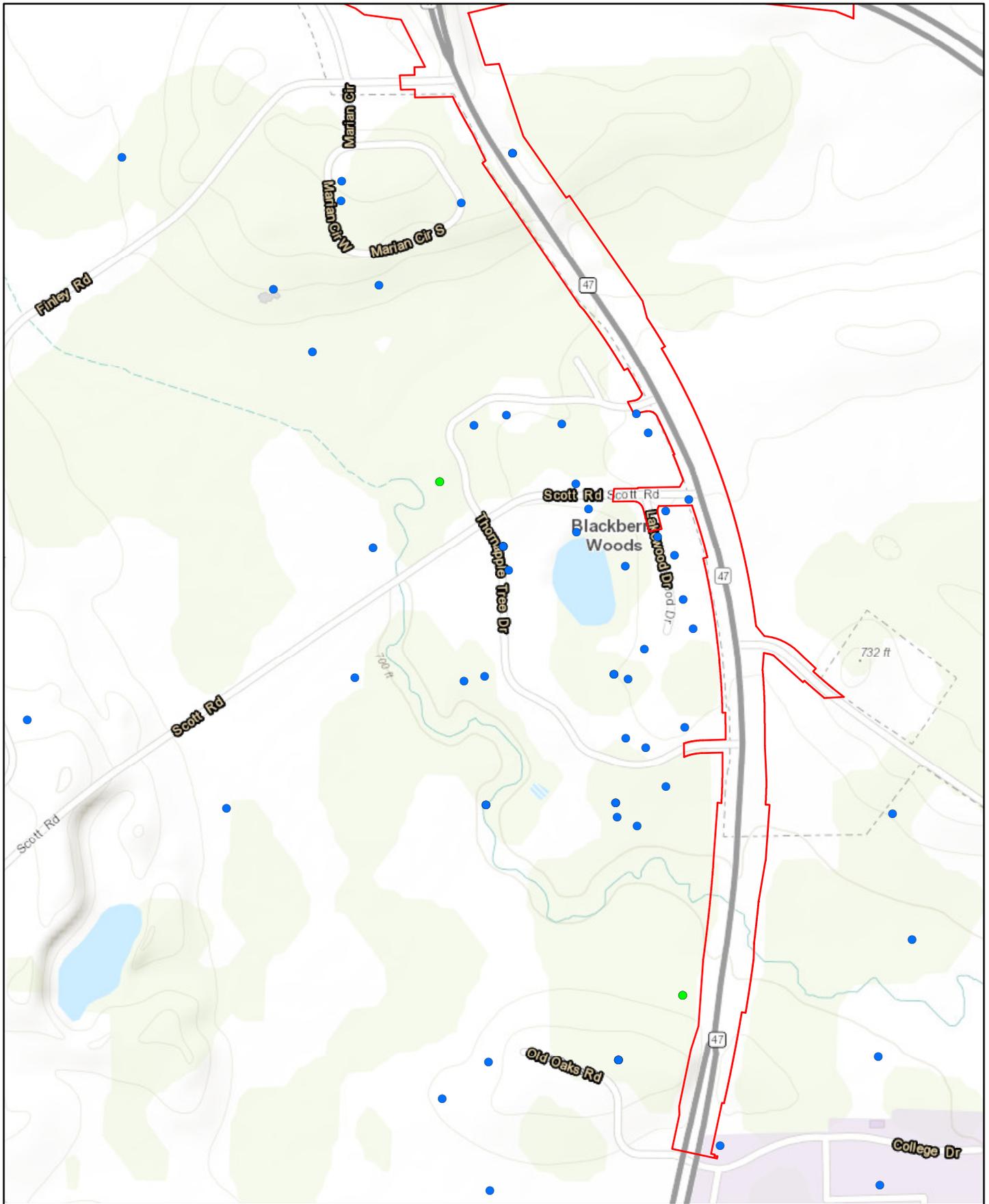
Natural Resources Map

Sugar Grove Parkway
Interchange at I-88 and IL 47
FAP Route 326 Illinois Route 47
at Reagan Memorial Tollway (I-88)

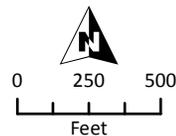
P-91-015-14

Exhibit 9.6

5/15/2017



- Engineering Test Well
- Water Well
- ▭ Proposed ROW



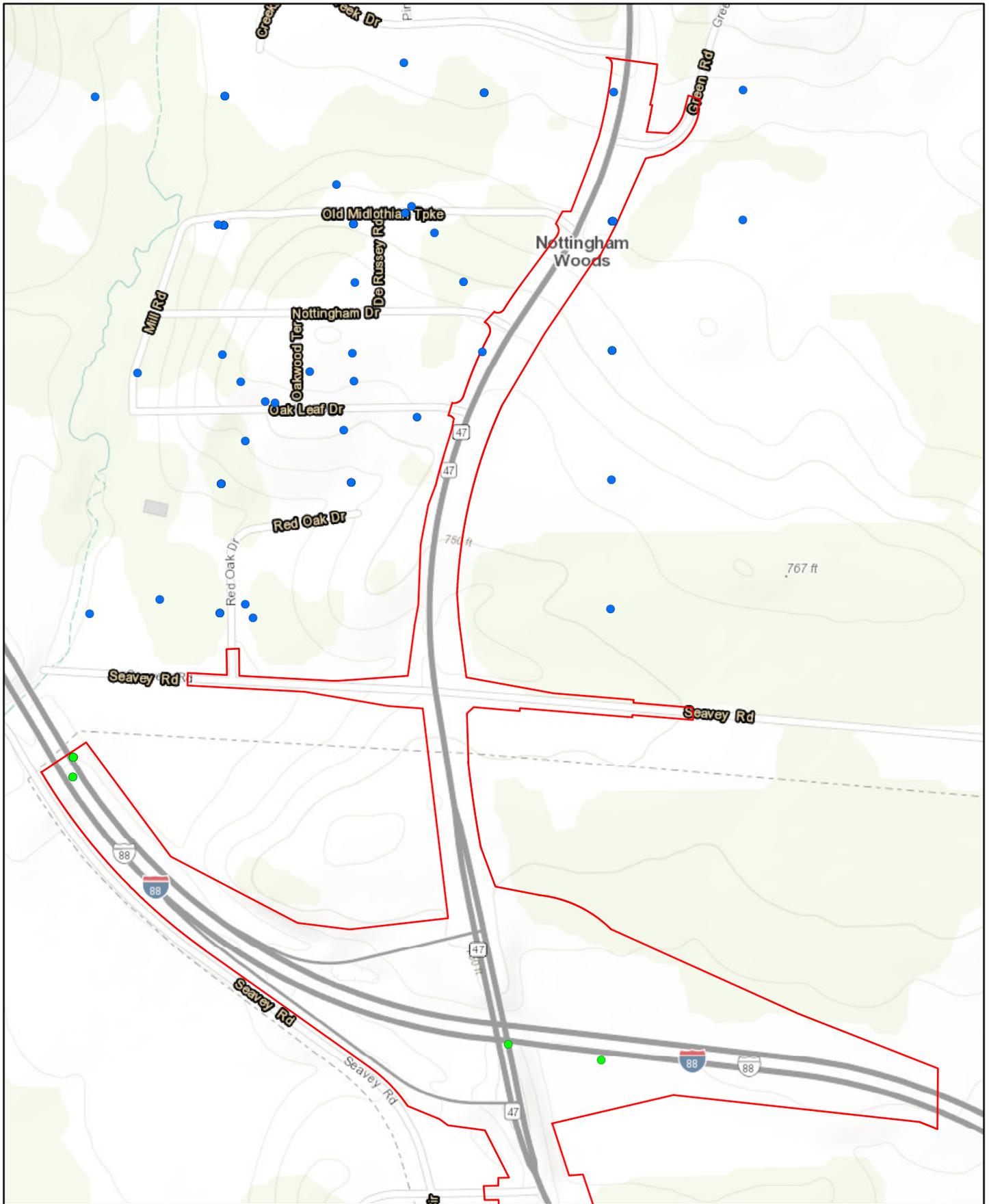
ISGS Well Locations

Sugar Grove Parkway
 Interchange at I-88 and IL 47
 FAP Route 326 Illinois Route 47
 at Reagan Memorial Tollway (I-88)

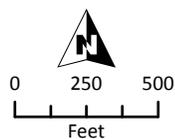
P-91-015-14
 Exhibit 10.1

Data Provided by: Illinois State Geological Survey, 20080221. Location Points from the ISGS Wells and Borings Database:Ed. 20170330

Service Layer Credits:
 Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
 Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



- Engineering Test Well
- Water Well
- Proposed ROW



ISGS Well Locations

Sugar Grove Parkway
 Interchange at I-88 and IL 47
 FAP Route 326 Illinois Route 47
 at Reagan Memorial Tollway (I-88)

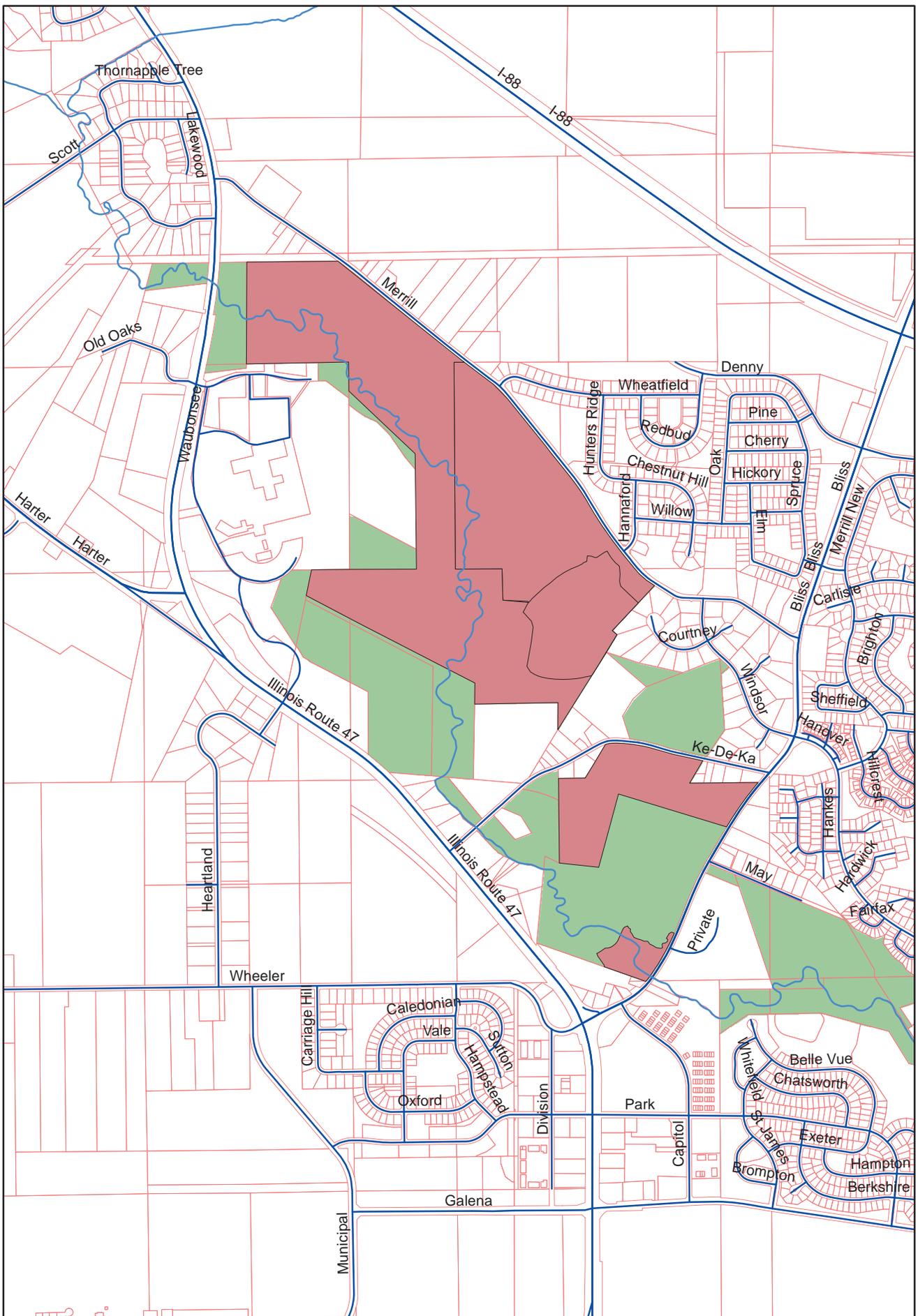
P-91-015-14
 Exhibit 10.2

Data Provided by: Illinois State Geological Survey, 20080221. Location Points from the ISGS Wells and Borings Database:Ed. 20170330

Service Layer Credits:

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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Kane County Forest Preserve LAWCON / OSLAD Fund Properties

No LAWCON / OSLAD Funding
 LAWCON / OSLAD Funding

0.95 0.475 0 0.95 Miles



ENVIRONMENTAL ASSESSMENT

APPENDICES

**ROUTE: FAP 326 IL Route 47 at
FAI 88 Ronald Reagan Memorial Tollway I-88
Section: Old Oaks Road to Green Road
Kane County**

Job No.: P-91-015-14



**Illinois Department of Transportation
District 1**

October 2017

Appendix A

NEPA/404 Merger Meeting Minutes

**Illinois NEPA/404 Merger Meeting
September 17, 2015**

**USEPA – Region 5
77 West Jackson Blvd.
Chicago, IL**

12th Floor – Lake Ontario Room

**Federal Highway
Administration
3250 Executive Park Drive
Springfield, IL 62703
Training Room**

9 am – 12 noon

- I-55 Managed Lanes (District 1, Cook County) (45 min)
 - Request to exempt project from NEPA-404 merger process
- US 30 roadway improvements from Dugan to Municipal (District 1, Kane County, FAA Co-Lead) (45 min)
 - Request to exempt project from NEPA-404 merger process
- North Lake Shore Drive (District 1, Cook County) (90 min)
 - Information – project update

12 noon – 1:30 pm

Lunch

1:30 pm – 3:30 pm

- Interchange study at I-88 and IL 47 (District 1, Kane County) (60 min)
 - Information – project introduction

Note: the following project is not subject to the NEPA-404 merger process concurrence points and is being presented for information only.

- I-290 from west of Mannheim Road to Racine Avenue (District 1, Cook County) (60 min)
 - Information – preferred alternative

Sign-in Sheet
NEPA-404 Merger Meeting
September 17, 2015

District 1 - Interchange study at I-88 and IL-47 (Kane County)
Information: Project Introduction

Name	Agency	e-mail address	Participation Location
Matt Fuller	FHWA	matt.fuller@dot.gov	Chicago, IL
Soren Hall	USACE - Chicago	soren.g.hall@usace.army.mil	Chicago, IL
Sam Mead	IDOT	sam.mead@illinois.gov	Chicago, IL
Rich Nowack	Quigg Engineering	rnowack@quiggengineering.com	Chicago, IL
Tony Speciale	Village of Sugar Grove	aspeciale@sugar-grove.il.us	Chicago, IL
Peter Johnston	Graef	peter.johnston@graef-usa.com	Chicago, IL
John Baczek	IDOT	john.baczek@illinois.gov	Chicago, IL
Shawn Cirton	USFWS	shawn_cirton@fws.gov	Chicago, IL
John Baldauf	IDOT	john.baldauf@illinois.gov	Chicago, IL
Steve Schilke	IDOT	steven.schilke@illinois.gov	Chicago, IL
Pete Harmet	IDOT	pete.harmet@illinois.gov	Chicago, IL
Ken Westlake	USEPA	westlake.kenneth@epa.gov	Chicago, IL
Mike Sedlacek	USEPA	sedlacek@michael@epa.gov	Chicago, IL
Nichole Nutter	ISTHA		Phone
Vanessa Ruiz	IDOT	vanessa.ruiz@illinois.gov	Chicago, IL
James Kyte	FHWA	james.kyte@dot.gov	Springfield, IL
Sheldon Fairfield	IDNR	sheldon.fairfield@illinois.gov	Springfield, IL
Felecia Hurley	IDOT-BDE	felecia.hurley@illinois.gov	Springfield, IL
JD Stevenson	FHWA	jerry.stevenson@dot.gov	Springfield, IL
Kimberly Kessinger	IDOT	kimberly.kessinger@illinois.gov	Springfield, IL

**IDOT District 1, Kane County
Interchange study at I-88 and IL-47
Environmental Assessment
Information – Project introduction**

DECISIONS:

None requested, none given.

NEXT STEPS:

Seek concurrence on the project's Purpose and Need at the February 2016 NEPA/404 Merger Meeting.

DISCUSSION:

This was the first presentation of the I-88 at IL 47 interchange project. The purpose of the meeting was to introduce and provide an overview of the project. The Federal Highway Administration (FHWA) facilitated the meeting and prompted self-introductions. The Illinois Department of Transportation (IDOT) presented the project which was facilitated with a PowerPoint presentation.

The Project Study Group (PSG) includes IDOT, Illinois Tollway, Kane County, the FHWA, and the Village of Sugar Grove who is the lead agency.

The project location and past studies were discussed. The project study limits run along IL 47 from Old Oaks Road/College Drive on the south to Green Street on the north, and a half a mile east and west of IL 47 on I-88. The existing I-88 at IL 47 provides partial access to-and-from the west only. IL 47 consists of a four lane cross section (two lanes in each direction) between Finley Road and Seavey Road with a northbound left-turn lane at the existing westbound I-88 entrance ramp. North and south of the interchange, IL 47 consists of a two lane cross section (one lane in each direction) between Old Oaks Road/College Drive to Finley Road, and from Seavey Road to Green Street.

The existing land use in the study area consists of agricultural (58%), residential (26%), forest preserve (15%), and institutional (1%). The Village of Sugar Grove's future land use plans for this corridor anticipate development including commercial and corporate campus land uses. Based on population growth information provided by the Chicago Metropolitan Agency for Planning (CMAP), the Villages of Sugar Grove and Elburn are expected to experience 30% growth by year 2040. Existing population of Sugar Grove and Elburn are expected to grow from 10,000 to 30,000 and 6,000 to 18,000 respectively.

Similarly, traffic volumes along IL 47 are expected to grow 36% south and 60% north of I-88 by year 2040 maintaining the existing partial access interchange and assuming no improvements to IL 47 or a “No-Build” condition. The existing Average Daily Traffic (ADT) volumes along IL 47 range from 7,400 to 10,900 vehicles per day (vpd) and are expected to grow to 12,000 to 15,000 vpd by year 2040 in a “No-Build” condition. Traffic volumes along I-88 currently range from 28,000 east of IL 47 and 31,000 west of IL 47 and expected to experience 10% growth by year 2040.

A summary was then provided of the first Public Meeting that was held on July 29, 2015. The meeting was attended by 103 people who submitted a total of 17 comment forms. Issues raised by the public at that meeting included: safety concerns/suggestions, concerns regarding noise and water pollution, land use suggestions, access suggestions, and alternative roadway configurations.

The first Community Advisory Group (CAG) meeting, held September 1, 2015, was then summarized. The meeting was attended by 21 CAG members. The concerns that were raised at that meeting included: drainage, environmental impacts, accessibility, safety, capacity, other infrastructure, and funding. The second CAG meeting is anticipated to be held in November 2015, to discuss the draft Purpose and Need for the project.

IDOT provided an overview of the initial outline of the Purpose and Need based on the initial data collected and stakeholder comments. Population and transportation demands in the area were reviewed and crash statistics were summarized. Purpose and Need Items discussed included: Enhance System Linkage and Accessibility, Support Existing and Future Economic Development, Accommodate Transportation Demands, and Improve Safety.

The U.S. Environmental Protection Agency (USEPA) commented on the study location and if there are any additional access needs identified along I-88 corridor. IDOT will evaluate and incorporate additional information and justification into the Purpose and Need document to support the logical termini for this project.

IDOT provided an overview of environmental resources located within the study limits. The environmental resources that have been identified thus far include the Hannaford Woods/Nickels Farms Forest Preserve property located along both sides of IL 47 south of the interchange and just north of Waubensee Community College. Blackberry Creek and Tributary C to Blackberry Creek are also located within the project study limits. Information regarding other natural and cultural resources is still being collected at this time.

Based on the safety and crash data presented by IDOT, the U.S. Army Corps of Engineers (USACE) expressed concern as to whether there was adequate data to justify safety as a need for this project. IDOT indicated that the study team will evaluate further.

The USACE suggested the purpose and need document contain an exhibit showing the operation Level of Service (LOS) for the existing and future “No-Build” traffic. IDOT indicated they will incorporate the subject exhibit into the Purpose and Need document.

**Illinois NEPA/404 Merger Meeting
February 29, 2016**

**USEPA – Region 5
77 West Jackson Blvd.
Chicago, IL**

12th Floor – Lake Ontario Room

**Federal Highway
Administration
3250 Executive Park Drive
Springfield, IL 62703
Conference Room**

10 am – 12 noon

- Interchange study at I-88 and IL 47 (District 1, Kane County) (60 min)
 - Concurrence – Purpose and Need

- IL 53/IL120 Corridor (District 1, Lake County) (60 min)
 - Information – Project Overview

1:30 – 3:00 pm

- Quentin Road from Dundee Road to Lake Cook Road (District 1, Cook County) (60 min)
 - Information – Project Introduction

Sign-in Sheet
NEPA-404 Merger Meeting
February 29, 2016

District 1 - Interchange study at I-88 and IL-47 (Kane County)
Concurrence - Purpose and Need

Name	Agency	e-mail address	Participation Location
Matt Fuller	FHWA	matt.fuller@dot.gov	Chicago, IL
John Sherrill	IDOT	John.Sherrill@illinois.gov	Chicago, IL
Steve Schilke	IDOT	steven.Schilke@illinois.gov	Chicago, IL
Vanessa Ruiz	IDOT	Vanessa.Ruiz@illinois.gov	Chicago, IL
Sam Mead	IDOT	Sam.Mead@illinois.gov	Chicago, IL
Shawn Cirton	USFWS	Shawn_Cirton@fws.gov	Chicago, IL
Reed Panther	Tollway	rpanther@getipass.com	Chicago, IL
Julie Rimbault	USACE	julie.c.rimbault@usace.army.mil	Chicago, IL
Soren Hall	USACE	soren.g.hall@usace.army.mil	Chicago, IL
Ken Westlake	USEPA	westlake.kenneth@epa.gov	Chicago, IL
Mike Sedlacek	USEPA	sedlacek.michael@epa.gov	Chicago, IL
Pete Johnston	Graef	peter.johnston@graef-usa.com	Chicago, IL
Liz Pellosa	USEPA	pellosa.elizabeth@epa.gov	Chicago, IL
Jennifer Becker	Kane County	beckerjennifer@co.kane.il.us	Chicago, IL
Kyle Bochte	IDOT	kyle.bochte@illinois.gov	Chicago, IL
Tony Speciale	Sugar Grove	aspeciale@suger-grove.il.us	Chicago, IL
Bryan Wagner	Tollway	bwagner@getipass.com	Chicago, IL
John Baczek	IDOT	john.baczek@illinois.com	Chicago, IL
Kathy Chernich	USACE	Kathy.G.Chernich@usace.army.mil	teleconference
David Halpin	IHPA	david.halpin@illinois.gov	Springfield, IL
Sheldon Fairfield	IDNR	Sheldon.Fairfield@illinois.gov	Springfield, IL
Robin Helmerichs	FHWA	robin.helmerichs@dot.gov	Springfield, IL
Jan Piland	FHWA	janis.piland@dot.gov	Springfield, IL
Nichole Nutter	Tollway	nnutter@getipass.com	teleconference
John Baldauf	IDOT	John.Baldauf@illinois.gov	teleconference

NEPA/404 Merger Meeting Summary
February 29, 2016

IDOT District 1, Kane County
Interchange study at I-88 and IL 47
Environmental Assessment
Concurrence – Purpose and Need

DECISIONS:

Concurrence was obtained on the Purpose and Need from the U.S. Environmental Protection Agency (USEPA) (Westlake), U.S. Army Corps of Engineers (USACE) (Hall), U.S. Fish and Wildlife Service (Cirton), Illinois Department of Natural Resources (IDNR) (Fairfield), Illinois Historic Preservation Agency (IHPA) (Halpin).

NEXT STEPS:

USACE would like some minor revisions to the Purpose and Need document. IDOT will make the revisions, provide to FHWA, and FHWA will send out the revised Purpose and Need to all resource agencies.¹

Concurrence on Alternatives to be Carried Forward will be requested in September 2016.

DISCUSSION:

Steve Schilke of the Illinois Department of Transportation (IDOT) provided a summary of the previous Project Introduction meeting and proceeded with the PowerPoint presentation of the proposed Purpose and Need.

The Village of Sugar Grove is the lead agency for the project. The Project Study Group (PSG) includes the IDOT, Illinois Tollway, Kane County, the Federal Highway Administration (FHWA), and the Village of Sugar Grove.

The Phase I consultant team includes the Prime Consultant of GRAEF, and their sub-consultants Quigg Engineering, Kimley Horn, Lin Engineering, and Crawford Murphy Tilly.

Based on the discussion at the initial NEPA meeting, the PSG has provided information in the Purpose and Need document as to why this particular interchange is being evaluated. Safety is removed from consideration in the Purpose and Need due to the project corridor not exhibiting excessive crashes. The purpose of the project is to improve system linkage and accommodate land use and future economic development.

Levels of Service are acceptable for existing conditions, but become problematic for the 2040 No Build condition.

There is considerable population growth anticipated for Kane County over the next 25 years. Additionally, both Sugar Grove and Elburn are each anticipating populations to increase close to 200% over the next 25 years.

Steve Schilke concluded the formal presentation and an open discussion took place.

¹ Post meeting note: Revised purpose and need document was sent to USACE and all other agencies on 3/24/2016. USACE issued their final concurrence on 4/15/2016.

USACE inquired whether Route 47 was intended to be widened as part of the project. IDOT replied that there is a potential for widening Route 47, but that would be decided further along into the Phase I development.

USACE inquired about the northern project limit and what improvements were planned north of Green Rd. IDOT replied that the Phase I for the Main Street and IL 47 intersection was complete. The intersection of Main Street and IL 47 is proposed to be improved including; the addition of left turn lanes on all legs of the intersection, widening the roadway, reconstructing and raising the profile of the intersection and traffic signal installation. USACE suggested that additional discussion be added to the Purpose and Need regarding the northern project limit at Green Road. The average daily traffic (ADT) was also reviewed in this area and it was noted that the projected ADT north of Green Road is considerably lower than the projected ADT south of Green Road.

USACE asked which agency would lead construction, IDOT or Tollway. USACE indicated that their review personnel would change if the Tollway were to lead the construction. At this time it is not known which agency (IDOT/Tollway) would lead the construction efforts for the project and that this would be determined once a recommended preferred alternative is identified and the scope of work along IL 47 is determined.

USACE asked whether the proposed development proposed in the area would dictate the interchange geometry. The general answer is that the projected traffic will primarily determine the interchange layout, but the adjacent development may impact access points, utilities, etc. at the interchange.

**Illinois NEPA/404 Merger Meeting
February 22, 2017
Day 1 – District 1 Projects**

**USEPA – Region 5
77 West Jackson Blvd.
Chicago, IL**

12th Floor – Lake Ontario Room

**Federal Highway
Administration
3250 Executive Park Drive
Springfield, IL 62703
Training Room**

9:30 am – 12 noon

- Interstate 80 from Ridge Road to US 30 (District 1, Will County) (60 min)
 - Concurrence – alternatives to be carried forward
- Interstate 88 and IL 47 Interchange (District 1, Kane County) (60 min)
 - Concurrence – alternatives to be carried forward
- Quentin Road from Dundee Road (IL Route 68) to Lake Cook Road (District 1, Cook County) (30 min)
 - Information – alternatives to be carried forward

12 noon - 1:30 pm

LUNCH

1:30 pm – 3:00 pm

- Deerfield Road (IL 21 to Saunders Road), District 1, Lake County (30 min)
 - Information – project introduction
- North Lake Shore Drive (District 1, Cook County) (60 min)
 - Information – Lake shore protection

Sign-in Sheet
NEPA-404 Merger Meeting
February 22, 2017

District 1 - Interstate 88 and IL 47 Interchange (Kane Co)
Concurrence - Alternatives to be carried forward

Name	Agency	e-mail address	Participation Location
Matt Fuller	FHWA	matt.fuller@dot.gov	Chicago, IL
John Sherrill	IDOT	john.sherrill@illinois.gov	Chicago, IL
David Castillo	GRAEF	david.castillo@graef-usa.com	Chicago, IL
Katie Braun	GRAEF	katie.braun@graef-usa.com	Chicago, IL
Tony Speciale	Village of Sugar Grove	aspeciale@sugargroveil.gov	Chicago, IL
Corey Smith	IDOT	corey.smith@illinois.gov	Chicago, IL
Vanessa Ruiz	IDOT	Vanessa.Ruiz@illinois.gov	Chicago, IL
Sam Mead	IDOT	sam.mead@illinois.gov	Chicago, IL
Ron Abrant	USACE	ron.j.abrant@usace.army.mil	Chicago, IL
Julie Rimbault	USACE	julie.c.rimbault@usace.army.mil	Chicago, IL
Soren Hall	USACE	soren.g.hall@usace.army.mil	Chicago, IL
Mike Sedlacek	USEPA	sedlacek.michael@epa.gov	Chicago, IL
Ken Westlake	USEPA	westlake.kenneth@epa.gov	Chicago, IL
Sean Martinkus	IDOT	sean.martinkus@illinois.gov	Chicago, IL
Nicole Nutter	Tollway	nnutter@getipass.com	Chicago, IL
Bryan Wagner	Tollway	bwagner@getipass.com	Chicago, IL
Omar Qudus	FHWA	omar.qudus@dot.gov	Springfield, IL
Felecia Hurley	IDOT	felecia.hurley@illinois.gov	Springfield, IL
Sheldon Fairfield	IDNR	Sheldon.Fairfield@illinois.gov	Springfield, IL
Robin Helmerichs	FHWA	robin.helmerichs@dot.gov	Springfield, IL
David Halpin	IHPA	david.halpin@illinois.gov	Springfield, IL
Ken Runkle	IDOT	ken.runkle@illinois.gov	Springfield, IL
Kyle Bochte	IDOT	Kyle.Bochte@illinois.gov	Chicago, IL
Steve Schilke	IDOT	Steven.Schilke@illinois.gov	Chicago, IL

**IDOT District 1, Kane County
Interstate 88 and IL 47 Interchange
Environmental Assessment
Concurrence – alternatives to be carried forward**

DECISIONS:

Concurrence to the Alternatives to be Carried Forward was obtained by all agencies at the meeting. Agencies in concurrence include: U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (USEPA), Illinois Department of Natural Resources (IDNR) and Illinois Historic Preservation Agency (IHPA).

NOTE: The USFWS provided concurrence by e-mail on March 2, 2017.

NEXT STEPS:

Public Meeting No. 3 will occur on March 28, 2017 to present the Alternatives to be Carried Forward. CAG Meeting No. 5 will identify the Preferred Alternative in Spring 2017.

DISCUSSION:

Steve Schilke of the Illinois Department of Transportation (IDOT) led the Power Point presentation of the proposed Alternatives to be Carried Forward.

The Village of Sugar Grove is the lead agency for the project. The Project Study Group includes the IDOT, Illinois Tollway, Kane County, the Federal Highway Administration, and the Village of Sugar Grove.

The Phase I consultant team includes the Prime Consultant of GRAEF, and their sub-consultants Quigg Engineering, Kimley Horn, Lin Engineering, and Crawford Murphy Tilly. The purpose of this project is to improve system linkage and accommodate land use and future economic development. P&N received concurrence on April 7, 2016.

Environmental resources and existing conditions of the project area were summarized.

Four alignment configurations (M-1, M-2, M-3, and M-4), and three typical section configurations (A, B and C) along IL 47 were considered. Exhibits illustrating these configurations and resulting eight design alternatives were presented.

The Round 1 Screening process evaluated the IL 47 Alternatives based on expected Level of Service, ROW needs, Environmental Concerns, and Stakeholder Input. Two alignment alternatives (M-3, and M-4) were eliminated from Round 1 Screening based on these factors.

The Round 2 Screening process evaluated the IL 47 Alternatives based on expected Level of Service, ROW needs, Environmental Concerns, Stakeholder Input, and Conceptual Cost. Of the 6 remaining alignment and typical section alternative combinations, four passed Round 2 Screening: M-1A, M-1C, M-2C, and the No-Build option (for comparison purposes only).

Seven proposed interchange alternatives at I-88 and IL 47 were illustrated in exhibits. The Interchange Alternatives Screening Process analyzed impacts on ROW, Conceptual Cost, Bridge Impacts, and Environmental Impacts. Four proposed interchange designs (Conventional Diamond, Conventional Diamond with Roundabout, Diverging Diamond, and Partial Cloverleaf, NE Quadrant) and the No-Build option passed the screening process.

Steve concluded the formal presentation and an open discussion took place.

U.S. Army Corps of Engineers (USACE) inquired how the project will be let. IDOT is currently funding Phase I. No agreement has been made on how the design and construction will be funded. The Tollway may fund the Interchange portion of the project.

Soren Hall of USACE commented that the impact acreage on the exhibits doesn't match the tables.

IDOT discussed wildlife crossing considerations; IL 47 will be raised approx. 3 feet to provide for a wildlife crossing at the Hannaford Woods Forest Preserve. A typical benching section with a 10 foot flat shelf will be provided.

The Public Hearing for the project will be held in the Fall of 2017. The Environmental Assessment for the project will be issued at the end of the 2017 calendar year.

USACE inquired which environmental groups were represented within the Community Advisory Group (CAG). IDOT indicated that a person representing Blackberry Creek Watershed attended prior CAG meetings.

Post Meeting Notes

As a follow-up to the meeting, the following was confirmed:

The tables in the Alternatives to be Carried Forward document provide wetland impacts based on an offset from the existing edge of shoulder. At this point, the offset is developed based on anticipated construction limits. This is more conservative than the wetland impacts shown on the exhibits. These impacts will be recalculated as the geometries are refined.

Represented on the CAG are:

- Candice Jacobs with Kane-DuPage Soil and Water Conservation District (Ms. Jacobs left her position at KDSWCD and now Ashley Curran is a member of the CAG representing KDSWCD)
- Dan Lobbes with the Conservation Foundation (representing the Fox River Ecosystem Partnership – Blackberry Creek Watershed)



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET
CHICAGO, ILLINOIS 60604-1437

June 12, 2015

Technical Services Division
Regulatory Branch
LRC-2015-378

SUBJECT: NEPA/404 Merger Process Cooperating Agency in the Review of the Environmental Assessment for the Illinois Route 47 at Interstate 88 Project in the Village of Sugar Grove, Kane County, Illinois

Catherine Batey
Federal Highway Administration
3250 Executive Park Drive
Springfield, Illinois 62703

Dear Ms. Batey:

This office is in receipt of your June 9, 2015 letter requesting the participation of the Chicago District U.S. Army Corps of Engineers as a cooperating agency in the review of the environmental assessment for the Illinois Route 47 at Interstate 88 project. The Corps cordially accepts the invitation to participate as a cooperating agency in the review of the EIS and looks forward to working closely with Federal and other lead agencies in completing a comprehensive review of the project.

If you have any questions, please contact Mr. Soren Hall of my staff by telephone at 312-846-5532, or email at Soren.G.Hall@usace.army.mil.

Sincerely,

Keith L. Wozniak
Chief, West Section
Regulatory Branch

Copy Furnished:

Federal Highway Administration (Matt Fuller)
U.S. Environmental Protection Agency (Elizabeth Pelloso)
U.S. Fish and Wildlife Service (Shawn Cirton)



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET
CHICAGO, ILLINOIS 60604-1437

April 7, 2016

Technical Services Division
Regulatory Branch
LRC-2015-00378

SUBJECT: NEPA/404 Merger Process Concurrence for the Purpose and Need for the Illinois Route 47 at Interstate 88 Study in the Village of Sugar Grove, Kane County, Illinois

Catherine Batey
Federal Highway Administration
3250 Executive Park Drive
Springfield, Illinois 62703

Dear Ms. Batey:

This letter is in response to your request that the Department of the Army (Corps) review the Illinois Route 47 at Interstate 88 Study and provide concurrence with the Purpose and Need for the proposed project. Various Federal and state agencies are providing a concurrent review of the project under the terms and conditions as set forth in the "Statewide Implementation Agreement National Environmental Policy Act And Clean Water Act Section 404 Concurrent NEPA/404 Processes For Transportation Projects in Illinois".

Following attendance at the February 29, 2016 NEPA/404 Merger Meeting and a thorough review of the Purpose and Need document dated December, 2015 (Revised March, 2016), the Corps concurs that all applicable information has been received as it pertains to the Concurrence Point for Purpose and Need.

Concurrence has now been reached for Purpose and Need. All documentation to date is sufficient for this stage and the project may now proceed to the next stage of project development.

If you have any questions, please contact of my staff by telephone at 312-846-5542, or email at Julie.C.Rimbault@usace.army.mil.

Sincerely,

Keith L. Wozniak
Chief, West Section
Regulatory Branch

Copy Furnished:

Federal Highway Administration (Matt Fuller)
U.S. Environmental Protection Agency (Matt Sedlacek)
U.S. Fish and Wildlife Service (Shawn Cirton)



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET
CHICAGO, ILLINOIS 60604-1437

February 22, 2017

Technical Services Division
Regulatory Branch
LRC-2015-00378

SUBJECT: NEPA/404 Merger Process Concurrence for the Alternatives to be Carried Forward
OR Preferred Alternative for IL Route 47 and I-88, Kane County, Illinois

Catherine Batey
Federal Highway Administration
3250 Executive Park Drive
Springfield, Illinois 62703

Dear Ms. Batey:

This letter is in response to your request that the Department of the Army (Corps) review the IL Route 47 and I-88 and provide concurrence with the Alternatives to be Carried Forward for the proposed project. Various Federal and state agencies are providing a concurrent review of the project under the terms and conditions as set forth in the "Statewide Implementation Agreement National Environmental Policy Act And Clean Water Act Section 404 Concurrent NEPA/404 Processes For Transportation Projects in Illinois".

Following attendance at the February 22, 2017 NEPA/404 Merger Meeting and a thorough review of the project documents, the Corps concurs that all applicable information has been received as it pertains to the Concurrence Point for Alternatives to be Carried Forward.

Concurrence has now been reached for Alternatives to be Carried Forward. All documentation to date is sufficient for this stage and the project may now proceed to the next stage of project development.

If you have any questions, please contact Julie Rimbault of my staff by telephone at (312) 846-5542, or email at Julie.C.Rimbault@usace.army.mil.

Sincerely,

Kathleen G. Chernich
Chief, East Section
Regulatory Branch

Copy Furnished:

U.S. Environmental Protection Agency (Ken Westlake)

U.S. Fish and Wildlife Service (Shawn Cirton)

Illinois Department of Natural Resources (Sheldon Fairfield)



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET
CHICAGO, ILLINOIS 60604-1437

June 19, 2017

Technical Services Division
Regulatory Branch
LRC-2015-00378

SUBJECT: NEPA/404 Merger Process Concurrence for the Preferred Alternative for IL Route 47 and I-88, Kane County, Illinois

Catherine Batey
Federal Highway Administration
3250 Executive Park Drive
Springfield, Illinois 62703

Dear Ms. Batey:

This letter is in response to your request that the Department of the Army (Corps) review the IL Route 47 and I-88 and provide concurrence with the Preferred Alternative for the proposed project. Various Federal and state agencies are providing a concurrent review of the project under the terms and conditions as set forth in the "Statewide Implementation Agreement National Environmental Policy Act And Clean Water Act Section 404 Concurrent NEPA/404 Processes For Transportation Projects in Illinois".

Following attendance at the June 19, 2017 NEPA/404 Merger Meeting and a thorough review of the project documents, the Corps concurs that all applicable information has been received as it pertains to the Concurrence Point for the Preferred Alternative.

All three required Concurrence Points have now been completed. An application for an individual permit for the proposed project may be submitted to the Corps for final review and authorization. For additional information on submitting an individual permit application, please visit our website at: <http://www.lrc.usace.army.mil/Missions/Regulatory.aspx>.

If you have any questions, please contact Julie Rimbault of my staff by telephone at (312) 846-5542, or email at Julie.C.Rimbault@usace.army.mil.

Sincerely,

Kathleen G. Chernich
Chief, East Section
Regulatory Branch

Copy Furnished:

U.S. Environmental Protection Agency (Ken Westlake)

U.S. Fish and Wildlife Service (Shawn Cirton)

Illinois Department of Natural Resources (Sheldon Fairfield)

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Appendix B

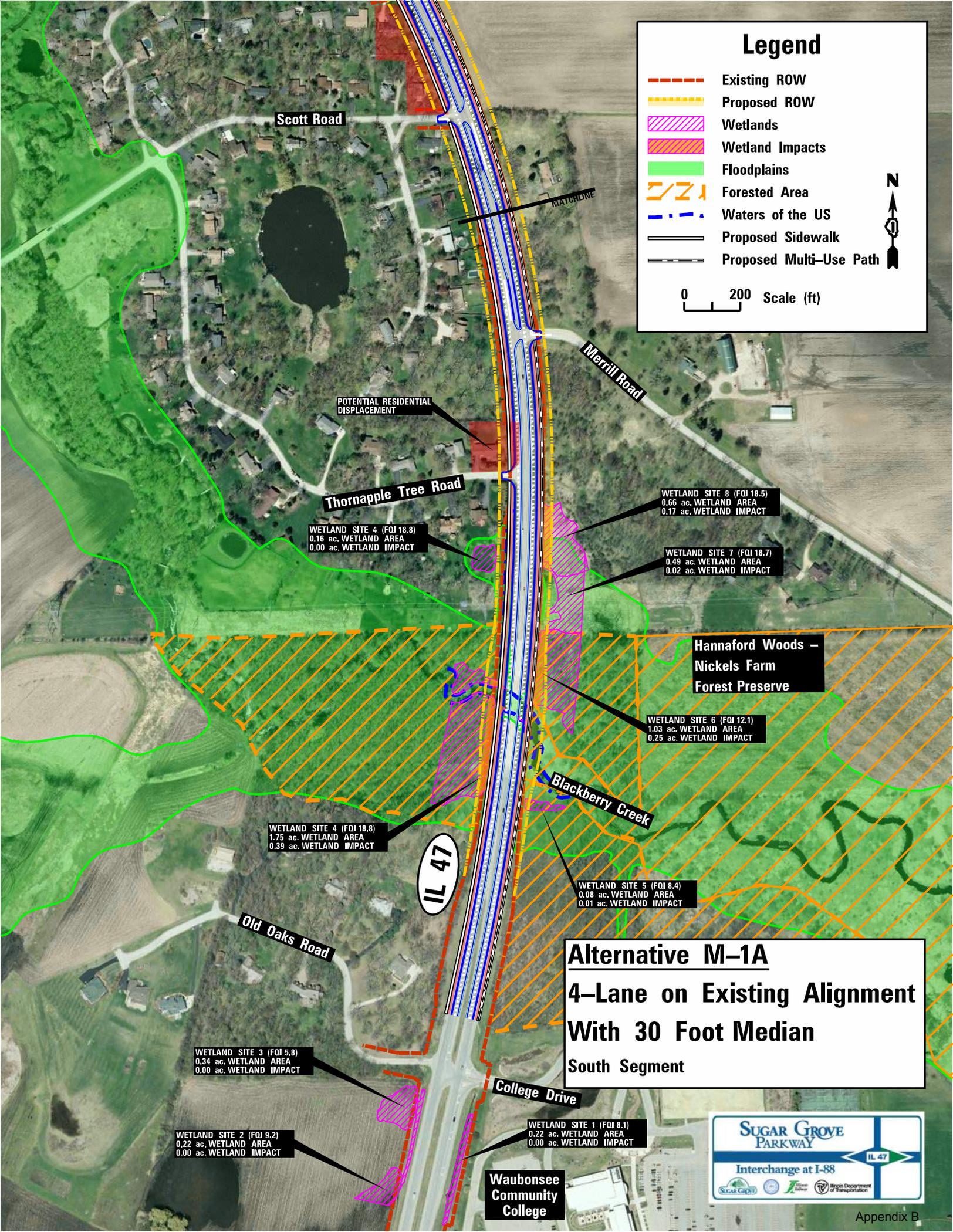
IL 47 Build Alternatives

from the Preferred Alternative Document

Legend

-  Existing ROW
-  Proposed ROW
-  Wetlands
-  Wetland Impacts
-  Floodplains
-  Forested Area
-  Waters of the US
-  Proposed Sidewalk
-  Proposed Multi-Use Path

0 200 Scale (ft)



WETLAND SITE 4 (FOI 18.8)
0.16 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

WETLAND SITE 8 (FOI 18.5)
0.66 ac. WETLAND AREA
0.17 ac. WETLAND IMPACT

WETLAND SITE 7 (FOI 18.7)
0.49 ac. WETLAND AREA
0.02 ac. WETLAND IMPACT

**Hannaford Woods -
Nickels Farm
Forest Preserve**

WETLAND SITE 6 (FOI 12.1)
1.03 ac. WETLAND AREA
0.25 ac. WETLAND IMPACT

WETLAND SITE 4 (FOI 18.8)
1.75 ac. WETLAND AREA
0.39 ac. WETLAND IMPACT

Blackberry Creek

WETLAND SITE 5 (FOI 8.4)
0.08 ac. WETLAND AREA
0.01 ac. WETLAND IMPACT

IL 47

Alternative M-1A
4-Lane on Existing Alignment
With 30 Foot Median
South Segment

WETLAND SITE 3 (FOI 5.8)
0.34 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

WETLAND SITE 2 (FOI 9.2)
0.22 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

College Drive

WETLAND SITE 1 (FOI 8.1)
0.22 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

**Waubonsee
Community
College**



Alternative M-1A

4-Lane on Existing Alignment With 30 Foot Median

Central Segment

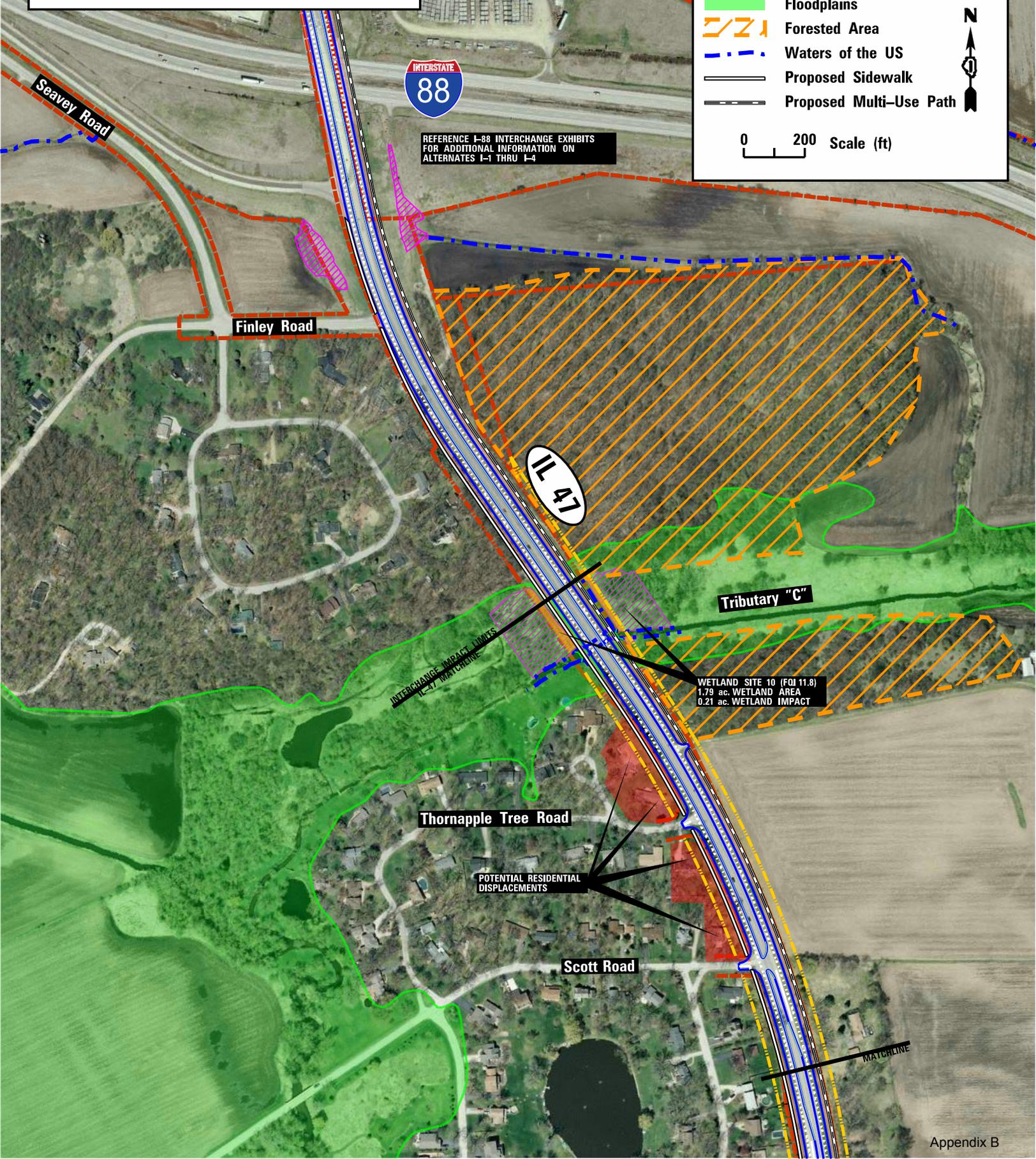


REFERENCE I-88 INTERCHANGE EXHIBITS FOR ADDITIONAL INFORMATION ON ALTERNATES I-1 THRU I-4

Legend

- Existing ROW
- Proposed ROW
- Wetlands
- Wetland Impacts
- Floodplains
- Forested Area
- Waters of the US
- Proposed Sidewalk
- Proposed Multi-Use Path

0 200 Scale (ft)



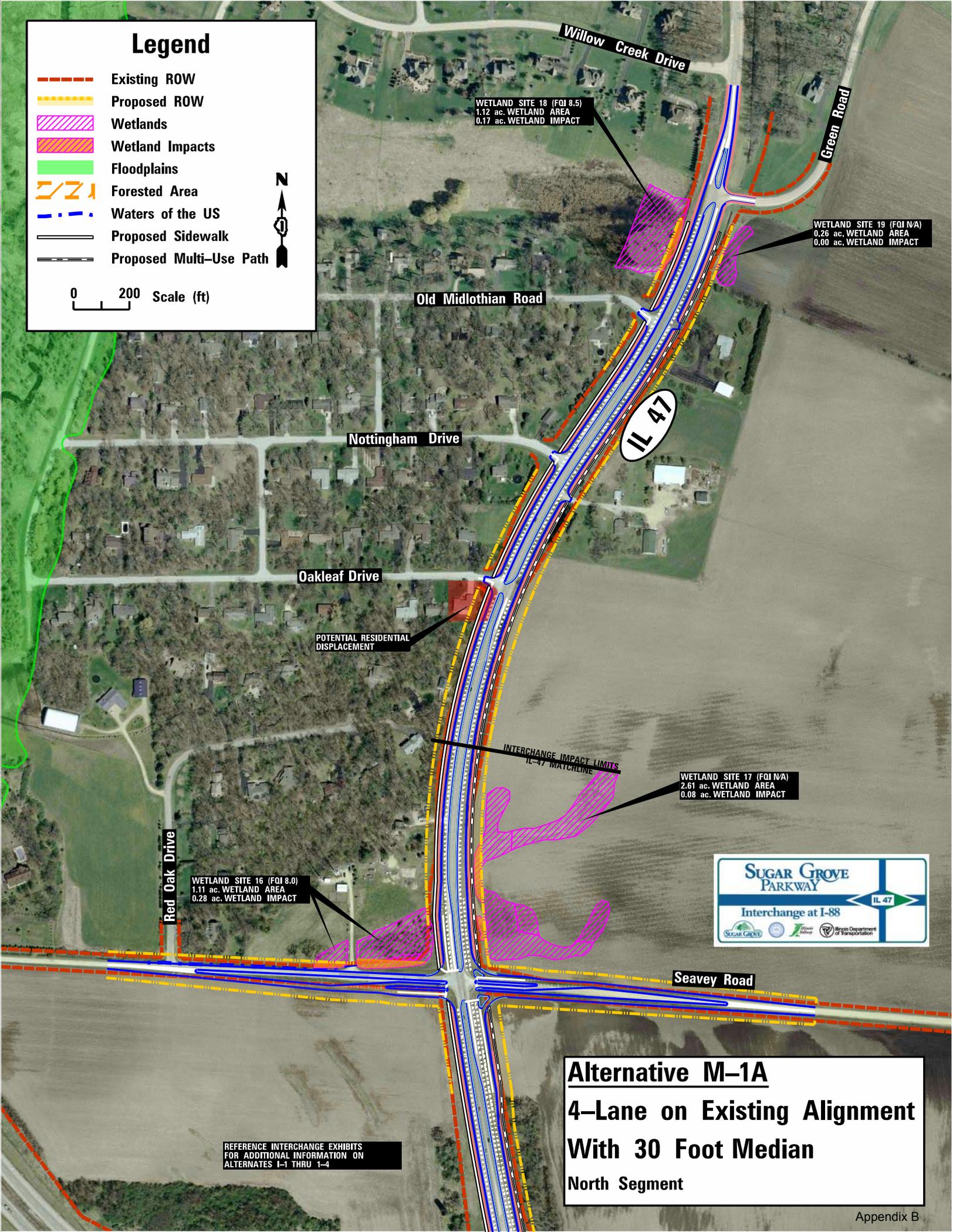
WETLAND SITE 10 (FOI 11.8)
1.79 ac. WETLAND AREA
0.21 ac. WETLAND IMPACT

Legend

-  Existing ROW
-  Proposed ROW
-  Wetlands
-  Wetland Impacts
-  Floodplains
-  Forested Area
-  Waters of the US
-  Proposed Sidewalk
-  Proposed Multi-Use Path



0 200 Scale (ft)



WETLAND SITE 16 (FOI 8.0)
1.11 ac. WETLAND AREA
0.28 ac. WETLAND IMPACT

WETLAND SITE 18 (FOI 8.5)
1.12 ac. WETLAND AREA
0.17 ac. WETLAND IMPACT

WETLAND SITE 19 (FOI N/A)
0.26 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

WETLAND SITE 17 (FOI N/A)
2.61 ac. WETLAND AREA
0.08 ac. WETLAND IMPACT

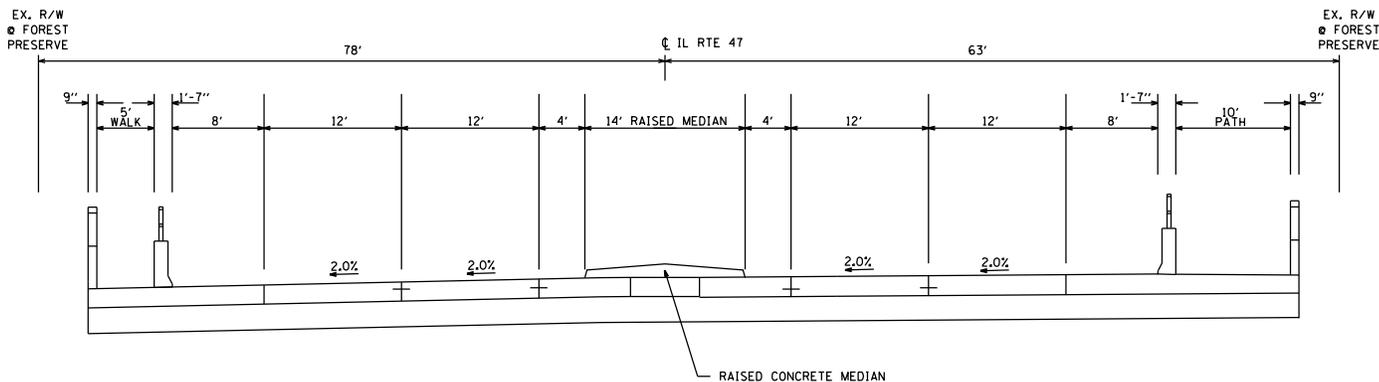
POTENTIAL RESIDENTIAL
DISPLACEMENT

INTERCHANGE IMPACT LIMITS
IL-47 WATCHLINE



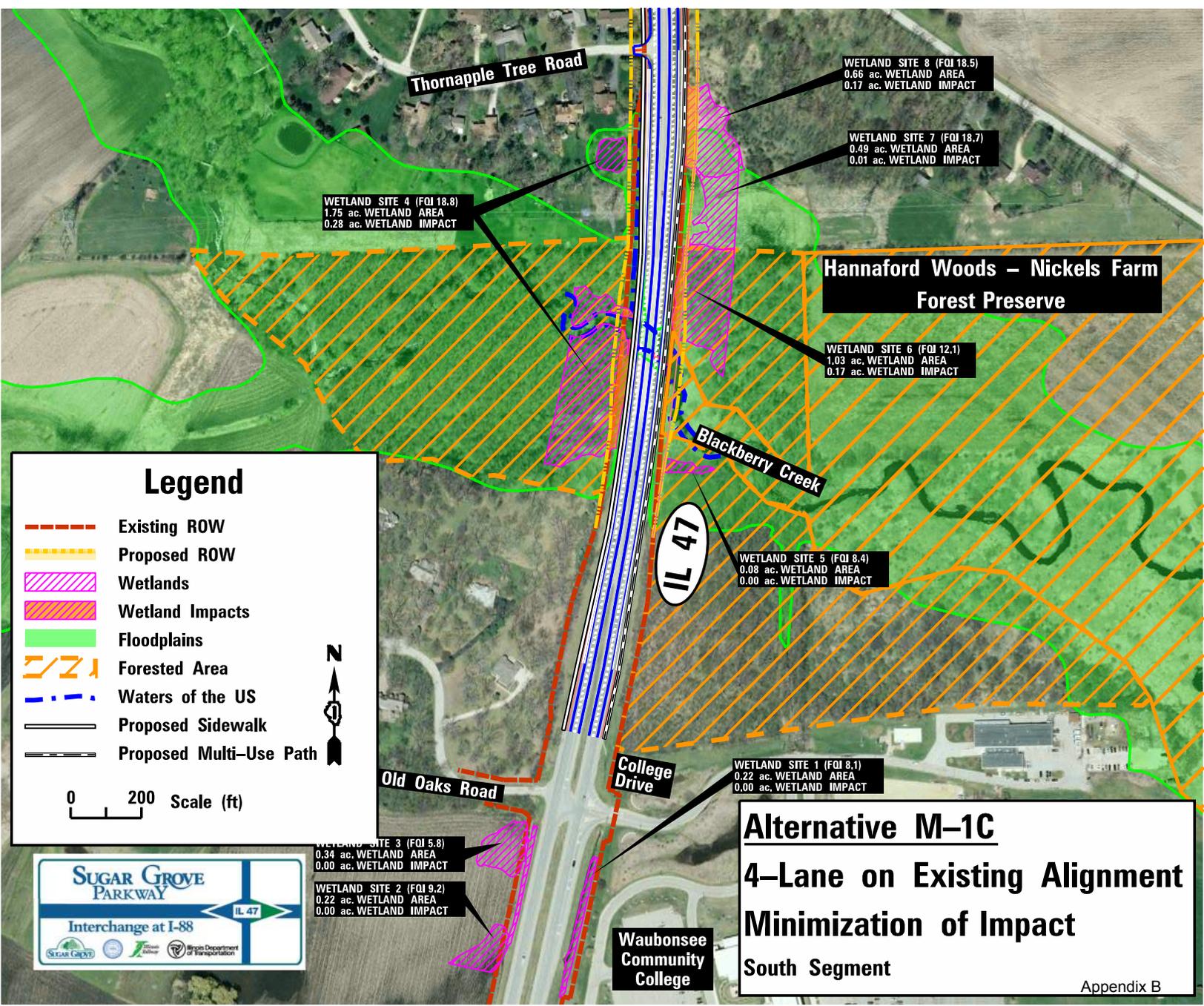
REFERENCE INTERCHANGE EXHIBITS
FOR ADDITIONAL INFORMATION ON
ALTERNATES 1-1 THRU 1-4

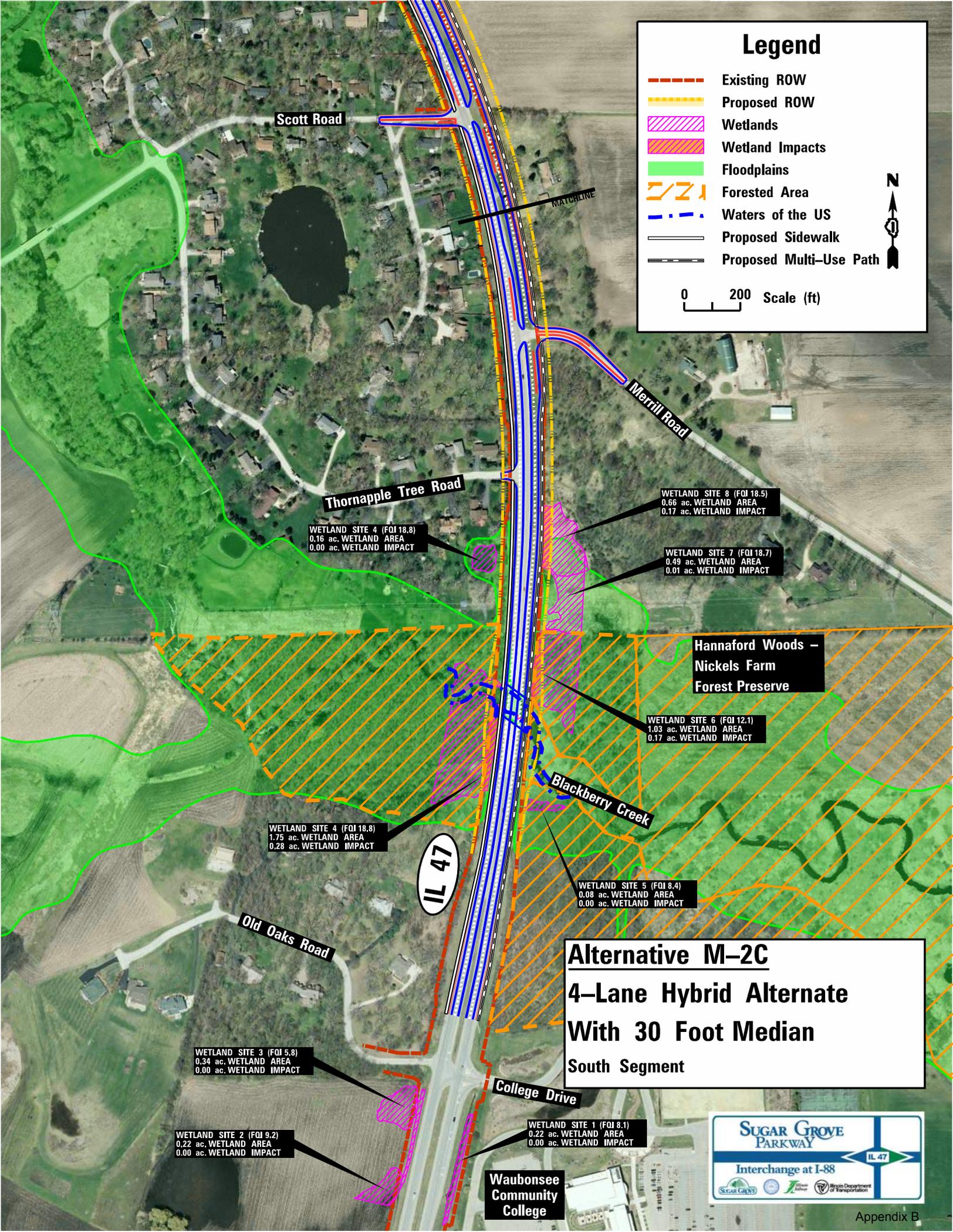
Alternative M-1A
4-Lane on Existing Alignment
With 30 Foot Median
North Segment



PROPOSED TYPICAL SECTION
IL RTE 47 - THROUGH HANNAFORD WOODS - NICKELS FARM FOREST PRESERVE

REDUCED MEDIAN WIDTH W/ CONCRETE BARRIER SEPARATION





Legend

- Existing ROW
- Proposed ROW
- Wetlands
- Wetland Impacts
- Floodplains
- Forested Area
- Waters of the US
- Proposed Sidewalk
- Proposed Multi-Use Path

0 200 Scale (ft)



Scott Road

MATCHLINE

Merrill Road

Thornapple Tree Road

WETLAND SITE 4 (FOI 18.8)
0.16 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

WETLAND SITE 8 (FOI 18.5)
0.66 ac. WETLAND AREA
0.17 ac. WETLAND IMPACT

WETLAND SITE 7 (FOI 18.7)
0.49 ac. WETLAND AREA
0.01 ac. WETLAND IMPACT

Hannaford Woods –
Nickels Farm
Forest Preserve

WETLAND SITE 6 (FOI 12.1)
1.03 ac. WETLAND AREA
0.17 ac. WETLAND IMPACT

Blackberry Creek

WETLAND SITE 4 (FOI 18.8)
1.75 ac. WETLAND AREA
0.28 ac. WETLAND IMPACT

IL 47

WETLAND SITE 5 (FOI 8.4)
0.08 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

Old Oaks Road

WETLAND SITE 3 (FOI 5.8)
0.34 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

Alternative M-2C
4-Lane Hybrid Alternate
With 30 Foot Median
South Segment

College Drive

WETLAND SITE 2 (FOI 9.2)
0.22 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

WETLAND SITE 1 (FOI 8.1)
0.22 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

Waubensee
Community
College



Alternative M-2C

4-Lane Hybrid Alternate With 30 Foot Median

Central Segment

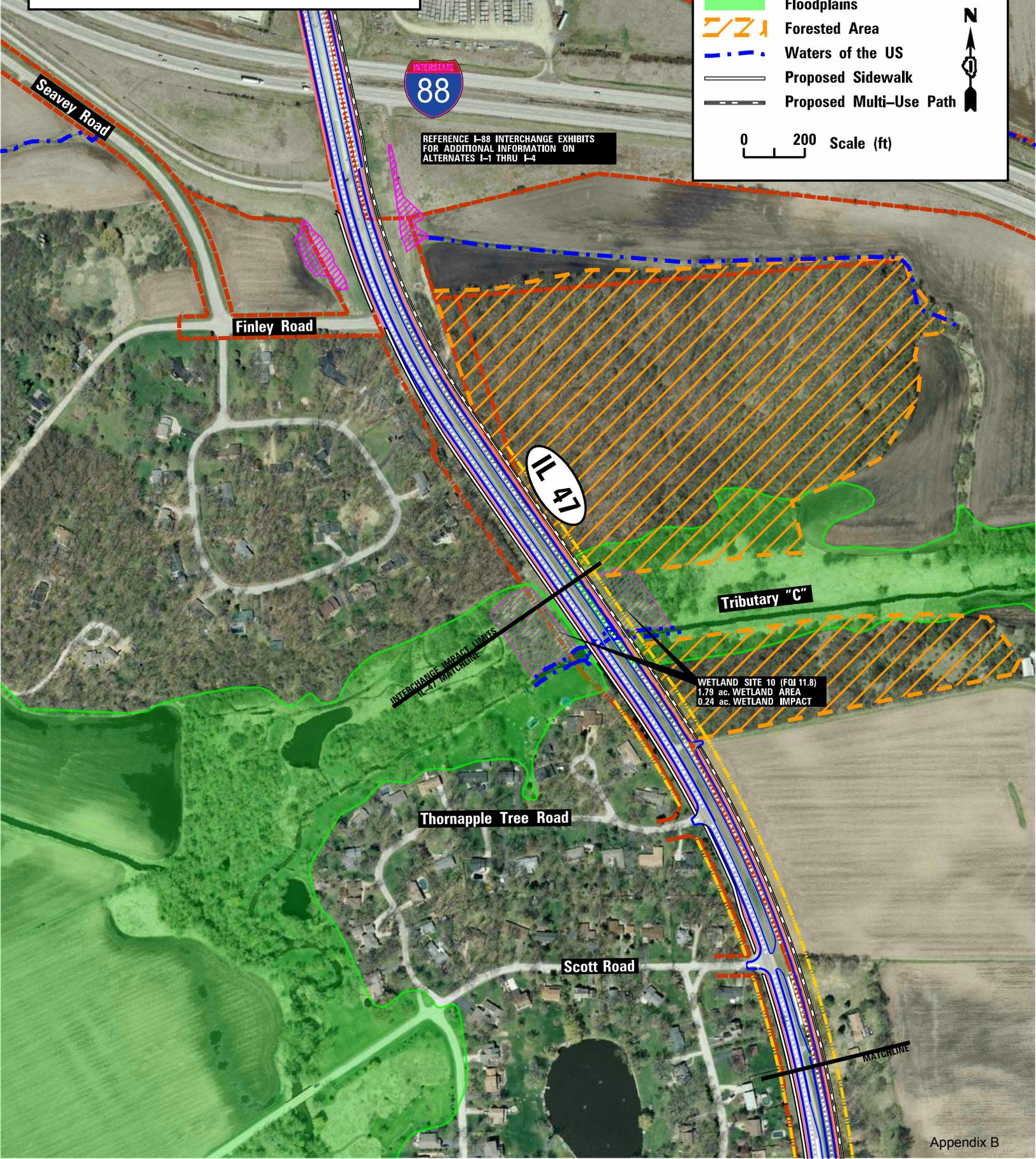


REFERENCE I-88 INTERCHANGE EXHIBITS FOR ADDITIONAL INFORMATION ON ALTERNATES I-1 THRU I-4

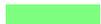
Legend

- Existing ROW
- Proposed ROW
- Wetlands
- Wetland Impacts
- Floodplains
- Forested Area
- Waters of the US
- Proposed Sidewalk
- Proposed Multi-Use Path

0 200 Scale (ft)

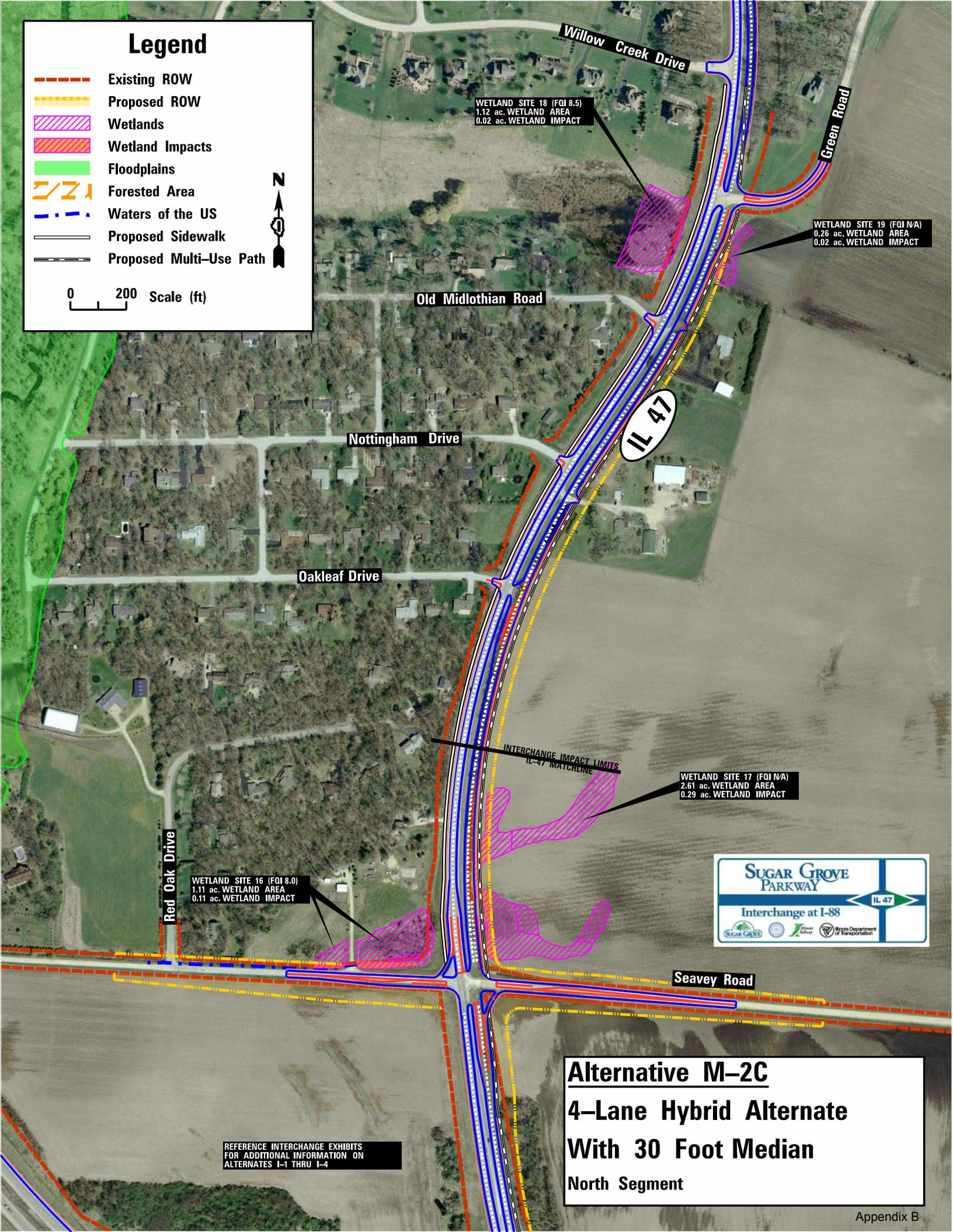


Legend

-  Existing ROW
-  Proposed ROW
-  Wetlands
-  Wetland Impacts
-  Floodplains
-  Forested Area
-  Waters of the US
-  Proposed Sidewalk
-  Proposed Multi-Use Path



0 200 Scale (ft)



WETLAND SITE 16 (FOI 8.0)
1.11 ac. WETLAND AREA
0.11 ac. WETLAND IMPACT

WETLAND SITE 17 (FOI IVA)
2.61 ac. WETLAND AREA
0.29 ac. WETLAND IMPACT

WETLAND SITE 18 (FOI 8.5)
1.12 ac. WETLAND AREA
0.02 ac. WETLAND IMPACT

WETLAND SITE 19 (FOI IVA)
0.26 ac. WETLAND AREA
0.02 ac. WETLAND IMPACT



Alternative M-2C
4-Lane Hybrid Alternate
With 30 Foot Median
North Segment

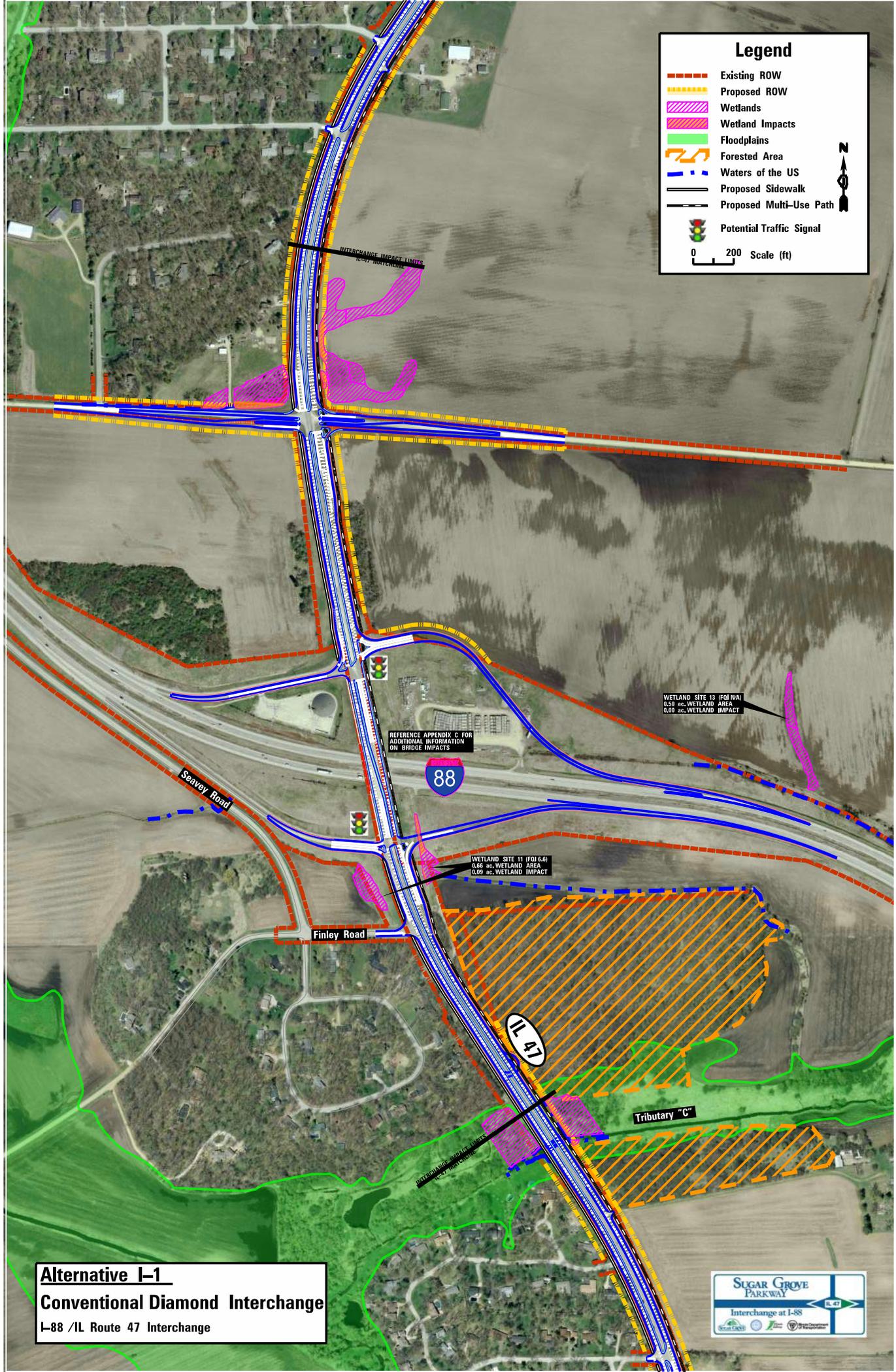
REFERENCE INTERCHANGE EXHIBITS
FOR ADDITIONAL INFORMATION ON
ALTERNATES I-1 THRU I-4

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Appendix C

IL 47/I-88 Interchange Build Alternatives from the Preferred Alternative Document



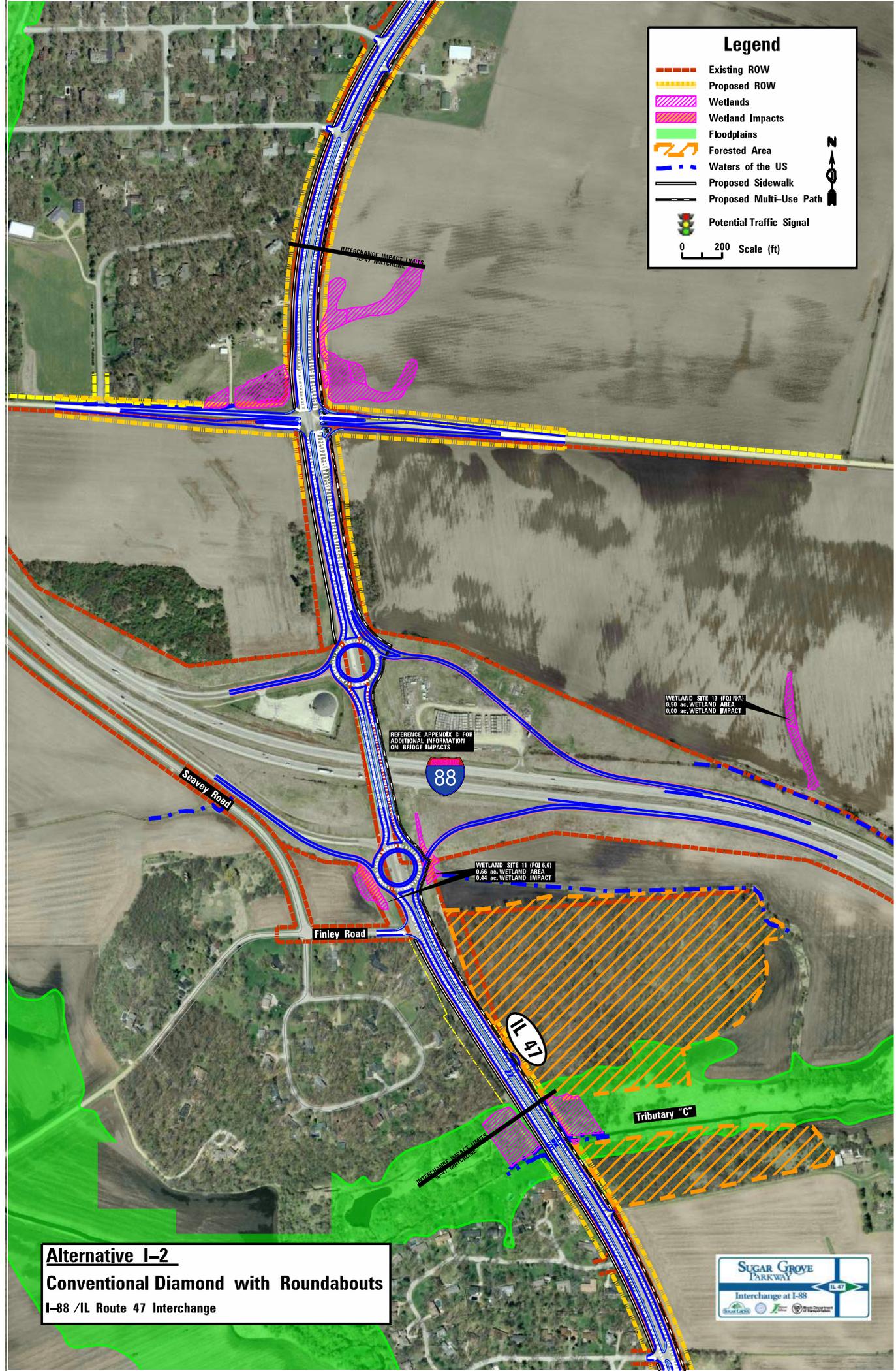
Legend

- Existing ROW
- Proposed ROW
- Wetlands
- Wetland Impacts
- Floodplains
- Forested Area
- Waters of the US
- Proposed Sidewalk
- Proposed Multi-Use Path
- Potential Traffic Signal

0 200 Scale (ft)

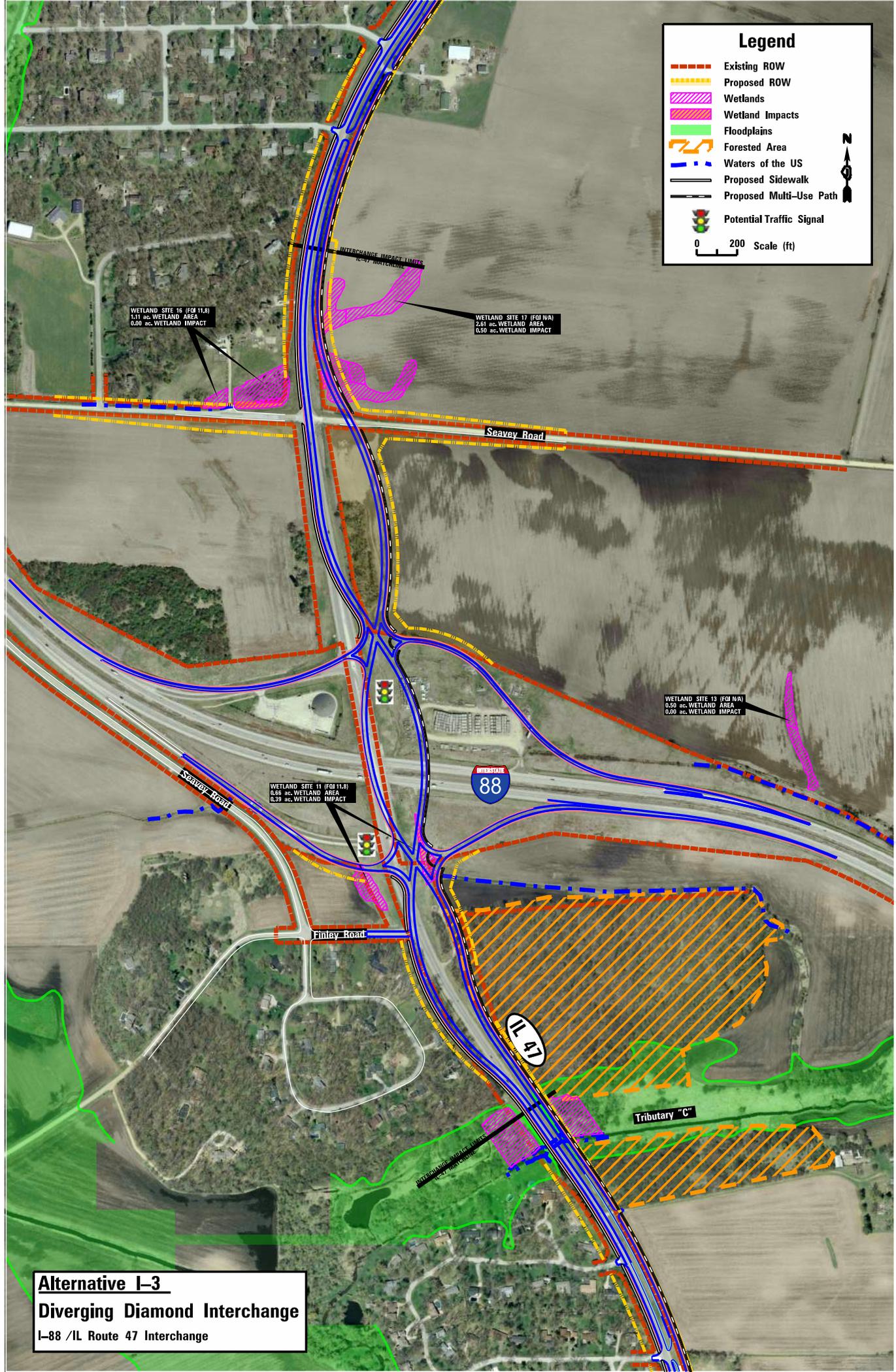
Alternative I-1
Conventional Diamond Interchange
 I-88 / IL Route 47 Interchange





Alternative I-2
Conventional Diamond with Roundabouts
 I-88 / IL Route 47 Interchange





Legend

- Existing ROW
- Proposed ROW
- Wetlands
- Wetland Impacts
- Floodplains
- Forested Area
- Waters of the US
- Proposed Sidewalk
- Proposed Multi-Use Path
- Potential Traffic Signal

0 200 Scale (ft)

WETLAND SITE 16 (FOI 11.8)
1.11 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

WETLAND SITE 17 (FOI N/A)
2.61 ac. WETLAND AREA
0.50 ac. WETLAND IMPACT

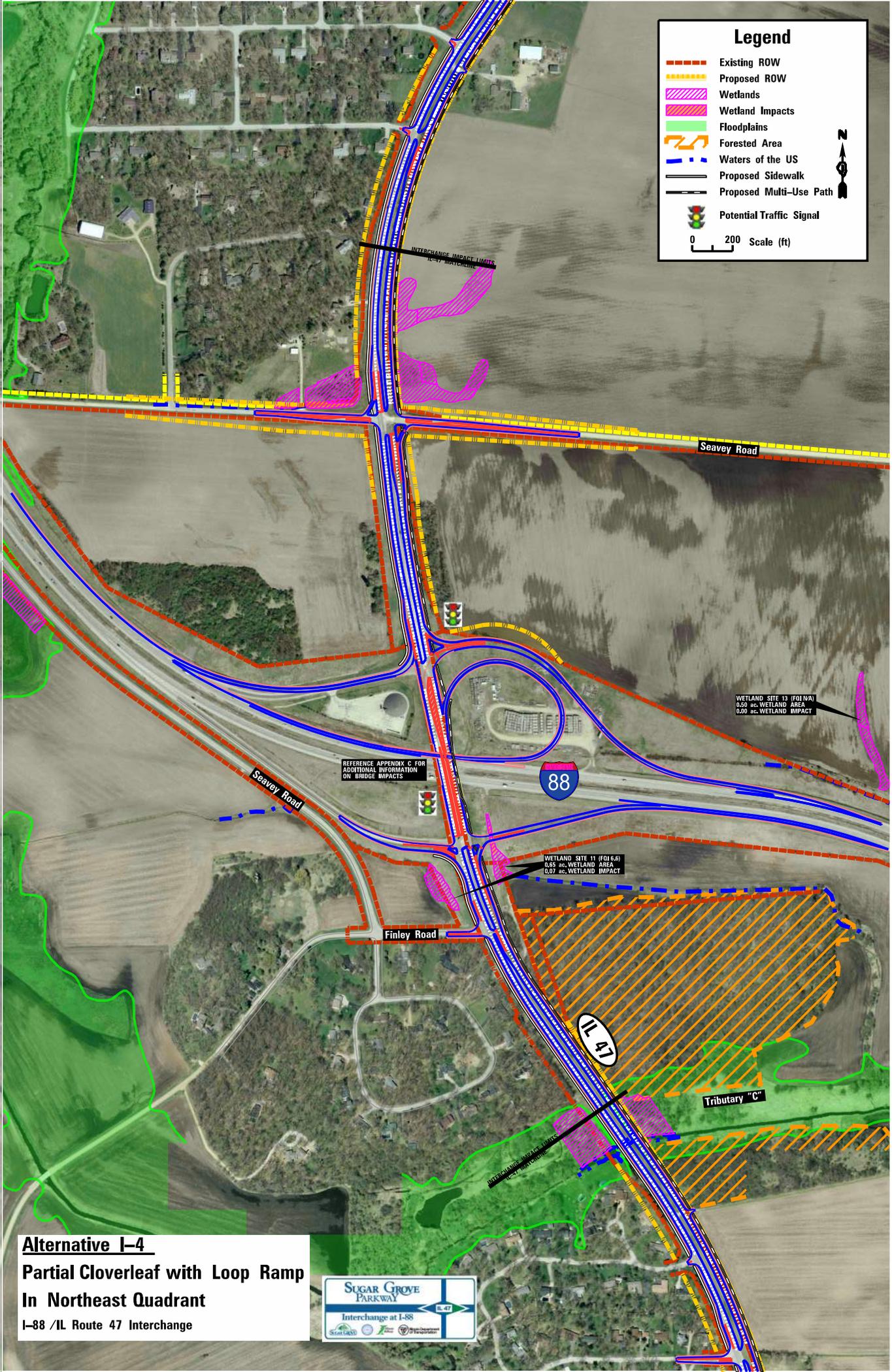
WETLAND SITE 11 (FOI 11.8)
0.66 ac. WETLAND AREA
0.39 ac. WETLAND IMPACT

WETLAND SITE 13 (FOI N/A)
0.50 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

Alternative I-3
Diverging Diamond Interchange
I-88 /IL Route 47 Interchange

Legend

- Existing ROW
 - Proposed ROW
 - Wetlands
 - Wetland Impacts
 - Floodplains
 - Forested Area
 - Waters of the US
 - Proposed Sidewalk
 - Proposed Multi-Use Path
 - Potential Traffic Signal
- 0 200 Scale (ft)



Alternative I-4
Partial Cloverleaf with Loop Ramp
In Northeast Quadrant
I-88 / IL Route 47 Interchange

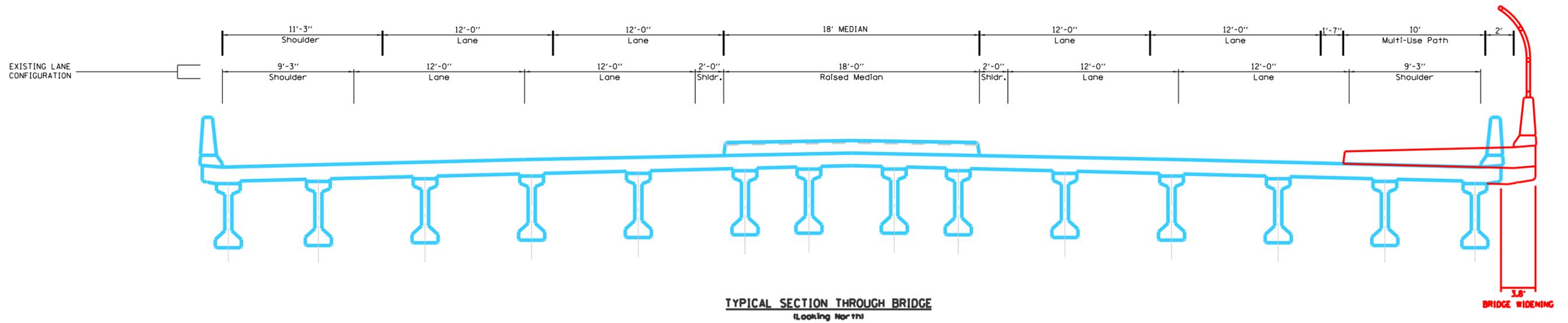




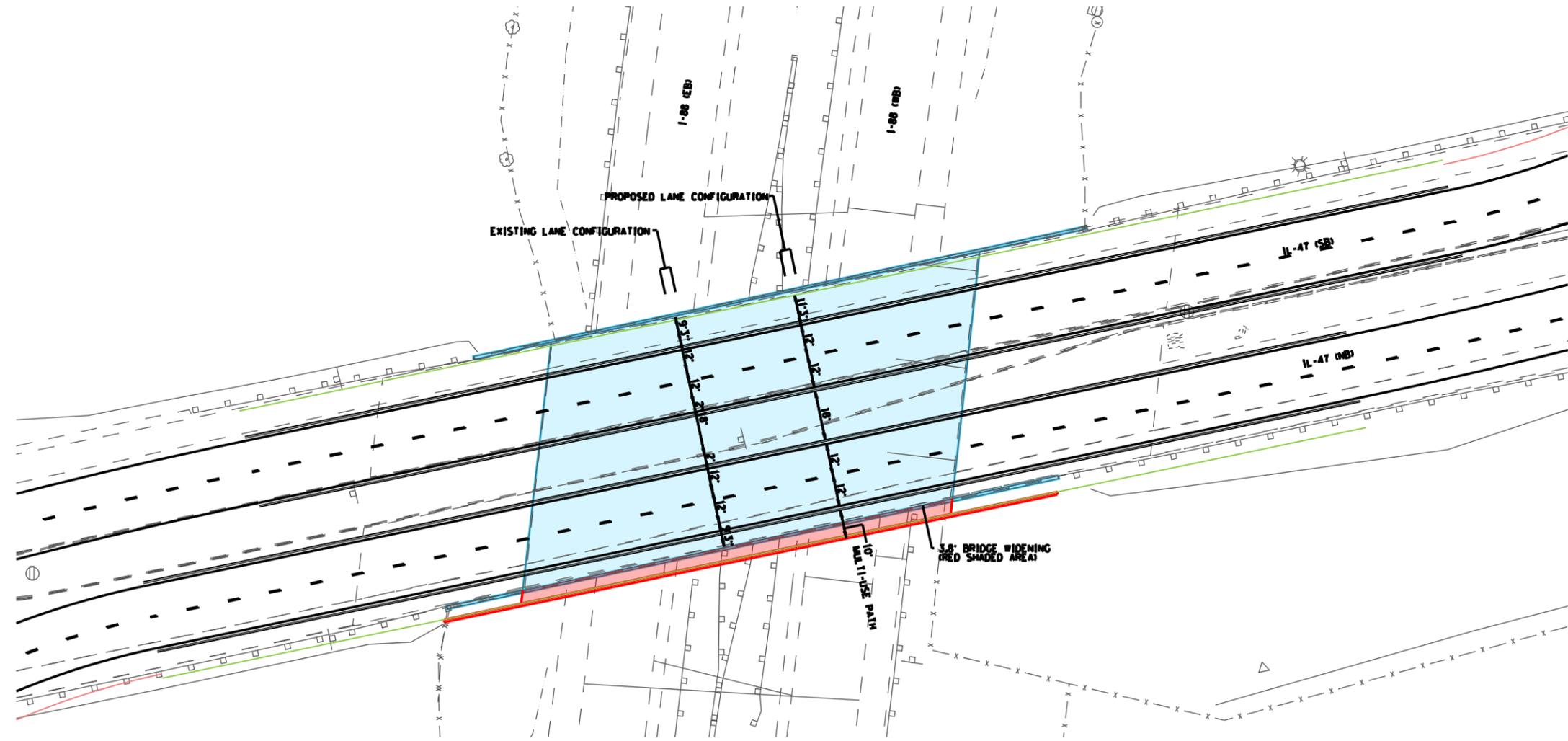
Appendix D

IL 47/I-88 Interchange Build Alternatives Carried Forward

Bridge Typicals



TYPICAL SECTION THROUGH BRIDGE
(Looking North)



H:\proj\2015\2015030001\CAD\Transect\01\01\Exhibits\tempfor_printing.dgn
 4/27/2017 2:29:28 PM

850 N. Maple Road Suite 200 Chicago, Illinois 60611 (773) 399-0172	USER name : 1908 DESIGNED - DRAWN - PLOT SCALE : 50,0000 / 1 in. PLOT DATE : 4/27/2017	REVISIONS REVISION NO. DATE DESCRIPTION 1 2 3 4	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ILLINOIS ROUTE 47 - STRUCTURE NO. 045-0082 TYPICAL SECTION - ROUNDABOUTS ALT I-2	F.A. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO.
	SCALE: SHEET OF SHEETS STA. TO STA.	CONTRACT NO.	ILLINOIS FED. AID PROJECT		

Appendix E

Environmental Surveys and Coordination

Index

INHS Wetland Delineation Report

INHS Habitat Assessment, Benthic Macroinvertebrate
Characterization and Water Quality Characterization

ISGS Preliminary Environmental Site Assessment memo

INHS Three-Season Avian Surveys

INHS Botanical Survey and Assessment of the Eastern Prairie
Fringed Orchid

INHS Survey and Habitat Assessment for Blanding's Turtle

INHS Survey for Fishes in Blackberry Creek

INHS Survey for Freshwater Mussels in Blackberry Creek and the
unnamed tributary to Blackberry Creek.

AD- 1006 Agricultural Form



Illinois Natural History Survey Wetland Determination Report



**FAP 326/FAI 88 (IL 47)
Kane County, Illinois**

IDOT Sequence Number: 19435



Prepared by:
Andy Olnas, Jenwei Tsai, Julie Nieset, and Dennis Skultety

INHS/IDOT Wetland Science Program

June 2016



Project Summary

A wetland survey was conducted for proposed work on FAP 326/FAI 88 (IL 47) at I-88 in Kane County, Illinois. All potential wetlands within the specified project area were examined. 18 sites met the three criteria of a wetland established in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* [U.S. Army Corps of Engineers (USACE) 2010] and were, therefore, determined to be wetlands. Summary information regarding the wetland determination sites is presented in the wetland project report. Wetland determination forms are found in Appendix A and wetland plant species lists are included in Appendix B. Wetland boundaries were recorded using a Trimble Global Navigation Satellite System (GNSS). The spatial data have been digitally uploaded to the Illinois Site Assessment Tracking System (http://frostycap.isgs.uiuc.edu/idot_extranet). Locations of determination sites were overlaid on a digital aerial orthophoto using ArcGIS; the resulting figure is included in Appendix C. Additional maps and figures are also included in Appendix C. Appendix D contains photographs of each wetland and Water of the United States. Details of farmed wetland determinations can be found in Appendix E.

Signed:  Date: May 31, 2016
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Cover Photo: Facing north overlooking Site 8.

FAP 326/FAI 88 (IL 47)

Kane County, Illinois

Introduction

A wetland survey was conducted on April 13-14 and May 3-5, 2016 for the proposed work on FAP 326/FAI 88 (IL 47) in Kane County, Illinois. Construction work is to include modifications to both IL 47 and I-88 to accommodate full access tollway interchange improvements.

Methods

All potential wetlands within the specified study area were examined. Characteristics of vegetation, soils, hydrology, and topography were evaluated during field investigation and on-site wetland determination. Locations of observation points for wetland determinations were selected based on plant community borders and topographic changes. The following sources were examined while surveying the project corridor to determine wetland locations and boundaries: aerial photographs; U.S. Geological Survey topographic map (Sugar Grove 7.5 minute quadrangle); National Wetlands Inventory (NWI) map (Sugar Grove 7.5 minute quadrangle) [U.S. Fish and Wildlife Service (USFWS)]; Kane County Advanced Identification (ADID) wetland maps (Northeastern Illinois Planning Commission et al. 2004), Illinois Wetlands Inventory (USFWS, Illinois Department of Natural Resources, Illinois Natural History Survey 1996); the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987); the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010); the *USDA-NRCS Official Series Descriptions*; and the *USDA-NRCS Web Soil Survey*. Positional inaccuracies are known to occur with downloaded sources of digital data listed above. As presented on maps and figures in this report, data can be shifted from their actual position when compared to modern aerial photography.

Wetland determinations were conducted using definitions and guidelines established in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010), and the *Chicago District Regional Permit Program* (USACE Chicago District 2012). Data from these determinations were recorded on U.S. Army Corps of Engineers' Wetland Determination Data Forms – Midwest Region (Appendix A); a data form was completed for each wetland sampling point. All potential wetlands, including all areas mapped as wetlands by the NWI, were described using at least one sampling point. Results of these determinations are summarized in the following text. Adjacent upland areas were also investigated; forms were also completed for these areas. Comprehensive plant species lists were compiled for each wetland site and are presented in Appendix B.

All areas of agricultural land use within the project corridor were delineated following the NRCS method of wetland determination (for more information, see: USDA-NRCS 2015). Briefly, this method involves examining 5 years of aerial photography taken during the early summer for evidence of saturation or inundation (wetland signature). The years used are determined to be 5 years during which precipitation was closest to the long term precipitation averages. In

addition, when possible, the NRCS wetland maps were consulted to find areas previously delineated by the NRCS as wetland. Any area which showed a wetland signature in three years out of five, or in two years out of five if the site was also mapped as wetland by the NWI, was investigated by a site visit. If hydric soils were present at the site, the site was determined to be wetland. The site was then delineated from the aerial photography based on an average of the years during which a wetland signature was evident. More information about NRCS determinations for this project can be found in Appendix E.

Wetland and water boundaries were recorded using a Trimble Global Navigation Satellite System (model GeoExplorer 6000 Series GeoXT), with a presumed accuracy of +/- 0.5 m under optimal field conditions. Occasionally, conditions prohibit field-delineation of boundaries using GNSS equipment, and these boundaries are digitized in the office using aerial photography. Typically this is done when one of three issues prevents field personnel from conducting a normal field delineation:

- Site cannot be accessed due to fence, lack of permission, hostile landowner, or other reason.
- Current conditions make delineation impossible (for example, delineating a stream or other water during a major flood when boundaries cannot be seen in the field).
- Current conditions make field delineation dangerous to our personnel. This often occurs with very steep-sided banks on creeks that have a great deal of vegetation obscuring the drop-off.

When a site is delineated using aerial photography, the site boundary must be readily visible from the aerial photo, and not obscured by overhanging vegetation or other features on the photo.

Spatial data were digitally uploaded to the Illinois Site Assessment Tracking System (http://frotycap.isgs.uiuc.edu/idot_extranet). Locations of determination sites were overlaid on a digital aerial orthophoto and approximate area was determined for each wetland site using ArcGIS 10.3 software (ESRI 2014). Resulting areas are calculated in acres, reported to two decimal places. Area of streams and ditches is given for the open channel and omits any portion enclosed in a pipe or culvert. Length of streams and ditches is given for the entire length within the project corridor; this includes pipes and culverts where visual observation can locate both ends. Site location, with respect to the nearest road, was measured from the edge of the pavement and is reported to the nearest foot.

Each native plant species was assigned a “coefficient of conservatism” (C) (Swink and Wilhelm 1994), a subjective rating of species fidelity to undegraded natural communities, ranging from zero to ten. Conservative species - those more likely to be found in “pristine” natural areas - were assigned high numbers, whereas non-conservative species - those that occur in anthropogenically disturbed areas - were given lower numbers. Non-native species and those not identifiable to species level were not assigned a rating. The Floristic Quality Index (FQI) is computed as $FQI = (\text{mean } C) \times (\sqrt{N})$, where mean C is the mean coefficient of conservatism for all native plant species at a site and N is the total number of native plant species at the site. In very general terms, higher FQI values for plant communities indicate more similarity to

“pristine” natural areas, as compared to those communities with lower FQI values. Botanical nomenclature follows *Plants of the Chicago Region (ibid.)*, while wetland indicator status for each species follows *National Wetland Plant List, version 3.3* (USACE 2016, Lichvar et al. 2016).

A photograph of each wetland and Water of the United States (WOUS) was taken from each sampling point; these photographs are presented in Appendix D.

Wetland Determination Site Summaries

Site Number: 1

Community type: **Wet meadow**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 14 feet southeast and 22 feet northwest of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.22 ac**

Total site area: **0.23 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**

HGM type: **Depressional**

Mean Coefficient of Conservatism (mean C): **2.9**

Floristic Quality Index (FQI): **8.1**

Site Number: 2

Community type: **Farmed wetland**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 21 feet northwest of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.25 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**

HGM type: **Depressional**

Mean Coefficient of Conservatism (mean C): **3.3**

Floristic Quality Index (FQI): **9.2**

Additional remarks: **The site currently supports hydrophytic vegetation; however, aerial photography and field conditions indicate that the area is in crop production during dry years. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.**

Site Number: 3

Community type: **Farmed wetland**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 32 feet northwest of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.34 ac**

Total site area: **0.34 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**

HGM type: **Depressional**

Mean Coefficient of Conservatism (mean C): **2.6** Floristic Quality Index (FQI): **5.8**

Additional remarks: **The site currently supports hydrophytic vegetation; however, aerial photography and field conditions indicate that the area is in crop production during dry years. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.**

Site Number: 4

Community type: **Wet floodplain forest**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 16 feet west of IL 47 and under the IL 47 bridge over Blackberry Creek**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **1.75 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This site is an Advanced Identification (ADID) Site.**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands directly abutting RPWs that flow directly or indirectly into Traditional Navigable Waters (RPWWD)**

HGM type: **Riverine**

Mean Coefficient of Conservatism (mean C): **3.1** Floristic Quality Index (FQI): **18.8**

Site Number: 5

Community type: **Wet floodplain forest**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 49 feet east of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.08 ac**

Total site area: **0.08 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This site is an Advanced Identification (ADID) Site.**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into Traditional Navigable Waters (RPWWN)**

HGM type: **Riverine**

Mean Coefficient of Conservatism (mean C): **2.4**

Floristic Quality Index (FQI): **8.4**

Site Number: 6

Community type: **Wet floodplain forest**

National Wetlands Inventory code: **PEMC (seasonally flooded, emergent, palustrine wetland) and U (upland)**

Site location: **Approximately 24 feet east of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **1.03 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This site is an Advanced Identification (ADID) Site.**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into Traditional Navigable Waters (RPWWN)**

HGM type: **Riverine**

Mean Coefficient of Conservatism (mean C): **2.9**

Floristic Quality Index (FQI): **12.1**

Site Number: 7

Community type: **Wet meadow**

National Wetlands Inventory code: **PEMC (seasonally flooded, emergent, palustrine wetland) and U (upland)**

Site location: **Approximately 34 feet east of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.49 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This site is an Advanced Identification (ADID) Site.**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into Traditional Navigable Waters (RPWWN)**

HGM type: **Depressional**

Mean Coefficient of Conservatism (mean C): **2.9**

Floristic Quality Index (FQI): **8.7**

Site Number: 8

Community type: **Sedge meadow**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 21 feet east of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.66 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This site is an Advanced Identification (ADID) Site, has a mean C-value of 3.5 or greater (Swink and Wilhelm 1994), and is a sedge meadow.**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **Yes**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into Traditional Navigable Waters (RPWWN)**

HGM type: **Depressional**

Mean Coefficient of Conservatism (mean C): **4.6**

Floristic Quality Index (FQI): **18.5**

Additional remarks: **The observed mean C and FQI scores might be lower for this site than if the survey were conducted later in the growing season.**

Site Number: 9

Community type: **Wetland pond**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 80 feet west of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.16 ac**

Total site area: **0.16 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Though this site falls within a Kane County ADID polygon, it is an excavated wetland pond that is no longer part of the natural wetland complex depicted by the polygon. In our opinion, it shouldn't be considered an HQAR, despite its ADID designation.

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**

HGM type: **Depressional**

Mean Coefficient of Conservatism (mean C): **0.3**

Floristic Quality Index (FQI): **0.6**

Site Number: 10

Community type: **Wet floodplain forest**

National Wetlands Inventory code: **PEMcd (partially drained/ditched, seasonally flooded, emergent, palustrine wetland), PSS1a (temporarily flooded, broad-leaved deciduous, scrub-shrub, palustrine wetland) and U (upland)**

Site location: **Approximately 58 feet northeast and 44 feet southwest of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **1.79 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This site is an Advanced Identification (ADID) Site.**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands directly abutting RPWs that flow directly or indirectly into Traditional Navigable Waters (RPWWD)**

HGM type: **Riverine**

Mean Coefficient of Conservatism (mean C): **2.3**

Floristic Quality Index (FQI): **11.8**

Site Number: 11

Community type: **Wet meadow**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 77 feet east and 72 feet west of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.66 ac**

Total site area: **0.66 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**
Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**
Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**
Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**
HGM type: **Depressional**
Mean Coefficient of Conservatism (mean C): **2.1** Floristic Quality Index (FQI): **6.6**

Site Number: 12

Community type: **Wet meadow**
National Wetlands Inventory code: **PEMCD (partially drained/ditched, seasonally flooded, emergent, palustrine wetland) and U (upland)**
Site location: **Approximately 17 feet southwest of Seavey Road**
Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**
Is this site a wetland? **Yes**
Area of site occurring within the project corridor: **0.63 ac**
Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**
Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**
Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**
Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**
Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**
HGM type: **Depressional**
Mean Coefficient of Conservatism (mean C): **2.0** Floristic Quality Index (FQI): **6.0**

Site Number: 13

Community type: **Farmed wetland**
National Wetlands Inventory code: **U (upland)**
Site location: **Approximately 153 feet north of I-88**
Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**
Is this site a wetland? **Yes**
Percentage of crop photos with evident wetland signature: **100 percent**
Percentage of crop photos with evident wetland signature (including NWI): **83 percent**
Area of site occurring within the project corridor: **0.30 ac**
Total site area: **0.50 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**
Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**
Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**
Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**

HGM type: **Depressional**

Additional remarks: **This site is an active cropland. The present situation is considered atypical because the site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.**

Site Number: 14

Community type: **Cropland**

National Wetlands Inventory code: **U (upland)**

Site location: **Sampling point 26A approximately 390 feet south of I-88**

Hydrophytic Vegetation? **No** Hydric Soils? **Yes** Wetland Hydrology? **No**

Is this site a wetland? **No**

Percentage of crop photos with evident wetland signature: **0 percent**

Percentage of crop photos with evident wetland signature (including NWI): **0 percent**

Additional remarks: **This point was investigated because it is within an ADID wetland polygon that extended into the project corridor. Though the portion of the polygon we sampled is not a wetland, there is a wet meadow outside the corridor that is approximately 15 feet south of Point 14A.**

Site Number: 15

Community type: **Wet meadow**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 45 feet southwest of I-88**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **0.64 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This site is an Advanced Identification (ADID) Site.**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands directly abutting RPWs that flow directly or indirectly into Traditional Navigable Waters (RPWWD)**

HGM type: **Riverine**

Mean Coefficient of Conservatism (mean C): **2.0**

Floristic Quality Index (FQI): **2.8**

Site Number: 16

Community type: **Wet shrubland**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 62 feet east and 48 feet west of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **1.11 ac**

Total site area: **1.11 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**

HGM type: **Depressional**

Mean Coefficient of Conservatism (mean C): **2.0**

Floristic Quality Index (FQI): **8.0**

Site Number: 17

Community type: **Farmed wetland**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 58 feet east of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Percentage of crop photos with evident wetland signature: **100 percent**

Percentage of crop photos with evident wetland signature (including NWI): **83 percent**

Area of site occurring within the project corridor: **1.45 ac**

Total site area: **2.61 ac**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**

Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**

Waters type (USACE and USEPA 2007): **Wetlands adjacent to non-RPWs that flow directly or indirectly into Traditional Navigable Waters (NRPWW)**

HGM type: **Depressional**

Additional remarks: **This site is an active cropland. The present situation is considered atypical because the site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.**

Site Number: 18

Community type: **Marsh**

National Wetlands Inventory code: **PEMC (seasonally flooded, emergent, palustrine wetland) and U (upland)**

Site location: **Approximately 44 feet west of IL 47**

Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**

Is this site a wetland? **Yes**

Area of site occurring within the project corridor: **1.12 ac**

Total site area: **Undetermined**

Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**
Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**
Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**
Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**
Waters type (USACE and USEPA 2007): **Isolated interstate or intrastate waters including isolated wetlands (ISOLATE)**
HGM type: **Depressional**
Mean Coefficient of Conservatism (mean C): **2.7** Floristic Quality Index (FQI): **8.5**

Site Number: 19

Community type: **Farmed wetland**
National Wetlands Inventory code: **U (upland)**
Site location: **Approximately 82 feet east of IL 47**
Hydrophytic Vegetation? **Yes** Hydric Soils? **Yes** Wetland Hydrology? **Yes**
Is this site a wetland? **Yes**
Percentage of crop photos with evident wetland signature: **100 percent**
Percentage of crop photos with evident wetland signature (including NWI): **83 percent**
Area of site occurring within the project corridor: **0.26 ac**
Total site area: **0.26 ac**
Is this site an Advanced Identification (ADID) High Habitat Value wetland? **No**
Is this site an Advanced Identification (ADID) High Functional Value wetland? **No**
Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**
Does this site meet U.S. Fish and Wildlife Service (FWS) criteria for potential *Platanthera leucophaea* (Eastern prairie fringed orchid) habitat (USFWS 2014)? **No**
Waters type (USACE and USEPA 2007): **Isolated interstate or intrastate waters including isolated wetlands (ISOLATE)**
HGM type: **Depressional**
Additional remarks: **This site is an active cropland. The present situation is considered atypical because the site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.**

Wetland Determination Site Summary Table

Site no.	NWI code	Community type	Area (ac.) ¹	>50% ²	FQI	Mean C	ADID ³	HQAR ⁴	Waters type
1	U	Wet meadow	0.22	Yes	8.1	2.9	None	No	NRPWW
2	U	Farmed wetland	0.16	No	9.2	3.3	None	No	NRPWW
3	U	Farmed wetland	0.34	Yes	5.8	2.6	None	No	NRPWW
4	U	Wet floodplain forest	1.75	No	18.8	3.1	HFV	Yes	RPWWD
5	U	Wet floodplain forest	0.08	Yes	8.4	2.4	HFV	Yes	RPWWN
6	PEMC, U	Wet floodplain forest	1.03	No	12.1	2.9	HFV	Yes	RPWWN
7	PEMC, U	Wet meadow	0.49	No	8.7	2.9	HFV	Yes	RPWWN
8	U	Sedge meadow	0.66	No	18.5	4.6	HFV	Yes	RPWWN
9	U	Wetland pond	0.16	Yes	0.6	0.3	HFV	No	NRPWW
10	PEMCd, PSS1A, U	Wet floodplain forest	1.79	No	11.8	2.3	HFV	Yes	RPWWD
11	U	Wet meadow	0.66	Yes	6.6	2.1	None	No	NRPWW
12	PEMCd, U	Wet meadow	0.63	No	6.0	2.0	None	No	NRPWW
13	U	Farmed wetland	0.30	Yes	N/A	N/A	None	No	NRPWW
15	U	Wet meadow	0.64	No	2.8	2.0	HFV	Yes	RPWWD
16	U	Wet shrubland	1.11	Yes	8.0	2.0	None	No	NRPWW
17	U	Farmed wetland	1.45	Yes	N/A	N/A	None	No	NRPWW
18	PEMC, U	Marsh	1.12	No	8.5	2.7	None	No	ISOLATE
19	U	Farmed wetland	0.26	Yes	N/A	N/A	None	No	ISOLATE

¹ Area within the ESR project limits. ² In our best professional judgment is more than 50% of the total site area within the ESR project limits? ³ Is this site an Advanced Identification High Habitat Value wetland (HHV) or a High Functional Value wetland (HFV)? ⁴ Is this site a High Quality Aquatic Resource?

Waters of the United States

Site Number: W1

Site Name: **Blackberry Creek**

Site Location: **Crosses under IL 47 approximately 771 feet south of Thornapple Tree Road**

Latitude: **41.804450**

Longitude: **-88.460350**

Community type: **Stream**

National Wetlands Inventory code: **R2UBH (permanently flooded, unconsolidated bottom, lower perennial, riverine wetland)**

Area of site occurring within the project corridor: **0.55 acres**

Linear feet: **693 ft**

Waters type (USACE 2007): **RPW (Relatively Permanent Waters that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **22.1 mi² (USGS 2016)**

Riffles observed? **Yes**

Pools observed? **Yes**

Mussel shell material observed? **Yes**

Is the stream or body of water permanent? **Yes**

Was this site mapped as a high quality stream, river, or ditch? **Yes**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **Yes**

Rationale: **This section of stream is B-rated for Integrity in the Illinois Biological Stream Characterization Study.**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **Yes**

Stream Integrity Rating: **B**

Stream Diversity Rating: **C**

Additional Remarks: **Blackberry Creek is classified as a biologically significant stream from its mouth at the Fox River upstream to its confluence with the East Run. This is approximately 6.5 miles downstream of the project area (IDNR 2008).**

Site Number: W2

Site Name: **Unnamed tributary to Blackberry Creek**

Site Location: **Approximately 46 feet west of IL 47**

Latitude: **41.805640**

Longitude: **-88.460660**

Community type: **Ditch**

Area of site occurring within the project corridor: **0.04 acres**

Linear feet: **646 ft**

Waters type (USACE 2007): **NRPW (Non-RPWs that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **<1 mi² (USGS 2016)**

Riffles observed? **No**

Pools observed? **Yes**

Mussel shell material observed? **No**

Is the stream or body of water permanent? **No**

Was this site mapped as a high quality stream, river, or ditch? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **No**
Stream Integrity Rating: **Not Rated** Stream Diversity Rating: **Not Rated**

Site Number: W3

Site Name: **Seavey Road Run**

Site Location: **Crosses under IL 47 approximately 636 feet northwest of Thornapple Tree Road and under I-88 approximately 3355 feet southeast of IL 47**

Latitude: **41.813280** Longitude: **-88.463230**

Community type: **Stream**

Area of site occurring within the project corridor: **0.61 acres**

Linear feet: **1054 ft**

Waters type (USACE 2007): **RPW (Relatively Permanent Waters that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **6.5 mi² (USGS 2016)**

Riffles observed? **No** Pools observed? **Yes**

Mussel shell material observed? **Yes**

Is the stream or body of water permanent? **Yes**

Was this site mapped as a high quality stream, river, or ditch? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **No**

Stream Integrity Rating: **Not Rated** Stream Diversity Rating: **Not Rated**

Site Number: W4

Site Name: **Unnamed tributary to Seavey Road Run**

Site Location: **Approximately 51 feet northeast of IL 47**

Latitude: **41.813620** Longitude: **-88.463270**

Community type: **Ditch**

Area of site occurring within the project corridor: **0.02 acres**

Linear feet: **222 ft**

Waters type (USACE 2007): **NRPW (Non-RPWs that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **<1 mi² (USGS 2016)**

Riffles observed? **No** Pools observed? **No**

Mussel shell material observed? **No**

Is the stream or body of water permanent? **No**

Was this site mapped as a high quality stream, river, or ditch? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **No**

Stream Integrity Rating: **Not Rated** Stream Diversity Rating: **Not Rated**

Site Number: W5

Site Name: **Unnamed tributary to Blackberry Creek**

Site Location: **Approximately 297 feet south of I-88**

Latitude: **41.8167** Longitude: **-88.462180**

Community type: **Ditch**

Area of site occurring within the project corridor: **0.02 acres**

Linear feet: **428 ft**

Waters type (USACE 2007): **NRPW (Non-RPWs that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **<1 mi² (USGS 2016)**

Riffles observed? **No** Pools observed? **Yes**

Mussel shell material observed? **No**

Is the stream or body of water permanent? **No**

Was this site mapped as a high quality stream, river, or ditch? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **No**

Stream Integrity Rating: **Not Rated** Stream Diversity Rating: **Not Rated**

Site Number: W6

Site Name: **Unnamed tributary to Seavey Road Run**

Site Location: **Crosses under Seavey Road approximately 771 feet northwest of Finley Road**

Latitude: **41.817770** Longitude: **-88.469840**

Community type: **Ditch**

Area of site occurring within the project corridor: **0.10 acres**

Linear feet: **1707 ft**

Waters type (USACE 2007): **NRPW (Non-RPWs that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **<1 mi² (USGS 2016)**

Riffles observed? **No** Pools observed? **Yes**

Mussel shell material observed? **No**

Is the stream or body of water permanent? **No**

Was this site mapped as a high quality stream, river, or ditch? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **No**

Stream Integrity Rating: **Not Rated** Stream Diversity Rating: **Not Rated**

Site Number: W7

Site Name: **Unnamed tributary to Seavey Road Run**

Site Location: **Approximately 72 feet northeast of I-88**

Latitude: **41.817470** Longitude: **-88.457330**

Community type: **Ditch**

Area of site occurring within the project corridor: **0.11 acres**

Linear feet: **1984 ft**

Waters type (USACE 2007): **NRPW (Non-RPWs that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **<1 mi² (USGS 2016)**

Riffles observed? **No** Pools observed? **No**

Mussel shell material observed? **No**

Is the stream or body of water permanent? **No**

Was this site mapped as a high quality stream, river, or ditch? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **No**

Stream Integrity Rating: **Not Rated** Stream Diversity Rating: **Not Rated**

Additional Remarks: **Watershed data is not available for this ditch. This site was not accessible in the field, so we used aerial photography to approximate the channel location and calculate the linear feet.**

Site Number: W8

Site Name: **Unnamed tributary to Blackberry Creek**

Site Location: **Approximately 13 feet north of Seavey Road**

Latitude: **41.823280** Longitude: **-88.470350**

Community type: **Ditch**

Area of site occurring within the project corridor: **0.03 acres**

Linear feet: **714 ft**

Waters type (USACE 2007): **NRPW (Non-RPWs that flow directly or indirectly into Traditional Navigable Waters)**

USGS 8-Digit Hydrologic Unit Code (HUC): **07120007 (Lower Fox River)**

Watershed area: **<1 mi² (USGS 2016)**

Riffles observed? **No** Pools observed? **No**

Mussel shell material observed? **No**

Is the stream or body of water permanent? **No**

Was this site mapped as a high quality stream, river, or ditch? **No**

Is this site a High Quality Aquatic Resource (HQAR) (USACE-CD 2012)? **No**

Is the stream identified by the IDNR (2008) as a biologically significant stream? **No**

Stream Integrity Rating: **Not Rated** Stream Diversity Rating: **Not Rated**

Threatened/Endangered Species and Natural Communities of Special Interest

No species listed as threatened or endangered federally or in Illinois were found during our wetland survey within the project corridor. Also, no natural communities of special interest were noted.

All wetland determination sites were assessed for potential habitat suitability of *Platanthera leucophaea* (Eastern Prairie Fringed Orchid or EPFO). EPFO is a federal threatened and Illinois endangered plant species. Our assessment of suitable habitat follows the guidelines

established in *S7 Technical Assistance: Eastern prairie fringed orchid (Platanthera leucophaea)* (USFWS 2014).

Based on floristic quality assessment and assessment of associated species wetland determination Site 8 was determined to be potential habitat for EPFO.

Additionally, wetland Sites 4, 5, 6, 7, 8, 10, and 15, and waters Site 1 have been designated as High Quality Aquatic Resources (HQAR).

Literature Cited

- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. Technical Report Y-87-1. 207 p.
- ESRI. 2014. ArcGIS, version 10.3. Environmental Systems Research Institute, Redlands, CA, USA.
- Federal Highway Administration and Federal Railroad Administration. 2015. Range-wide Biological Assessment for Transportation Projects for Indiana Bat and Northern Long-eared Bat. Online: http://www.fws.gov/midwest/Endangered/section7/fhwa/pdf/FHWA_IBatNLEB_BA.pdf [Accessed July 30, 2015].
- Illinois Department of Natural Resources. 2008. Integrating Multiple Taxa in a Biological Stream Rating System. Illinois Department of Natural Resources, Springfield. iv+34 p.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30:1-17.
- Northeastern Illinois Planning Commission, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and Kane County Department of Environmental Management. 2004. Advanced Identification (ADID) Study Kane County, Illinois. Distributed by Kane County GIS Technologies; Batavia, Illinois.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available online at <https://soilseries.sc.egov.usda.gov/osdname.asp> [Accessed May 9, 2016].
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> [Accessed May 9, 2016].
- Swink F. and G. Wilhelm. 1994. Plants of the Chicago Region. 4th ed. Indiana Academy of Science, Indianapolis, IN. 921 p.
- U.S. Army Corps of Engineers. 2016. National Wetland Plant List, version 3.3 (http://rsgisias.crrel.usace.army.mil/nwpl_static/index.html). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

- U.S. Army Corps of Engineers Chicago District. 2012. Chicago District Regional Permit Program. Available at: <http://www.lrc.usace.army.mil/Portals/36/docs/regulatory/pdf/RPP2012.pdf> [Accessed May 20, 2015].
- U.S. Army Corps of Engineers and U.S. Environmental Protection Agency. 2007. U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. Available online at http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa_guide/jd_guidebook_051207final.pdf.
- U. S. Department of Agriculture, Natural Resources Conservation Service. 2015. Wetland Mapping Conventions; NRCS Illinois. Online: http://efotg.sc.egov.usda.gov/references/public/IL/IL_Mapping_Conventions_6_25_2015.docx
- U.S. Fish and Wildlife Service. 2014. S7 Technical Assistance: Eastern prairie fringed orchid (*Platanthera leucophaea*), online at <http://www.fws.gov/midwest/Endangered/section7/s7process/plants/epfos7guide.html> [Accessed May 20, 2016].
- U.S. Fish and Wildlife Service, Illinois Department of Natural Resources, and Illinois Natural History Survey. 1996. Illinois Wetlands Inventory, Vector digital data, Illinois Natural History Survey, Champaign, Illinois.
- U.S. Geological Survey. 2016. The StreamStats program for Illinois, online at <http://water.usgs.gov/osw/streamstats/illinois.html>. [Accessed November 30, 2015 and May 20, 2016].

APPENDIX A

Wetland Determination Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 1A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.80000 Long: -88.46128 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Harpster SICL, 0-2% slopes; revised to Aquent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet meadow.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Eleocharis erythropoda</i>	30	Yes	OBL		
2. <i>Phalaris arundinacea</i>	10	Yes	FACW		
3. <i>Ranunculus sceleratus</i>	8	No	OBL		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>48</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK SIL	
2-12+	2.5Y 4/1	93	7.5YR 4/4	7	C	M	SICL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
--	---

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
--	--

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
---	--

<p>Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><5</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
--	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 1B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): Convex
 Slope (%): < 1 Lat: 41.79999 Long: -88.46124 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Harpster SICL, 0-2% slopes; revised to Aquent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Trifolium repens</i>	60	Yes	FACU		
2. <i>Festuca elatior</i>	50	Yes	FACU		
3. <i>Poa pratensis</i>	15	No	FAC		
4. <i>Taraxacum officinale</i>	5	No	FACU		
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>130</u> = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK SIL	
2-8	2.5Y 3/1	95	7.5YR 4/4	5	C	M	SICL	
8-14+	2.5Y 4/1	95	10YR 4/4	5	C	M	SICL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
Restrictive Layer (if observed):						Hydric Soil Present? <u>Yes</u>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two is required)	
<u>Primary Indicators (minimum of one is required: check all that apply)</u>					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				
Field Observations:				Wetland Hydrology Present? <u>No</u>	
Surface Water Present?	<u>No</u>	Depth (inches):			
Water Table Present?	<u>No</u>	Depth (inches):			
Saturation Present? (includes capillary fringe)	<u>No</u>	Depth (inches):			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 2A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.79984 Long: -88.46218 Datum: NAD 83
 Soil Map Unit Name: Harpster SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is farmed wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Ranunculus sceleratus</i>	30	Yes	OBL		
2. <i>Echinochloa crusgalli</i>	7	No	FACW		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>37</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/1	100					SIL	
8-18+	10YR 3/1	92	10YR 4/4	8	C	M	SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Coast Prairie Redox (A16)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> Dark Surface (S7)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Iron-Manganese Masses (F12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 2 cm Muck (A10)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):						Hydric Soil Present? <u>Yes</u>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two is required)		
<u>Primary Indicators (minimum of one is required: check all that apply)</u>					
<input checked="" type="checkbox"/> Surface Water (A1)			<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)			<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)			<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)			<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)			<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)			<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)			<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)			<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<input checked="" type="checkbox"/> Other (Explain in Remarks)		
Field Observations:			Wetland Hydrology Present? <u>Yes</u>		
Surface Water Present?	<u>Yes</u>	Depth (inches):	<u><4</u>		
Water Table Present?	<u>Yes</u>	Depth (inches):	<u>0</u>		
Saturation Present? (includes capillary fringe)	<u>Yes</u>	Depth (inches):	<u>0</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Percent of FSA crop photos with wetland signature evident: 80%					
Remarks: Combined crop photo/NWI percentage: 67% Does the site possess wetland hydrology?: Yes Rationale: Wetland signature is evident in the majority of years examined.					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 3A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.80057 Long: -88.46187 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is farmed wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Ranunculus sceleratus</i>	40	Yes	OBL		
2. <i>Alisma subcordatum</i>	3	No	OBL		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>43</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5.5	10YR 3/1	100					SIL	
5.5-12.5	10YR 3/1	97	10YR 4/4	3	C	M	SIL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
--	--

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input checked="" type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><6</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
 Percent of FSA crop photos with wetland signature evident: 60%

Remarks: Combined crop photo/NWI percentage: 50% Does the site possess wetland hydrology?: Yes Rationale: Wetland signature is evident in the majority of years examined.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 4A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 41.80380 Long: -88.46107 Datum: NAD 83
 Soil Map Unit Name: Otter SIL, 0-2% slopes, freq. fld. NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet floodplain forest.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <i>Crataegus mollis</i>	30	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <i>Populus deltoides</i>	20	Yes	FAC		
3. <i>Acer negundo</i>	10	No	FAC		
4. _____					
5. _____					
<u>60</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <i>Crataegus mollis</i>	15	Yes	FAC		
2. <i>Rhamnus cathartica</i>	5	Yes	FAC		
3. _____					
<u>20</u> = Total Cover					
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Phalaris arundinacea</i>	80	Yes	FACW	Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
Woody Vine Stratum (Plot size: 30 ft radius)					
1. <i>Rhus radicans</i>	2	No	FAC	Hydrophytic Vegetation Present? <u>Yes</u>	
2. _____					
<u>2</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 4A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK	
2-5	2.5Y 3/2	97	2.5Y 4/4	3	C	M	SIL	
5-10+	2.5Y 3/2	92	2.5Y 4/4	8	C	M	SIL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><3</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 4B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 41.80368 Long: -88.46124 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Otter SIL, 0-2% slopes, freq. fld.; revised to Orthent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is shrubland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <u>Prunus americana</u>	15	Yes	UPL	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>67%</u> (A/B)	
2. <u>Quercus macrocarpa</u>	5	Yes	FAC		
3. <u>Acer negundo</u>	3	No	FAC		
4. _____					
5. _____					
<u>23</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <u>Prunus americana</u>	50	Yes	UPL		
2. <u>Rosa multiflora</u>	10	No	FACU		
3. <u>Fraxinus pennsylvanica var. subintegerrima</u>	1	No	FACW		
4. _____					
5. _____					
<u>61</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <u>Helenium autumnale</u>	15	Yes	FACW		
2. <u>Geum laciniatum</u>	10	Yes	FACW		
3. <u>Phalaris arundinacea</u>	10	Yes	FACW		
4. <u>Pycnanthemum virginianum</u>	7	No	FACW		
5. <u>Vitis riparia</u>	5	No	FACW		
6. <u>Acer saccharinum</u>	3	No	FACW		
7. <u>Lycopus americanus</u>	1	No	OBL		
8. <u>Ulmus sp.</u>	1	No	-		
9. _____					
10. _____					
<u>52</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. <u>Rhus radicans</u>	1	No	FAC		
2. _____					
<u>1</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 4B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			Loc ²
0-2	10YR 3/2	100				SIL		
2-13	10YR 5/3	100				SIL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>No</u></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations: Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>No</u> Depth (inches): _____ Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>No</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 5A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.80357 Long: -88.46006 Datum: NAD 83
 Soil Map Unit Name: Otter SIL, 0-2% slopes, freq. fld. NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet floodplain forest.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <u>Crataegus mollis</u>	80	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>88%</u> (A/B)	
2. <u>Quercus macrocarpa</u>	20	Yes	FAC		
3. _____					
4. _____					
5. _____					
<u>100</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <u>Lonicera tatarica</u>	5	Yes	FACU		
2. <u>Cornus stolonifera</u>	2	Yes	FACW		
3. <u>Viburnum opulus</u>	2	Yes	FAC		
4. _____					
5. _____					
<u>9</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <u>Phalaris arundinacea</u>	25	Yes	FACW		
2. <u>Alliaria petiolata</u>	10	Yes	FAC		
3. <u>Aster simplex</u>	3	No	FAC		
4. <u>Ranunculus abortivus</u>	3	No	FACW		
5. <u>Salix interior</u>	3	No	FACW		
6. <u>Taraxacum officinale</u>	1	No	FACU		
7. _____					
8. _____					
9. _____					
10. _____					
<u>45</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. <u>Vitis riparia</u>	7	Yes	FACW		
2. _____					
<u>7</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 5B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): Convex
 Slope (%): < 2 Lat: 41.80365 Long: -88.46045 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Otter SIL, 0-2% slopes, freq. fld.; revised to Orthent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>33%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <u>Poa pratensis</u>	60	Yes	FAC		
2. <u>Trifolium repens</u>	40	Yes	FACU		
3. <u>Taraxacum officinale</u>	30	Yes	FACU		
4. <u>Plantago lanceolata</u>	15	No	FACU		
5. <u>Festuca elatior</u>	5	No	FACU		
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>150</u> = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 5B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6.5	10YR 3/1	100					SIL	
6.5-13.5	10YR 4/3	95	10YR 5/6	5	C	M	SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Coast Prairie Redox (A16)					
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Dark Surface (S7)					
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Iron-Manganese Masses (F12)					
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)					
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Other (Explain in Remarks)					
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.					
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)							
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)							
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)							
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):							Hydric Soil Present? <u> No </u>	
Type: _____								
Depth (inches): _____								
Remarks: 6.5" soil over filled material								

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two is required)		
<u>Primary Indicators (minimum of one is required: check all that apply)</u>					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Surface Soil Cracks (B6)		
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Drainage Patterns (B10)		
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)		<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)		<input type="checkbox"/> Crayfish Burrows (C8)		
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)		<input type="checkbox"/> Stunted or Stressed Plants (D1)		
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)		<input type="checkbox"/> Geomorphic Position (D2)		
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)		<input type="checkbox"/> FAC-Neutral Test (D5)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				
Field Observations:			Wetland Hydrology Present? <u> No </u>		
Surface Water Present?	<u> No </u>	Depth (inches): _____			
Water Table Present?	<u> No </u>	Depth (inches): _____			
Saturation Present? (includes capillary fringe)	<u> No </u>	Depth (inches): _____			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 6A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.80514 Long: -88.45979 Datum: NAD 83
 Soil Map Unit Name: Otter SIL, 0-2% slopes, freq. fld. NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet floodplain forest.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <i>Crataegus mollis</i>	50	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <i>Rhamnus cathartica</i>	15	Yes	FAC		
3. <i>Acer negundo</i>	10	No	FAC		
4. _____					
5. _____					
<u>75</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <i>Rhamnus cathartica</i>	10	Yes	FAC		
2. <i>Acer negundo</i>	5	Yes	FAC		
3. _____					
<u>15</u> = Total Cover					
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Phalaris arundinacea</i>	70	Yes	FACW	Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <i>Impatiens capensis</i>	30	Yes	FACW		
3. <i>Urtica procera</i>	25	Yes	FACW		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>125</u> = Total Cover					
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____				Hydrophytic Vegetation Present? <u>Yes</u>	
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 6A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/1	98	10YR 4/4	2	C	M	SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Coast Prairie Redox (A16)					
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Dark Surface (S7)					
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Iron-Manganese Masses (F12)					
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)					
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Other (Explain in Remarks)					
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.					
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)							
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)							
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)							
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):							Hydric Soil Present? <u>Yes</u>	
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two is required)		
Primary Indicators (minimum of one is required: check all that apply)					
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Surface Soil Cracks (B6)		
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Drainage Patterns (B10)		
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)		<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)		<input type="checkbox"/> Crayfish Burrows (C8)		
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)		<input type="checkbox"/> Stunted or Stressed Plants (D1)		
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)		<input checked="" type="checkbox"/> Geomorphic Position (D2)		
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				
Field Observations:			Wetland Hydrology Present? <u>Yes</u>		
Surface Water Present?	<u>Yes</u>	Depth (inches): <u>10</u>			
Water Table Present?	<u>Yes</u>	Depth (inches): <u>0</u>			
Saturation Present? (includes capillary fringe)	<u>Yes</u>	Depth (inches): <u>0</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 6B/7B/8B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Roadslope Local relief (concave, convex, none): Convex
 Slope (%): < 3 Lat: 41.80562 Long: -88.46028 Datum: NAD 83
 Soil Map Unit Name: Somonauk SIL, 2-5% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is forbland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Coronilla varia</i>	40	Yes	UPL		
2. <i>Achillea millefolium</i>	30	Yes	FACU		
3. <i>Phalaris arundinacea</i>	15	No	FACW		
4. <i>Pastinaca sativa</i>	10	No	UPL		
5. <i>Poa pratensis</i>	10	No	FAC		
6. <i>Solidago canadensis</i>	10	No	FACU		
7. <i>Geranium maculatum</i>	5	No	FACU		
8. <i>Taraxacum officinale</i>	3	No	FACU		
9. _____					
10. _____					
<u>123</u> = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 6B/7B/8B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			Loc ²
0-10	10YR 3/2	100				SIL		
10-13	10YR 4/3	100				SIL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u> No </u></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
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<p>Field Observations: Surface Water Present? <u> No </u> Depth (inches): _____ Water Table Present? <u> No </u> Depth (inches): _____ Saturation Present? <u> No </u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u> No </u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 7A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.80549 Long: -88.45976 Datum: NAD 83
 Soil Map Unit Name: Otter SIL, 0-2% slopes, freq. fld. NWI classification: PEMC
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet meadow.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Phalaris arundinacea</i>	70	Yes	FACW		
2. <i>Carex stricta</i>	5	No	OBL		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>75</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 7A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK	
2-9+	2.5Y 2.5/1	96	7.5YR 4/4	4	C	M	SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? <u>Yes</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two is required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><10</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? <u>Yes</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/3/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 8A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.80592 Long: -88.45990 Datum: NAD 83
 Soil Map Unit Name: Otter SIL, 0-2% slopes, freq. fld. NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is sedge meadow.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Carex stricta</i>	80	Yes	OBL		
2. <i>Phalaris arundinacea</i>	5	No	FACW		
3. <i>Iris virginica var. shrevei</i>	2	No	OBL		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>87</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 8A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK	
2-5	2.5Y 2.5/1	100					SIL	
5-12	N 3/1	97	2.5Y 4/4	3	C	M	SICL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
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<p>Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><2</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 9A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Excavated depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.80608 Long: -88.46079 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Otter SIL, 0-2% slopes, freq. fld.; revised to Aquent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wetland pond.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Typha angustifolia</i>	20	Yes	OBL		
2. <i>Phalaris arundinacea</i>	15	Yes	FACW		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>35</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 9A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK	
2-8	N 4/1	95	10YR 4/4	5	C	M	SIL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
--	--

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><10</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 9B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 5, T38N, R7E
 Landform (hillslope, terrace, etc.): Roadslope Local relief (concave, convex, none): Convex
 Slope (%): < 3 Lat: 41.80606 Long: -88.46055 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Otter SIL, 0-2% slopes, freq. fld.; revised to Orthent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Poa pratensis</i>	70	Yes	FAC		
2. <i>Daucus carota</i>	20	No	UPL		
3. <i>Pastinaca sativa</i>	20	No	UPL		
4. <i>Phalaris arundinacea</i>	15	No	FACW		
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>125</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 9B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			Loc ²
0-6	10YR 3/1	100				SIL		
6-7.5	10YR 4/4	100				SIL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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<p>Restrictive Layer (if observed): Type: _____ Filled material _____ Depth (inches): _____ 7.5 _____</p>	<p>Hydric Soil Present? <u> No </u></p>
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Remarks: This soil sample was not taken as deeply as normally would due to compaction of the filled material starting at 7.5".

HYDROLOGY

<p>Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p>Secondary Indicators (minimum of two is required)</p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
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<p>Field Observations: Surface Water Present? <u> No </u> Depth (inches): _____ Water Table Present? <u> No </u> Depth (inches): _____ Saturation Present? <u> No </u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u> No </u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 10A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression on floodplain Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.81373 Long: -88.46294 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: PEMCd
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet floodplain forest.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <u>Populus deltoides</u>	35	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>Salix nigra</u>	35	Yes	OBL		
3. <u>Acer negundo</u>	20	Yes	FAC		
4. <u>Rhamnus cathartica</u>	10	No	FAC		
5. _____					
100 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <u>Rhamnus cathartica</u>	5	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
5 = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <u>Phalaris arundinacea</u>	3	No	FACW		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
3 = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
0 = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 10B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 41.81345 Long: -88.46420 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: PSS1A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet floodplain forest.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <u>Acer negundo</u>	30	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>Rhamnus cathartica</u>	2	No	FAC		
3. _____					
4. _____					
5. _____					
<u>32</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <u>Rhamnus cathartica</u>	10	Yes	FAC		
2. _____					
3. _____					
<u>10</u> = Total Cover					
Herb Stratum (Plot size: 5 ft radius)					
1. <u>Phalaris arundinacea</u>	50	Yes	FACW	Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u>Glyceria striata</u>	35	Yes	OBL		
3. <u>Glechoma hederacea</u>	7	No	FACU		
4. <u>Impatiens capensis</u>	5	No	FACW		
5. <u>Solanum dulcamara</u>	5	No	FAC		
6. <u>Rhamnus cathartica</u>	2	No	FAC		
7. _____					
8. _____					
9. _____					
10. _____					
<u>104</u> = Total Cover					
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____				Hydrophytic Vegetation Present? <u>Yes</u>	
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 10B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/1	97	10YR 5/4	3	C	M	SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Coast Prairie Redox (A16)					
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Dark Surface (S7)					
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Iron-Manganese Masses (F12)					
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)					
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Other (Explain in Remarks)					
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.					
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)							
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)							
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)							
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):							Hydric Soil Present? <u>Yes</u>	
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two is required)	
Primary Indicators (minimum of one is required: check all that apply)					
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)			<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)			<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)			<input type="checkbox"/> Dry-Season Water Table (C2)	
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)			<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)			<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)			<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)			<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)			<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				
Field Observations:				Wetland Hydrology Present? <u>Yes</u>	
Surface Water Present?	<u>Yes</u>	Depth (inches):	<u><3</u>		
Water Table Present?	<u>Yes</u>	Depth (inches):	<u>0</u>		
Saturation Present? (includes capillary fringe)	<u>Yes</u>	Depth (inches):	<u>0</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 10C
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Roadslope Local relief (concave, convex, none): Convex
 Slope (%): < 3 Lat: 41.81353 Long: -88.46331 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Drummer SICL, 0-2% slopes; revised to Orthent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Phalaris arundinacea</i>	50	Yes	FACW		
2. <i>Dipsacus laciniatus</i>	25	Yes	UPL		
3. <i>Poa pratensis</i>	10	No	FAC		
4. <i>Cirsium arvense</i>	5	No	FACU		
5. <i>Rumex crispus</i>	3	No	FAC		
6. <i>Alliaria petiolata</i>	1	No	FAC		
7. _____					
8. _____					
9. _____					
10. _____					
<u>94</u> = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 10C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			Loc ²
0-3	10YR 3/1	100				SIL		
3-12	10YR 5/4	100				SICL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u> No </u></p>
--	---

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
--	---

<p>Field Observations: Surface Water Present? <u> No </u> Depth (inches): _____ Water Table Present? <u> No </u> Depth (inches): _____ Saturation Present? <u> No </u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u> No </u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/5/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 11A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.81670 Long: -88.46656 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet meadow.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Phalaris arundinacea</i>	50	Yes	FACW		
2. <i>Typha angustifolia</i>	30	Yes	OBL		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>80</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 11A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK	
2-5	2.5Y 2.5/1	100					MK SIL	
5-14	10YR 3/1	98	10YR 4/4	2	C	M	SIL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
	<input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? <u>Yes</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two is required)
Primary Indicators (minimum of one is required: check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><2</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? <u>Yes</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/5/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 11B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Roadslope Local relief (concave, convex, none): Convex
 Slope (%): < 3 Lat: 41.81685 Long: -88.46644 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Drummer SICL, 0-2% slopes; revised to Orthent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: _____)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: _____)					
1. <i>Festuca elatior</i>	90	Yes	FACU		
2. <i>Poa pratensis</i>	5	No	FAC		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: _____)					
1. _____					
2. _____					
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/5/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 12A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 31, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.82043 Long: -88.47417 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet meadow.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Phalaris arundinacea</i>	90	Yes	FACW		
2. <i>Phragmites australis</i>	5	No	FACW		
3. <i>Solidago gigantea</i>	5	No	FACW		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>100</u> = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 12A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	N 2.5/1	100					MK	
2-14	N 3/1	98	10YR 4/4	2	C	M	SIL	
14-19+	2.5Y 4/1	92	10YR 4/4	8	C	M	SICL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
Restrictive Layer (if observed): Type: _____ Depth (inches): _____						Hydric Soil Present? <u>Yes</u>		
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply)			Secondary Indicators (minimum of two is required)		
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)			Wetland Hydrology Present? <u>Yes</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/5/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 12B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 31, T39N, R7E
 Landform (hillslope, terrace, etc.): Roadslope Local relief (concave, convex, none): Convex
 Slope (%): < 3 Lat: 41.82038 Long: -88.47374 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped as Drummer SICL, 0-2% slopes; revised to Orthent NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <u>Poa pratensis</u>	60	Yes	FAC		
2. <u>Festuca elatior</u>	40	Yes	FACU		
3. <u>Taraxacum officinale</u>	15	No	FACU		
4. <u>Daucus carota</u>	7	No	UPL		
5. <u>Plantago rugelii</u>	3	No	FAC		
6. <u>Trifolium repens</u>	3	No	FACU		
7. _____					
8. _____					
9. _____					
10. _____					
<u>128</u> = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 12B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			
0-6	10YR 3/2	100				SIL		
6-13	10YR 4/4	100				SIL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
---	---

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u> No </u></p>
--	---

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
--	---

<p>Field Observations: Surface Water Present? <u> No </u> Depth (inches): _____ Water Table Present? <u> No </u> Depth (inches): _____ Saturation Present? <u> No </u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u> No </u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/5/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 13A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.81815 Long: -88.45845 Datum: NAD 83
 Soil Map Unit Name: Wingate SIL, 5-10% slopes, eroded; revised to Aquoll NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is farmed wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)
 This site is an active cropland. The present situation is considered atypical because this site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.

SOIL

Sampling Point: 13A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					SIL	
4-12	10YR 3/2	93	10YR 4/4	5	C	M	SIL	
4-12			7.5YR 4/4	2	C	M		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Coast Prairie Redox (A16)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> Dark Surface (S7)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Iron-Manganese Masses (F12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 2 cm Muck (A10)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):						Hydric Soil Present? <u>Yes</u>		
Type: _____								
Depth (inches): _____								
Remarks: Some rill erosion was present at this site.								

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two is required)	
<u>Primary Indicators (minimum of one is required: check all that apply)</u>					
<input type="checkbox"/> Surface Water (A1)			<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)			<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)			<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)			<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)			<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)			<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)			<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)			<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<input checked="" type="checkbox"/> Other (Explain in Remarks)		
Field Observations:				Wetland Hydrology Present? <u>Yes</u>	
Surface Water Present?	<u>No</u>	Depth (inches):			
Water Table Present?	<u>No</u>	Depth (inches):			
Saturation Present? (includes capillary fringe)	<u>No</u>	Depth (inches):			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Percent of FSA crop photos with wetland signature evident: 100%					
Remarks: Combined crop photo/NWI percentage: 83% Does the site possess wetland hydrology?: Yes Rationale: Wetland signature is evident in the majority of years examined.					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 05/05/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 14A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.81631 Long: -88.45890 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is cropland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
_____ = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 14A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/1	95	7.5YR 4/4	5	C	M	SIL	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Coast Prairie Redox (A16)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> Dark Surface (S7)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Iron-Manganese Masses (F12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 2 cm Muck (A10)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):						Hydric Soil Present? <u>Yes</u>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two is required)		
<u>Primary Indicators (minimum of one is required: check all that apply)</u>					
<input type="checkbox"/> Surface Water (A1)			<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)			<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)			<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)			<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)			<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)			<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)			<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)			<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<input type="checkbox"/> Other (Explain in Remarks)		
Field Observations:			Wetland Hydrology Present? <u>No</u>		
Surface Water Present?	<u>No</u>	Depth (inches): _____			
Water Table Present?	<u>No</u>	Depth (inches): _____			
Saturation Present? (includes capillary fringe)	<u>No</u>	Depth (inches): _____			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Percent of FSA crop photos with wetland signature evident: 0%					
Remarks: No visible wetland hydrology signatures were found in the aerial images for the past five years of normal precipitation. Combined crop photo/NWI percentage: 0% Does the site possess wetland hydrology?: No Rationale: Wetland signature is not evident in the majority of years examined.					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/5/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 15A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.81538 Long: -88.45503 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet meadow.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 30 ft radius)				
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: 5 ft radius)				
1. <i>Phalaris arundinacea</i>	100	Yes	FACW	Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: 30 ft radius)				
1. _____				Hydrophytic Vegetation Present? <u>Yes</u>
2. _____				
<u>0</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: 15A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/1	100					SIL	
5-12	10YR 3/1	97	10YR 4/4	3	C	M	SIL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
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<p>Field Observations: Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>No</u> Depth (inches): _____ Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/5/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 15B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 41.81549 Long: -88.45548 Datum: NAD 83
 Soil Map Unit Name: NRCS mapped Drummer SICL, 0-2% slopes; revised to Hapludoll NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is shrubland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <i>Salix interior</i>	5	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>75%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>5</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals (A) _____ (B) _____ Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <i>Lonicera tatarica</i>	50	Yes	FACU		
2. <i>Rhamnus cathartica</i>	40	Yes	FAC		
3. <i>Salix interior</i>	20	No	FACW		
4. _____					
5. _____					
<u>110</u> = Total Cover					
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Alliaria petiolata</i>	90	Yes	FAC	Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <i>Arctium minus</i>	30	No	FACU		
3. <i>Galium aparine</i>	10	No	FACU		
4. <i>Phalaris arundinacea</i>	10	No	FACW		
5. <i>Circaea lutetiana var. canadensis</i>	5	No	FACU		
6. <i>Geum canadense</i>	5	No	FAC		
7. <i>Acer negundo</i>	3	No	FAC		
8. <i>Osmorhiza longistylis</i>	3	No	FACU		
9. _____					
10. _____					
<u>156</u> = Total Cover					
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____				Hydrophytic Vegetation Present? <u>Yes</u>	
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 15B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	10YR 3/1	100				SIL		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Coast Prairie Redox (A16)					
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Dark Surface (S7)					
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Iron-Manganese Masses (F12)					
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)					
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Other (Explain in Remarks)					
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)							
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)							
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)							
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)							
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):						Hydric Soil Present? <u>No</u>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two is required)	
Primary Indicators (minimum of one is required: check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)				
Field Observations:				Wetland Hydrology Present? <u>No</u>	
Surface Water Present? <u>No</u>		Depth (inches): _____			
Water Table Present? <u>No</u>		Depth (inches): _____			
Saturation Present? <u>No</u>		Depth (inches): _____			
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 16A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 29, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.82355 Long: -88.46846 Datum: NAD 83
 Soil Map Unit Name: See Remarks NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is wet shrubland. NRCS mapped as Octagon SIL, 6-12% slopes, eroded; revised to Drummer SICL, 0-2% slopes	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <i>Salix interior</i>	30	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <i>Populus deltoides</i>	10	Yes	FAC		
3. _____					
4. _____					
5. _____					
<u>40</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <i>Salix interior</i>	50	Yes	FACW		
2. _____					
3. _____					
4. _____					
5. _____					
<u>50</u> = Total Cover					
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Phalaris arundinacea</i>	90	Yes	FACW	Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>90</u> = Total Cover					
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____				Hydrophytic Vegetation Present? <u>Yes</u>	
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 16B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Roadslope Local relief (concave, convex, none): Convex
 Slope (%): < 4 Lat: 41.82325 Long: -88.46864 Datum: NAD 83
 Soil Map Unit Name: Octagon SIL, 6-12% slopes, eroded NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is non-native grassland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Poa pratensis</i>	60	Yes	FAC		
2. <i>Coronilla varia</i>	50	Yes	UPL		
3. <i>Cirsium vulgare</i>	5	No	FACU		
4. <i>Taraxacum officinale</i>	5	No	FACU		
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>120</u> = Total Cover				Hydrophytic Vegetation Present? <u>No</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: 16B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			
0-6	10YR 3/2	100				SIL		
6-13	10YR 4/4	100				SIL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u> No </u></p>
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³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
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<p>Field Observations: Surface Water Present? <u> No </u> Depth (inches): _____ Water Table Present? <u> No </u> Depth (inches): _____ Saturation Present? <u> No </u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u> No </u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 17A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 29, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.82347 Long: -88.46719 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is farmed wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)

This site is an active cropland. The present situation is considered atypical because this site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.

SOIL

Sampling Point: 17A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12+	10YR 3/1	95	10YR 4/4	5	C	M	SIL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
--	--

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input checked="" type="checkbox"/> Other (Explain in Remarks)
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<p>Field Observations: Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>No</u> Depth (inches): _____ Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
 Percent of FSA crop photos with wetland signature evident: 100%

Remarks: Combined crop photo/NWI percentage: 83% Does the site possess wetland hydrology?: Yes Rationale: Wetland signature is evident in the majority of years examined.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 17B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 29, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): <1 Lat: 41.82441 Long: -88.46736 Datum: NAD 83
 Soil Map Unit Name: See Remarks NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is farmed wetland. NRCS mapped as Danabrook SIL, 5-10% slopes, eroded; revised to Drummer SICL, 0-2% slopes	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)
 This site is an active cropland. The present situation is considered atypical because this site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.

SOIL

Sampling Point: 17B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR 3/1	98	10YR 4/4	2	C	M	SIL	
13-24	10YR 5/2	90	10YR 5/6	8	C	M	SICL	
13-24			10YR 5/1	2	D	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input checked="" type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (minimum of two is required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations: Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>No</u> Depth (inches): _____ Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Combined crop photo/NWI percentage: 83% Does the site possess wetland hydrology?: Yes Rationale: Wetland signature is evident in the majority of years examined.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 17C
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 32, T39N, R7E
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
 Slope (%): <2 Lat: 41.82338 Long: -88.46625 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is farmed wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)
 This site is an active cropland. The present situation is considered atypical because this site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.

SOIL

Sampling Point: 17C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10YR 3/1	98	10YR 4/4	2	C	M	SIL	
15-22+	10YR 5/2	88	10YR 5/6	10	C	M	SICL	
15-22+			10YR 5/1	2	D	M		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input checked="" type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input checked="" type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> Dark Surface (S7)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks)</p>	<p>Secondary Indicators (minimum of two is required)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <u>No</u> Depth (inches): _____</p> <p>Water Table Present? <u>No</u> Depth (inches): _____</p> <p>Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Combined crop photo/NWI percentage: 83% Does the site possess wetland hydrology?: Yes Rationale: Wetland signature is evident in the majority of years examined.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 18A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 29, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.83025 Long: -88.46534 Datum: NAD 83
 Soil Map Unit Name: See Remarks NWI classification: PEMC
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is marsh. NRCS mapped as Octagon SIL, 4-6% slopes, eroded; revised to Drummer SICL, 0-2% slopes	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 30 ft radius)				
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 15 ft radius)				
1. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: 5 ft radius)				
1. <u>Typha angustifolia</u>	10	Yes	OBL	Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>10</u> = Total Cover				
Woody Vine Stratum (Plot size: 30 ft radius)				
1. _____				Hydrophytic Vegetation Present? <u>Yes</u>
2. _____				
<u>0</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: 18A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5Y 2.5/1	100					MK	
2-10	10YR 3/1	98	10YR 4/4	2	C	M	SIL	
10-14+	10YR 3/1	95	10YR 4/4	4	C	M	SICL	
10-14+			10YR 5/1	1	D	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: _____ Depth (inches): _____			Hydric Soil Present? <u>Yes</u>		
Remarks: _____					

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply)			Secondary Indicators (minimum of two is required)					
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	Field Observations: Surface Water Present? <u>Yes</u> Depth (inches): <u><10</u> Water Table Present? <u>Yes</u> Depth (inches): <u>0</u> Saturation Present? <u>Yes</u> Depth (inches): <u>0</u> (includes capillary fringe)			Wetland Hydrology Present? <u>Yes</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____								
Remarks: _____								

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 05/04/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 18B
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 29, T39N, R7E
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 41.83002 Long: -88.46545 Datum: NAD 83
 Soil Map Unit Name: See Remarks NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>No</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks: Community type is upland forest. NRCS mapped as Octagon SIL, 4-6% slopes, eroded; revised to Drummer SICL, 0-2% slopes	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. <i>Quercus alba</i>	15	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>25%</u> (A/B)	
2. <i>Rhamnus cathartica</i>	5	Yes	FAC		
3. <i>Tilia americana</i>	3	No	FACU		
4. <i>Fraxinus pennsylvanica var. subintegerrima</i>	1	No	FACW		
5. _____					
<u>24</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index =B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. <i>Lonicera maackii</i>	25	Yes	UPL		
2. <i>Rhamnus cathartica</i>	7	No	FAC		
3. <i>Ribes missouriense</i>	7	No	UPL		
4. <i>Rubus occidentalis</i>	2	No	UPL		
5. _____					
<u>41</u> = Total Cover					
Herb Stratum (Plot size: 5 ft radius)					
1. <i>Euonymus fortunei</i>	60	Yes	UPL	Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <i>Impatiens capensis</i>	15	No	FACW		
3. <i>Alliaria petiolata</i>	5	No	FAC		
4. <i>Arctium minus</i>	3	No	FACU		
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>83</u> = Total Cover					
Woody Vine Stratum (Plot size: 30 ft radius)					
1. <i>Parthenocissus quinquefolia</i>	1	No	FACU	Hydrophytic Vegetation Present? <u>No</u>	
2. <i>Rhus radicans</i>	1	No	FAC		
3. _____					
<u>3</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.) Additional species from woody vine stratum: <i>Vitis riparia</i> (1%).					

SOIL

Sampling Point: 18B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			
0-5	10YR 3/2	100				SIL		
5-7	10YR 3/1	80				SIL	with 10YR 4/4 SIL	
7-13.5+	10YR 3/2	100				SIL		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix			
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:					
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
Restrictive Layer (if observed): Type: _____ Depth (inches): _____						Hydric Soil Present? <u> No </u>		
Remarks: This soil sample was disturbed with filled material mixed in from 5-7".								

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two is required)		
<u>Primary Indicators (minimum of one is required: check all that apply)</u>					
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			Wetland Hydrology Present? <u> No </u>		
Surface Water Present? <u> No </u> Depth (inches): _____					
Water Table Present? <u> No </u> Depth (inches): _____					
Saturation Present? <u> No </u> Depth (inches): _____ (includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: FAP 326/FAI 88 (IL 47) City/County: Kane Sampling Date 5/4/2016
 Applicant/Owner: IDOT District 1 State: IL Sampling Point 19A
 Investigator(s): Olnas, Tsai, and Nieset Section, Township, Range: Sec. 29, T39N, R7E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): < 1 Lat: 41.83017 Long: -88.46420 Datum: NAD 83
 Soil Map Unit Name: Drummer SICL, 0-2% slopes NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no explain in Remarks.)
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <u>Yes</u> Hydric Soil Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: Community type is farmed wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 ft radius)					
1. _____				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: 15 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators <input type="checkbox"/> 1-Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2-Dominance Test is >50% <input type="checkbox"/> 3-Prevalence Index is < or =3.0 ¹ <input type="checkbox"/> 4-Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Herb Stratum (Plot size: 5 ft radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? <u>Yes</u>	
Woody Vine Stratum (Plot size: 30 ft radius)					
1. _____					
2. _____					
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)

This site is an active cropland. The present situation is considered atypical because this site lacks a natural plant community. In our opinion, this site would support hydrophytic vegetation under unmanaged conditions.

SOIL

Sampling Point: 19A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	N 3/1	97	10YR 4/4	3	C	M	SICL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix

<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
---	--

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed): Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present? <u>Yes</u></p>
--	--

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p>Secondary Indicators (minimum of two is required)</p> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input checked="" type="checkbox"/> Other (Explain in Remarks)
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<p>Field Observations: Surface Water Present? <u>No</u> Depth (inches): _____ Water Table Present? <u>No</u> Depth (inches): _____ Saturation Present? <u>No</u> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <u>Yes</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
 Percent of FSA crop photos with wetland signature evident: 100%

Remarks: Combined crop photo/NWI percentage: 83% Does the site possess wetland hydrology?: Yes Rationale: Wetland signature is evident in the majority of years examined.

APPENDIX B

Wetland Plant Species Lists

Site 1 - Wet meadow

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Eleocharis erythropoda</i>	red-rooted spike rush	H	OBL	2
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Alisma subcordatum</i>	common water plantain	H	OBL	4
<i>Echinochloa crusgalli</i>	barnyard grass	H	FACW	0
<i>Juncus torreyi</i>	Torrey's rush	H	FACW	4
<i>Ranunculus sceleratus</i>	cursed crowfoot	H	OBL	6
<i>Scirpus validus var. creber</i>	soft-stem bulrush	H	OBL	5
<i>Typha angustifolia</i>	narrow-leaved cattail	H	OBL	1
<i>Typha latifolia</i>	broad-leaved cattail	H	OBL	1
*Non-native species Species in bold is dominant in the denoted stratum			Mean C =	2.9
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine			FQI =	8.1

Site 2 - Farmed wetland

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Ranunculus sceleratus</i>	cursed crowfoot	H	OBL	6
<i>Alisma subcordatum</i>	common water plantain	H	OBL	4
<i>Echinochloa crusgalli</i>	barnyard grass	H	FACW	0
<i>Erigeron annuus</i>	annual fleabane	H	FACU	0
<i>Juncus torreyi</i>	Torrey's rush	H	FACW	4
<i>Penthorum sedoides</i>	ditch stonecrop	H	OBL	5
<i>Phalaris arundinacea</i> *	reed canary grass	H	FACW	-
<i>Populus deltoides</i>	eastern cottonwood	H	FAC	2
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Scirpus validus var. creber</i>	soft-stem bulrush	H	OBL	5
*Non-native species Species in bold is dominant in the denoted stratum			Mean C =	3.3
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine			FQI =	9.2

Site 3 - Farmed wetland

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Ranunculus sceleratus</i>	cursed crowfoot	H	OBL	6
<i>Alisma subcordatum</i>	common water plantain	H	OBL	4
<i>Erigeron annuus</i>	annual fleabane	H	FACU	0
<i>Helianthus grosseserratus</i>	sawtooth sunflower	H	FACW	2
<i>Phalaris arundinacea</i> *	reed canary grass	H	FACW	-
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Taraxacum officinale</i> *	common dandelion	H	FACU	-
<i>Typha latifolia</i>	broad-leaved cattail	H	OBL	1
*Non-native species Species in bold is dominant in the denoted stratum			Mean C =	2.6
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine			FQI =	5.8

Site 4 - Wet floodplain forest

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Acer negundo</i>	box elder	HST	FAC	0
<i>Crataegus mollis</i>	downy hawthorn	ST	FAC	2
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Rhamnus cathartica</i>*	common buckthorn	HST	FAC	-
<i>Acer saccharinum</i>	silver maple	H	FACW	0
<i>Agrimonia gryposepala</i>	tall agrimony	H	FACU	2
<i>Alliaria petiolata</i> *	garlic mustard	H	FAC	-
<i>Ambrosia trifida</i>	giant ragweed	H	FAC	0
<i>Angelica atropurpurea</i>	angelica	H	OBL	7
<i>Apocynum cannabinum</i>	dogbane	H	FAC	4
<i>Aster simplex</i>	panicled aster	H	FAC	3
<i>Carex emoryi</i>	riverbank sedge	H	OBL	6
<i>Carex stricta</i>	common tussock sedge	H	OBL	5
<i>Carya cordiformis</i>	bitternut hickory	H	FACU	7
<i>Convolvulus sepium</i>	American bindweed	H	FAC	1
<i>Cornus obliqua</i>	pale dogwood	HS	FACW	6
<i>Cornus stolonifera</i>	red osier dogwood	S	FACW	6
<i>Crataegus crus-galli</i>	cock-spur hawthorn	T	FAC	2
<i>Cryptotaenia canadensis</i>	honestwort	H	FAC	2
<i>Equisetum arvense</i>	common horsetail	H	FAC	0
<i>Galium aparine</i>	annual bedstraw	H	FACU	1
<i>Geum canadense</i>	white avens	H	FAC	1
<i>Geum laciniatum</i>	rough avens	H	FACW	5
<i>Glechoma hederacea</i> *	ground ivy	H	FACU	-
<i>Gleditsia triacanthos</i>	honey locust	S	FACU	2
<i>Helenium autumnale</i>	sneezeweed	H	FACW	5
<i>Impatiens capensis</i>	spotted touch-me-not	H	FACW	3
<i>Lonicera tatarica</i> *	Tartarian honeysuckle	HS	FACU	-
<i>Lycopus americanus</i>	common water horehound	H	OBL	5
<i>Oxalis stricta</i>	common wood sorrel	H	FACU	0
<i>Populus deltoides</i>	eastern cottonwood	HT	FAC	2
<i>Prunus americana</i>	American plum	S	UPL	5
<i>Pycnanthemum virginianum</i>	common mountain mint	H	FACW	5
<i>Quercus macrocarpa</i>	burr oak	T	FAC	5
<i>Ranunculus sceleratus</i>	cursed crowfoot	H	OBL	6
<i>Rhus radicans</i>	poison ivy	HW	FAC	2
<i>Rosa multiflora</i> *	Japanese rose	HS	FACU	-
<i>Rudbeckia laciniata</i>	wild golden glow	H	FACW	5
<i>Sambucus canadensis</i>	common elder	HS	FACW	1
<i>Solanum dulcamara</i> *	bittersweet nightshade	H	FAC	-
<i>Taraxacum officinale</i> *	common dandelion	H	FACU	-
<i>Urtica procera</i>	stinging nettle	H	FACW	2
<i>Viola sororia</i>	common blue violet	H	FACW	3
<i>Vitis riparia</i>	riverbank grape	HW	FACW	2

*Non-native species

Species in bold is dominant in the denoted stratum

Mean C = 3.1

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

FQI = 18.8

(' ') = Species is not listed in Swink and Wilhelm 1994

Site 5 – Wet floodplain forest

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Alliaria petiolata</i> *	garlic mustard	H	FAC	-
<i>Crataegus mollis</i>	downy hawthorn	T	FAC	2
<i>Vitis riparia</i>	riverbank grape	HW	FACW	2
<i>Acer negundo</i>	box elder	HT	FAC	0
<i>Allium canadense</i>	wild garlic	H	FACU	2
<i>Aster simplex</i>	panicked aster	H	FAC	3
<i>Cornus stolonifera</i>	red osier dogwood	S	FACW	6
<i>Glechoma hederacea</i> *	ground ivy	H	FACU	-
<i>Lonicera tatarica</i> *	Tartarian honeysuckle	S	FACU	-
<i>Phalaris arundinacea</i> *	reed canary grass	H	FACW	-
<i>Quercus macrocarpa</i>	burr oak	T	FAC	5
<i>Ranunculus abortivus</i>	little-leaf buttercup	H	FACW	0
<i>Ranunculus septentrionalis</i>	swamp buttercup	H	FAC	5
<i>Rhamnus cathartica</i> *	common buckthorn	HST	FAC	-
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Salix interior</i>	sandbar willow	HS	FACW	1
<i>Sambucus canadensis</i>	common elder	HS	FACW	1
<i>Taraxacum officinale</i> *	common dandelion	H	FACU	-
<i>Urtica procera</i>	stinging nettle	H	FACW	2
<i>Viburnum opulus</i> *	European high-bush cranberry	S	FAC	-
*Non-native species Species in bold is dominant in the denoted stratum			Mean C =	2.4
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine			FQI =	8.4
'(') = Species is not listed in Swink and Wilhelm 1994				

Site 6 - Wet floodplain forest

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Acer negundo</i>	box elder	HST	FAC	0
<i>Impatiens capensis</i>	spotted touch-me-not	H	FACW	3
<i>Phalaris arundinacea</i> *	reed canary grass	H	FACW	-
<i>Rudbeckia laciniata</i>	wild golden glow	H	FACW	5
<i>Acer saccharinum</i>	silver maple	HST	FACW	0
<i>Alliaria petiolata</i> *	garlic mustard	H	FAC	-
<i>Angelica atropurpurea</i>	angelica	H	OBL	7
<i>Carex sp.</i>	sedge	H	-	-
<i>Cirsium arvense</i> *	Canada thistle	H	FACU	-
<i>Cornus obliqua</i>	pale dogwood	S	FACW	6
<i>Crataegus mollis</i>	downy hawthorn	ST	FAC	2
<i>Eupatorium rugosum</i>	white snakeroot	H	FACU	4
<i>Galium aparine</i>	annual bedstraw	H	FACU	1
<i>Geum canadense</i>	white avens	H	FAC	1
<i>Glechoma hederacea</i> *	ground ivy	H	FACU	-
<i>Glyceria striata</i>	fowl manna grass	H	OBL	4
<i>Hackelia virginiana</i>	stickseed	H	FACU	0
<i>Lonicera tatarica</i> *	Tartarian honeysuckle	S	FACU	-
<i>Quercus macrocarpa</i>	burr oak	H	FAC	5
<i>Rhamnus cathartica</i> *	common buckthorn	HST	FAC	-
<i>Rosa multiflora</i> *	Japanese rose	H	FACU	-
<i>Sicyos angulatus</i>	bur cucumber	H	FACW	5
<i>Urtica procera</i>	stinging nettle	H	FACW	2
<i>Viola sororia</i>	common blue violet	H	FACW	3
<i>Vitis riparia</i>	riverbank grape	HW	FACW	2
*Non-native species Species in bold is dominant in the denoted stratum			Mean C =	2.9

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine
'(') = Species is not listed in Swink and Wilhelm 1994

FQI = 12.1

Site 7 - Wet meadow

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Acer saccharinum</i>	silver maple	HS	FACW	0
<i>Angelica atropurpurea</i>	angelica	H	OBL	7
<i>Carex stricta</i>	common tussock sedge	H	OBL	5
<i>Cirsium arvense</i> *	Canada thistle	H	FACU	-
<i>Galium obtusum</i>	wild madder	H	FACW	5
<i>Pycnanthemum virginianum</i>	common mountain mint	H	FACW	5
<i>Salix interior</i>	sandbar willow	HS	FACW	1
<i>Sambucus canadensis</i>	common elder	HS	FACW	1
<i>Solidago canadensis</i>	Canada goldenrod	H	FACU	1
<i>Typha angustifolia</i>	narrow-leaved cattail	H	OBL	1

*Non-native species **Species in bold is dominant in the denoted stratum**

Mean C = 2.9

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

FQI = 8.7

'(') = Species is not listed in Swink and Wilhelm 1994

Site 8 - Sedge meadow

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Carex stricta</i>	common tussock sedge	H	OBL	5
<i>Calamagrostis canadensis</i>	blue joint grass	H	OBL	3
<i>Cardamine bulbosa</i>	bulb bittercress	H	OBL	6
<i>Cornus obliqua</i>	pale dogwood	HS	FACW	6
<i>Epilobium coloratum</i>	cinnamon willow herb	H	OBL	3
<i>Equisetum arvense</i>	common horsetail	H	FAC	0
<i>Eupatorium maculatum</i>	spotted Joe Pye weed	H	OBL	4
<i>Hierochloa odorata</i>	sweet grass	H	FACW	9
<i>Iris virginica</i> var. <i>shrevei</i>	southern blue flag	H	OBL	5
<i>Lathyrus palustris</i>	marsh vetchling	H	FACW	8
<i>Lycopus americanus</i>	common water horehound	H	OBL	5
<i>Mentha arvensis</i> var. <i>villosa</i>	wild mint	H	FACW	5
<i>Phalaris arundinacea</i> *	reed canary grass	H	FACW	-
<i>Pycnanthemum virginianum</i>	common mountain mint	H	FACW	5
<i>Rhus glabra</i>	smooth sumac	H	UPL	1
<i>Stachys tenuifolia</i> var. <i>hispida</i>	marsh hedge nettle	H	OBL	5
<i>Verbena hastata</i>	blue vervain	H	FACW	4

*Non-native species **Species in bold is dominant in the denoted stratum**

Mean C = 4.6

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

FQI = 18.5

'(') = Species is not listed in Swink and Wilhelm 1994

Site 9 - Wetland pond

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Typha angustifolia</i>	narrow-leaved cattail	H	OBL	1
<i>Acer negundo</i>	box elder	H	FAC	0
<i>Acer saccharinum</i>	silver maple	HS	FACW	0
<i>Phalaris arundinacea</i> *	reed canary grass	H	FACW	-

*Non-native species **Species in bold is dominant in the denoted stratum**

Mean C = 0.3

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

FQI = 0.6

Site 10 - Wet floodplain forest

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Acer negundo</i>	box elder	HST	FAC	0
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Acer saccharinum</i>	silver maple	S	FACW	0
<i>Alliaria petiolata</i> *	garlic mustard	H	FAC	-
<i>Bidens frondosa</i>	common beggar's ticks	H	FACW	1
<i>Calamagrostis canadensis</i>	blue joint grass	H	OBL	3
<i>Carex lacustris</i>	common lake sedge	H	OBL	6
<i>Carex stricta</i>	common tussock sedge	H	OBL	5
<i>Cirsium arvense</i> *	Canada thistle	H	FACU	-
<i>Dipsacus laciniatus</i> *	cut-leaved teasel	H	UPL	-
<i>Equisetum arvense</i>	common horsetail	H	FAC	0
<i>Fraxinus pennsylvanica</i> var. <i>subintegerrima</i>	green ash	ST	FACW	1
<i>Galium aparine</i>	annual bedstraw	H	FACU	1
<i>Geum canadense</i>	white avens	H	FAC	1
<i>Glechoma hederacea</i> *	ground ivy	H	FACU	-
<i>Glyceria striata</i>	fowl manna grass	H	OBL	4
<i>Hackelia virginiana</i>	stickseed	H	FACU	0
<i>Impatiens capensis</i>	spotted touch-me-not	H	FACW	3
<i>Lonicera tatarica</i> *	Tartarian honeysuckle	S	FACU	-
<i>Phragmites australis</i>	common reed	H	FACW	1
<i>Polygonum amphibium</i> var. <i>stipulaceum</i>	water knotweed	H	OBL	4
<i>Polygonum virginianum</i>	Virginia knotweed	H	FAC	2
<i>Populus deltoides</i>	eastern cottonwood	ST	FAC	2
<i>Rhamnus cathartica</i> *	common buckthorn	HST	FAC	-
<i>Rhus radicans</i>	poison ivy	HW	FAC	2
<i>Rosa multiflora</i> *	Japanese rose	HS	FACU	-
<i>Rubus occidentalis</i>	black raspberry	HS	UPL	2
<i>Salix nigra</i>	black willow	HT	OBL	4
<i>Sambucus canadensis</i>	common elder	HS	FACW	1
<i>Scutellaria lateriflora</i>	mad-dog skullcap	H	OBL	5
<i>Solanum dulcamara</i> *	bittersweet nightshade	H	FAC	-
<i>Taraxacum officinale</i> *	common dandelion	H	FACU	-
<i>Thalictrum dioicum</i>	early meadow rue	H	FACU	7
<i>Typha latifolia</i>	broad-leaved cattail	H	OBL	1
<i>Urtica procera</i>	stinging nettle	H	FACW	2
<i>Viburnum opulus</i> *	European high-bush cranberry	HS	FAC	-
<i>Vitis riparia</i>	riverbank grape	H	FACW	2

*Non-native species **Species in bold is dominant in the denoted stratum**

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

'(') = Species is not listed in Swink and Wilhelm 1994

Mean C = 2.3

FQI = 11.8

Site 11 - Wet meadow

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Solidago gigantea</i>	late goldenrod	H	FACW	4
<i>Typha angustifolia</i>	narrow-leaved cattail	H	OBL	1
<i>Acer negundo</i>	box elder	S	FAC	0
<i>Agrimonia gryposepala</i>	tall agrimony	H	FACU	2
<i>Anthriscus sylvestris</i> *	false chervil	H	UPL	-
<i>Carex sp.</i>	sedge	H	-	-
<i>Galium aparine</i>	annual bedstraw	H	FACU	1
<i>Helianthus grosseserratus</i>	sawtooth sunflower	H	FACW	2
<i>Rhamnus cathartica</i> *	common buckthorn	S	FAC	-
<i>Rorippa palustris var. fernaldiana</i>	marsh yellow cress	H	OBL	4
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Scirpus atrovirens</i>	dark green rush	H	OBL	4
<i>Solanum dulcamara</i> *	bittersweet nightshade	H	FAC	-
<i>Solidago canadensis</i>	Canada goldenrod	H	FACU	1
<i>Vitis riparia</i>	riverbank grape	HW	FACW	2

*Non-native species **Species in bold is dominant in the denoted stratum** Mean C = 2.1
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine FQI = 6.6
'(') = Species is not listed in Swink and Wilhelm 1994

Site 12 - Wet meadow

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Acer negundo</i>	box elder	HS	FAC	0
<i>Ambrosia trifida</i>	giant ragweed	H	FAC	0
<i>Cirsium arvense</i> *	Canada thistle	H	FACU	-
<i>Pastinaca sativa</i> *	wild parsnip	H	UPL	-
<i>Phragmites australis</i>	common reed	H	FACW	1
<i>Polygonum amphibium var. stipulaceum</i>	water knotweed	H	OBL	4
<i>Populus deltoides</i>	eastern cottonwood	HS	FAC	2
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Salix sp.</i>	willow	S	-	-
<i>Scirpus fluviatilis</i>	river bulrush	H	OBL	4
<i>Solidago gigantea</i>	late goldenrod	H	FACW	4
<i>Typha latifolia</i>	broad-leaved cattail	H	OBL	1
<i>Urtica procera</i>	stinging nettle	H	FACW	2
<i>Xanthium strumarium</i> *	cocklebur	H	FAC	-

*Non-native species **Species in bold is dominant in the denoted stratum** Mean C = 2.0
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine FQI = 6.0
'(') = Species is not listed in Swink and Wilhelm 1994

Site 15 - Wet meadow

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Alliaria petiolata</i> *	garlic mustard	H	FAC	-
<i>Cirsium arvense</i> *	Canada thistle	H	FACU	-
<i>Helianthus grosseserratus</i>	sawtooth sunflower	H	FACW	2
<i>Urtica procera</i>	stinging nettle	H	FACW	2

*Non-native species **Species in bold is dominant in the denoted stratum** Mean C = 2.0
H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine FQI = 2.8

Site 16 - Wet shrubland

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Phalaris arundinacea</i>*	reed canary grass	H	FACW	-
<i>Salix interior</i>	sandbar willow	HST	FACW	1
<i>Acer negundo</i>	box elder	S	FAC	0
<i>Alliaria petiolata</i> *	garlic mustard	H	FAC	-
<i>Ambrosia trifida</i>	giant ragweed	H	FAC	0
<i>Anthriscus sylvestris</i> *	false chervil	H	UPL	-
<i>Cirsium arvense</i> *	Canada thistle	H	FACU	-
<i>Convolvulus sepium</i>	American bindweed	H	FAC	1
<i>Epilobium coloratum</i>	cinnamon willow herb	H	OBL	3
<i>Galium aparine</i>	annual bedstraw	H	FACU	1
<i>Geum canadense</i>	white avens	H	FAC	1
<i>Impatiens capensis</i>	spotted touch-me-not	H	FACW	3
<i>Lonicera tatarica</i> *	Tartarian honeysuckle	S	FACU	-
<i>Pastinaca sativa</i> *	wild parsnip	H	UPL	-
<i>Populus deltoides</i>	eastern cottonwood	T	FAC	2
<i>Ribes missouriense</i>	Missouri gooseberry	HS	UPL	5
<i>Rubus occidentalis</i>	black raspberry	H	UPL	2
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Scirpus fluviatilis</i>	river bulrush	H	OBL	4
<i>Solanum dulcamara</i> *	bittersweet nightshade	H	FAC	-
<i>Solidago gigantea</i>	late goldenrod	H	FACW	4
<i>Typha angustifolia</i>	narrow-leaved cattail	H	OBL	1
<i>Urtica procera</i>	stinging nettle	H	FACW	2
<i>Vitis riparia</i>	riverbank grape	HW	FACW	2

*Non-native species **Species in bold is dominant in the denoted stratum**

Mean C = 2.0

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

FQI = 8.0

(' ') = Species is not listed in Swink and Wilhelm 1994

Site 18 - Marsh

Scientific Name	Common Name	Strata	Wetland Indicator Status	Coefficient of Conservatism
<i>Scirpus fluviatilis</i>	river bulrush	H	OBL	4
<i>Typha angustifolia</i>	narrow-leaved cattail	H	OBL	1
<i>Acer saccharinum</i>	silver maple	T	FACW	0
<i>Alisma subcordatum</i>	common water plantain	H	OBL	4
<i>Carex lacustris</i>	common lake sedge	H	OBL	6
<i>Eleocharis erythropoda</i>	red-rooted spike rush	H	OBL	2
<i>Impatiens capensis</i>	spotted touch-me-not	H	FACW	3
<i>Phalaris arundinacea</i> *	reed canary grass	H	FACW	-
<i>Poa pratensis</i> *	Kentucky blue grass	H	FAC	-
<i>Polygonum lapathifolium</i>	curttop lady's thumb	H	FACW	0
<i>Ranunculus sceleratus</i>	cursed crowfoot	H	OBL	6
<i>Rumex crispus</i> *	curly dock	H	FAC	-
<i>Salix sp.</i>	willow	T	-	-
<i>Solanum dulcamara</i> *	bittersweet nightshade	H	FAC	-
<i>Typha latifolia</i>	broad-leaved cattail	H	OBL	1

*Non-native species **Species in bold is dominant in the denoted stratum**

Mean C = 2.7

H = Herb, T = Tree, S = Sapling/Shrub, W = Woody Vine

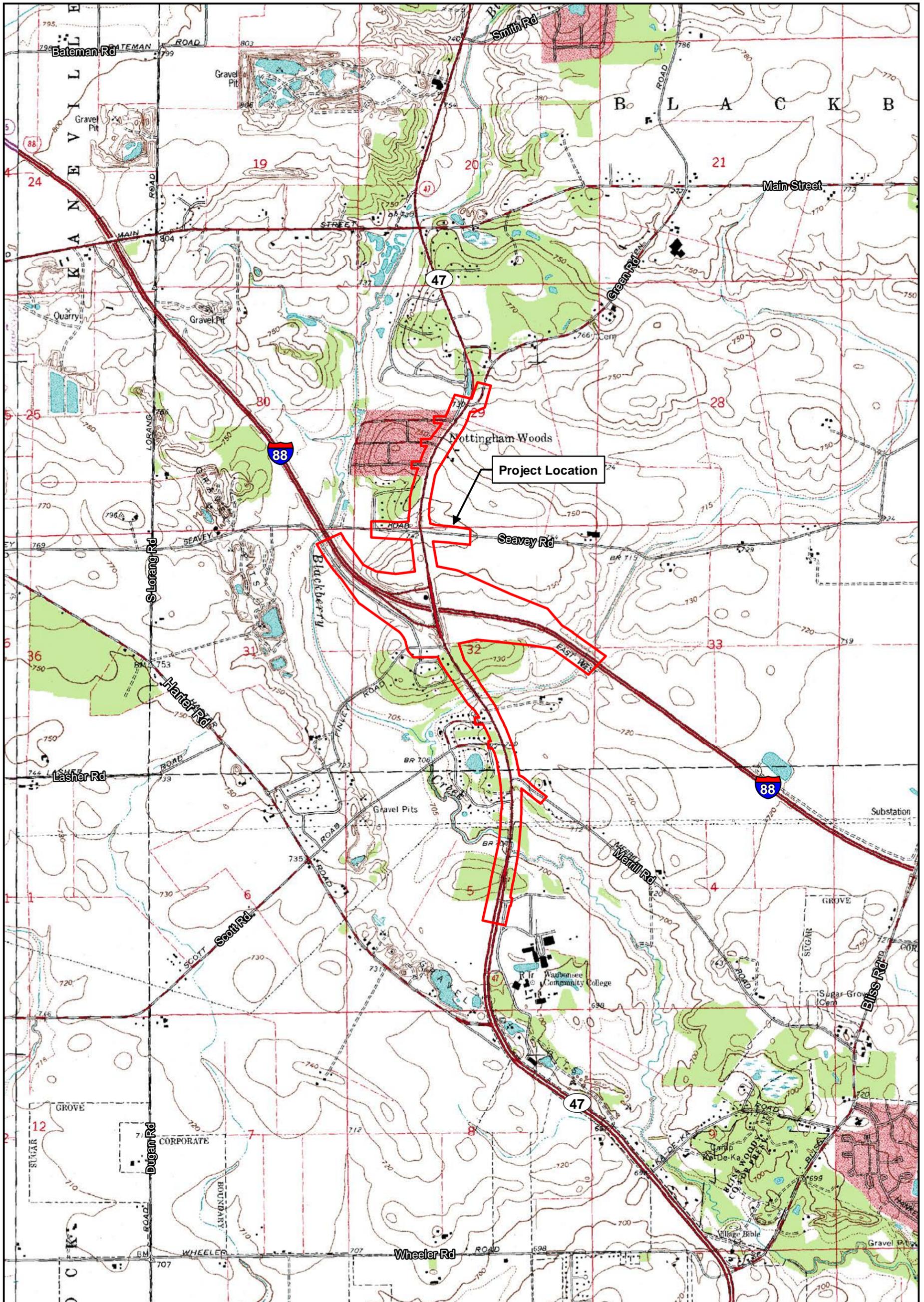
FQI = 8.5

(' ') = Species is not listed in Swink and Wilhelm 1994

APPENDIX C

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Figure 1
Project Location Map
FAP 326/FAI 88 (IL 47)
Kane County

0 Meters 500 0 Feet 2,000

Seq. No: 19435

June 2016



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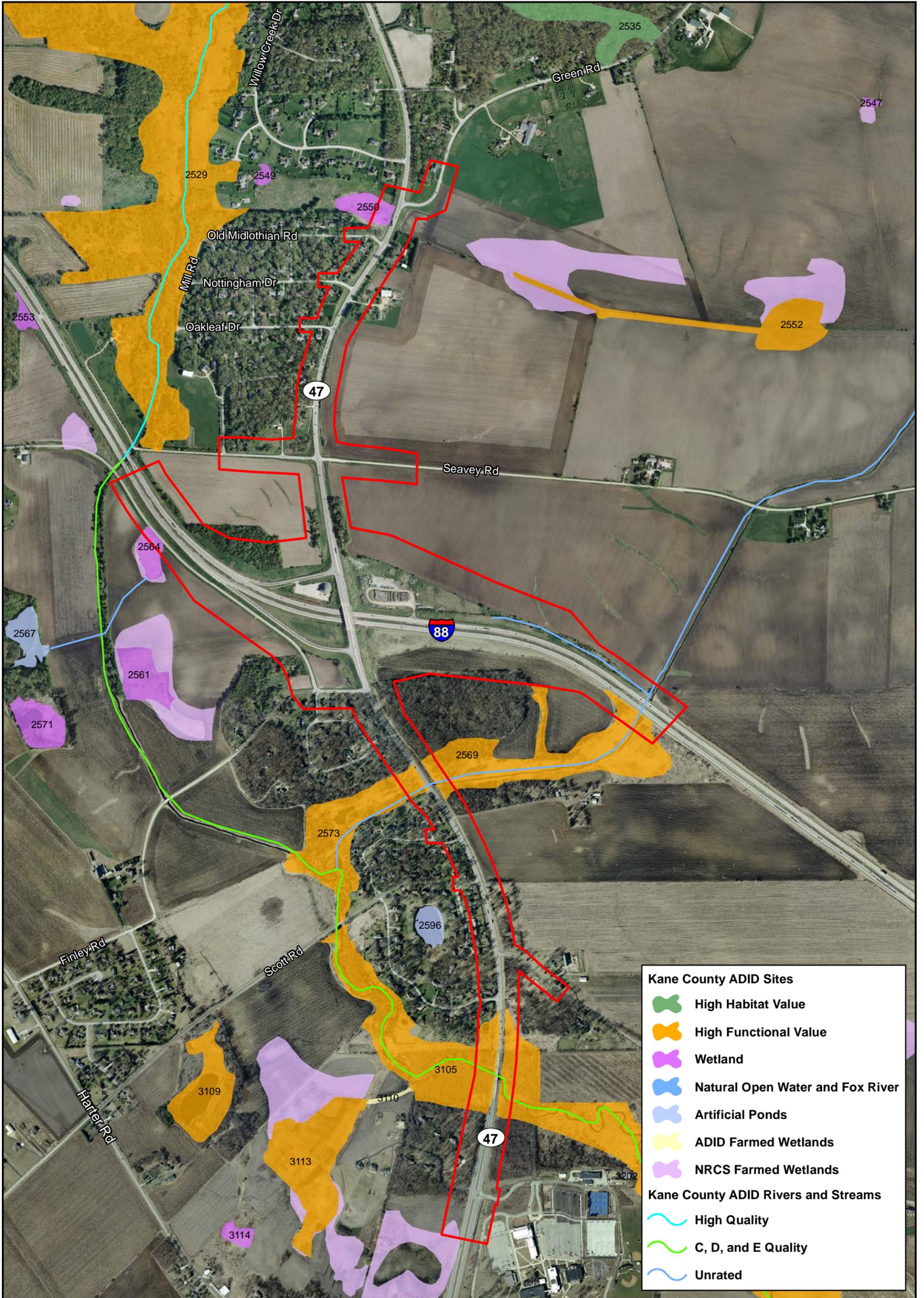
Figure 2
National Wetlands Inventory Map
FAP 326/FAI 88 (IL 47)
Kane County

Seq. No: 19435



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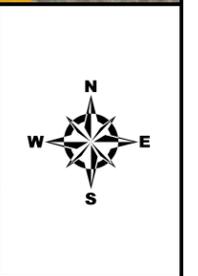
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1816 South Oak Street
Champaign, Illinois 61820

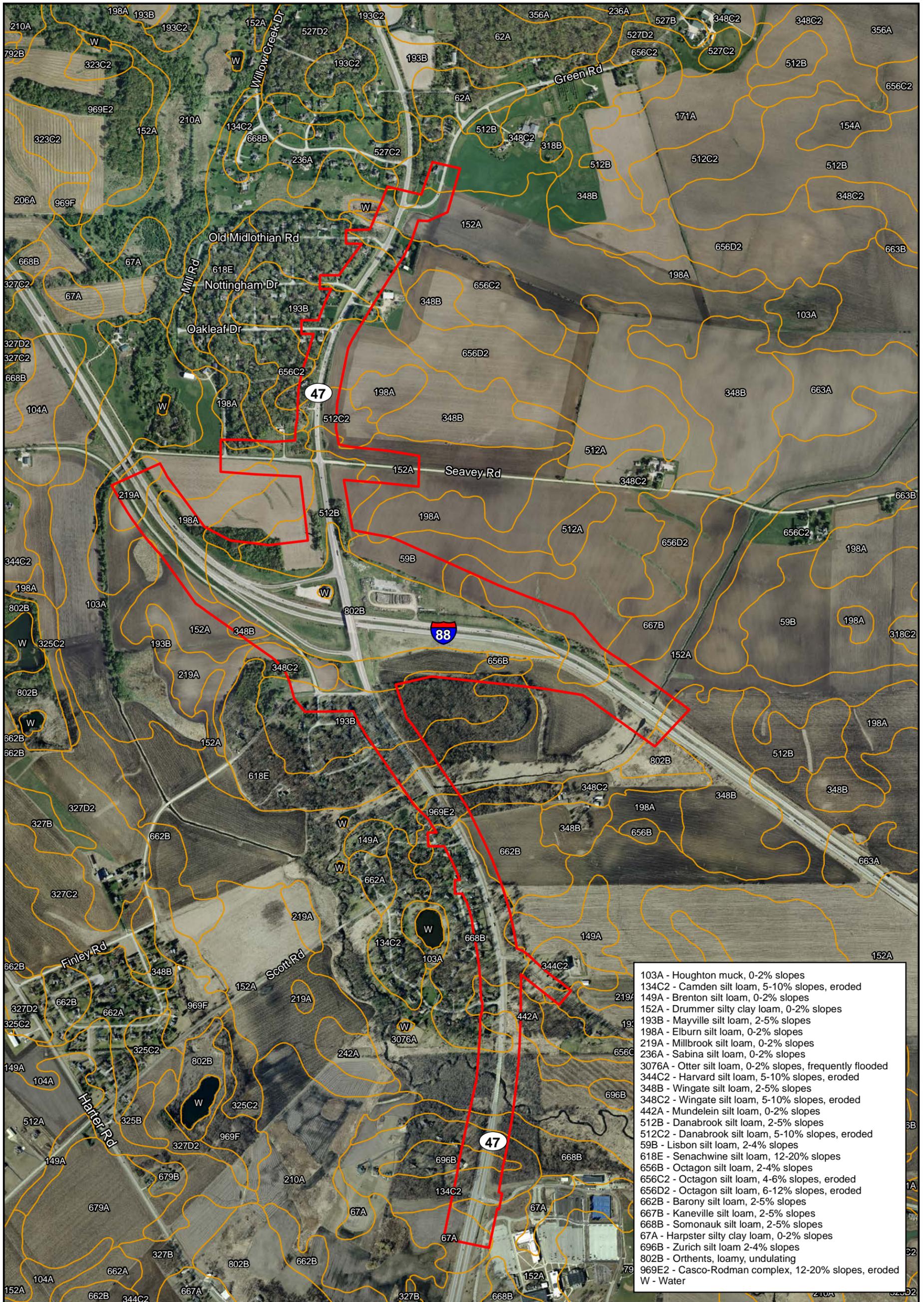
Figure 3
Kane County ADID Map
FAP 326/FAI 88 (IL 47)
Kane County

0 Meters 250
0 Feet 1,000

Seq. No: 19435

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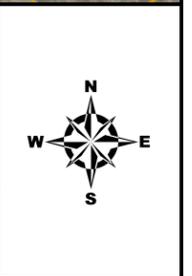
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Figure 4
Soil Survey Map
FAP 326/FAI 88 (IL 47)
Kane County

Seq. No: 19435

June 2016

0 Meters 250 0 Feet 1,000



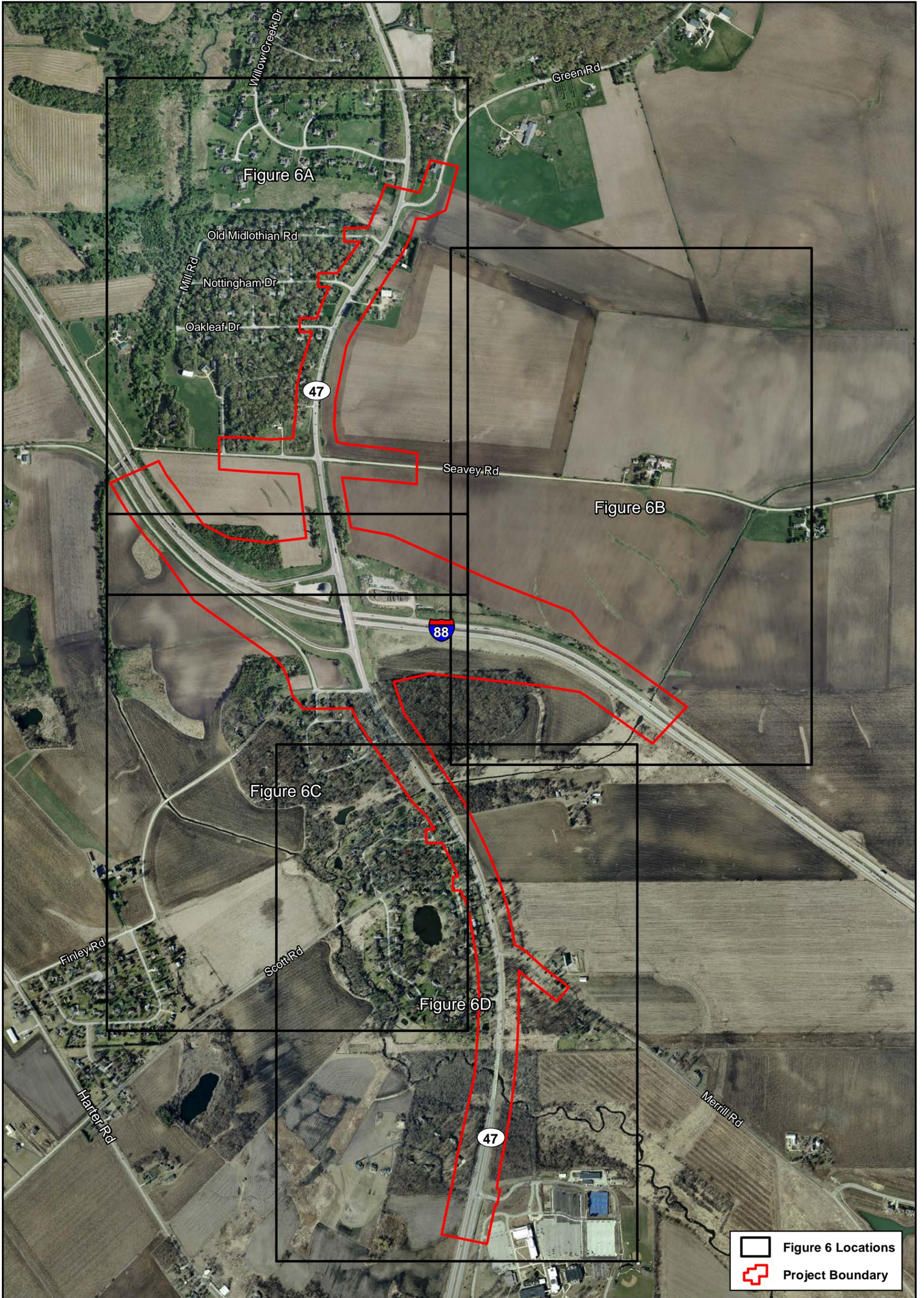


Figure 6 Locations
 Project Boundary

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Figure 5
Wetland Determination Overview Map
FAP 326/FAI 88 (IL 47)
Kane County

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June 2016

Meters

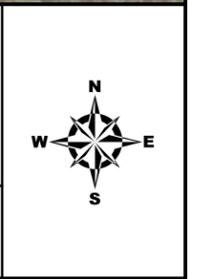
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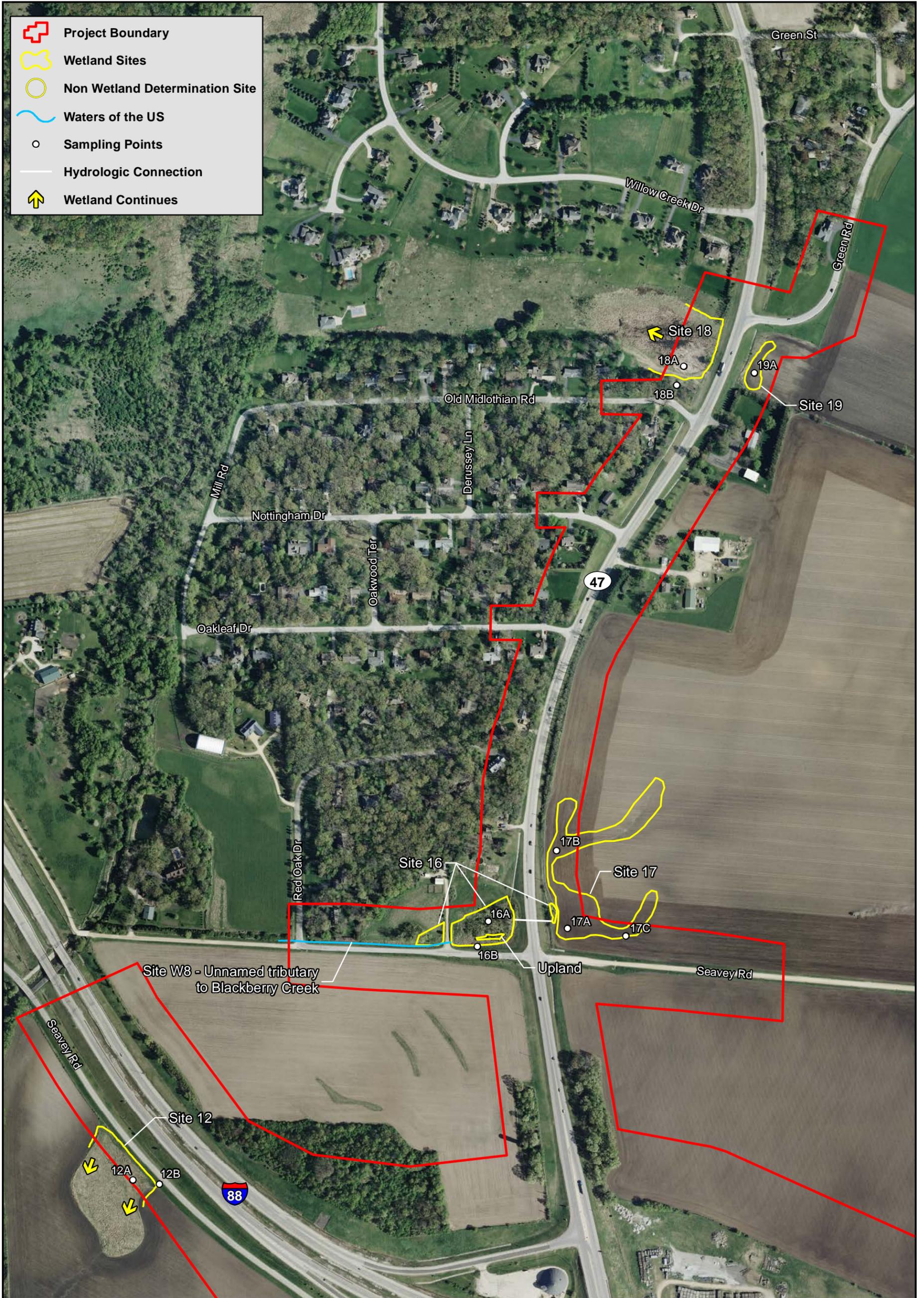


Feet

0 1,000







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Figure 6A
Wetland Determination Map
FAP 326/FAI 88 (IL 47)
Kane County

Seq. No: 19435

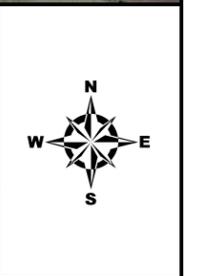
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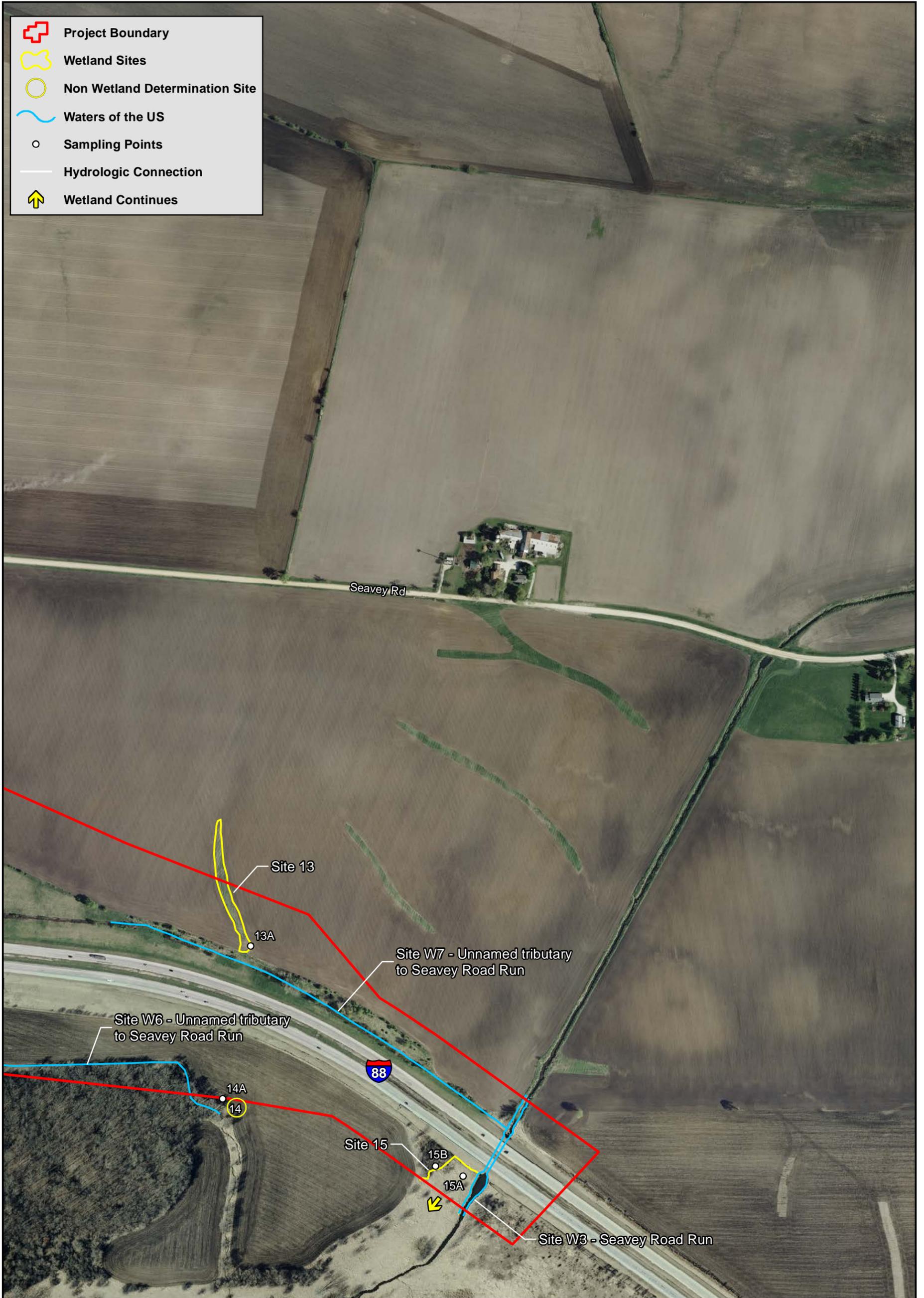
0 Meters 100



0 Feet 400







<p>University of Illinois at Urbana-Champaign</p>  <p>Wetland Science Program 1816 South Oak Street Champaign, Illinois 61820</p>	<p align="center">Figure 6B Wetland Determination Map FAP 326/FAI 88 (IL 47) Kane County</p> <p align="center">0 Meters 100 0 Feet 400</p>	<p align="right">Seq. No: 19435</p> <p align="center">June 2016</p>	
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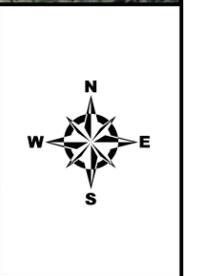


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Figure 6C
Wetland Determination Map
FAP 326/FAI 88 (IL 47)
Kane County

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Figure 6D
Wetland Determination Map
FAP 326/FAI 88 (IL 47)
Kane County

Seq. No: 19435

June 2016

0 Meters 100 0 Feet 400



APPENDIX D

Photographs of Wetlands and Waters of the United States (WOUS)

Wetland Photographs



Facing south from sampling point 1A, overlooking wetland Site 1.



Facing north from sampling point 4A, overlooking wetland Site 4.



Facing south from sampling point 2A, overlooking wetland Site 2.



Facing north from sampling point 5A, overlooking wetland Site 5.



Facing south from sampling point 3A, overlooking wetland Site 3.



Facing north from sampling point 6A, overlooking wetland Site 6.



Facing south from sampling point 7A, overlooking wetland Site 7.



Facing east from sampling point 11A, overlooking wetland Site 11.



Facing north from sampling point 8A, overlooking wetland Site 8.



Facing south from sampling point 12A, overlooking wetland Site 12.



Facing south from north edge of wetland, overlooking wetland Site 9.



Facing northwest from sampling point 13A, overlooking wetland Site 13.



Facing south from sampling point 10A, overlooking wetland Site 10.



Facing south from sampling point 15A, overlooking wetland Site 15.



Facing south from sampling point 16A,
overlooking wetland Site 16.



Facing north from sampling point 18A,
overlooking wetland Site 18.



Facing north from sampling point 17A,
overlooking wetland Site 17.



Facing north from sampling point 19A,
overlooking wetland Site 19.

Waters of the United States (WOUS) Photographs



Facing southeast overlooking WOUS Site 1.



Facing east overlooking WOUS Site 5.



Facing north overlooking WOUS Site 2.



Facing southwest overlooking WOUS Site 6.



Facing west overlooking WOUS Site 3.



Facing west overlooking WOUS Site 7.



Facing north overlooking WOUS Site 4.



Facing west overlooking WOUS Site 8.

APPENDIX E

NRCS Method Wetland Determinations

NRCS Method

The most recent years determined to be “normal rainfall years” at the Aurora Weather Station are: 2009, 2008, 2006, 2003, 2002, 2001, and 1999. 2008 and 2003 photography for Kane County is not available, so those years were not used for these determinations.

Site Number	1999	2001	2002	2006	2009	NWI	% Photos with Signature#	Photos & NWI Combined %^
2	Yes	No	Yes	Yes	Yes	U	80	67
3	No	No	Yes	Yes	Yes	U	60	50
13	Yes	Yes	Yes	Yes	Yes	U	100	83
17	Yes	Yes	Yes	Yes	Yes	U	100	83
19	Yes	Yes	Yes	Yes	Yes	U	100	83

#Percent must be greater than 50% to be considered wetland hydrology.

^Percent must be 50% or greater to be considered wetland hydrology.

Site photographs for NRCS wetland determination Sites 2 and 3.



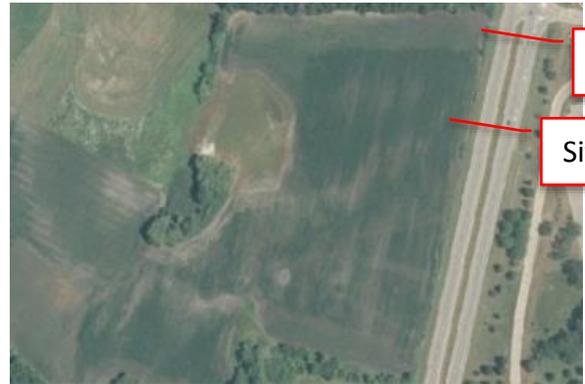
1999 Photo – Signature indicated for Site 2.



2006 Photo – Signatures indicated for both.



2001 Photo – No Signature indicated.



2009 Photo – Signatures indicated for both.



2002 Photo – Signatures indicated for both.

Site photographs for NRCS wetland determination Site 13.



1999 Photo – Signature indicated.



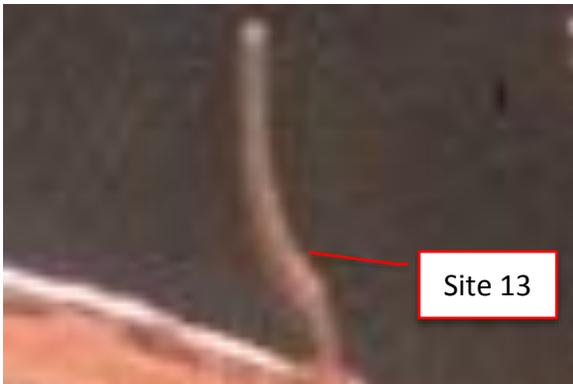
2006 Photo – Signature indicated.



2001 Photo – Signature indicated.



2009 Photo – Signature indicated.



2002 Photo – Signature indicated.

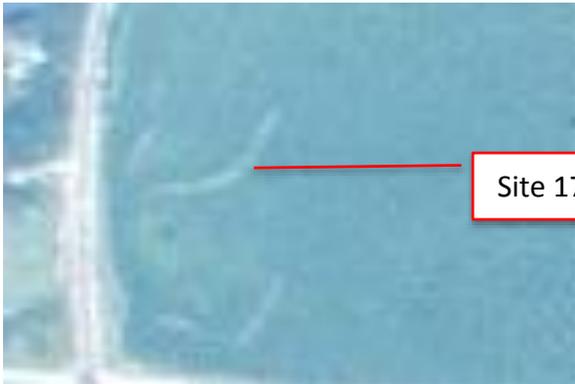
Site photographs for NRCS wetland determination Site 17.



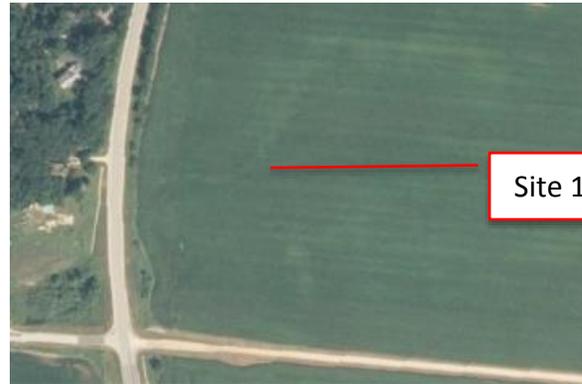
1999 Photo – Signature indicated.



2006 Photo – Signature indicated.



2001 Photo – Signature indicated.



2009 Photo – Signature indicated.



2002 Photo – Signature indicated.

Site photographs for NRCS wetland determination Site 19.



1999 Photo – Signature indicated.



2006 Photo – Signature indicated.



2001 Photo – Signature indicated.



2009 Photo – Signature indicated.



2002 Photo – Signature indicated.

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Illinois Natural History Survey
Habitat Assessment, Benthic Macroinvertebrate Characterization
and Water Quality Characterization



**Habitat assessment, benthic macroinvertebrate characterization
and water quality characterizations in the
IDOT FAP 326/FAI 88 project corridor in Kane County, Illinois
(IDOT Sequence No. 19435)**



Prepared by:
Jason L. Robinson

INHS/IDOT Statewide Biological Survey & Assessment Program

2017: 2

January 22, 2017



Project Summary

This report is submitted in response to a request from IDOT for INHS personnel to assess stream habitat, water quality and benthic macroinvertebrate condition at two stream crossings in the IDOT FAP 326/FAI 88 project corridor in Kane County, Illinois (IDOT Sequence Number 19435). Habitat surveys and chemical/biological water quality sampling were conducted on 13 September 2016 in Blackberry Creek and the unnamed tributary of Blackberry Creek, and winter chloride was measured 5 January 2017. Stream habitat metrics ranked the segment on the unnamed tributary to Blackberry Creek as “Poor”, and the benthic assemblage condition as “Good”, relative to other streams in Illinois. Blackberry Creek habitat and benthic each ranked as “Good”. During this study, 840 individual specimens, comprising 43 macroinvertebrate taxa in 14 taxonomic orders, were recorded from the sampled benthic assemblages in this project corridor. Blackberry Creek had 4 intolerant taxa and 8 EPT taxa, while the unnamed tributary had 3 tolerant taxa and 9 EPT taxa.



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Edited By: Mark J. Wetzel

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Cover Photo: Unnamed tributary of Blackberry Creek just downstream of Illinois Route 47 stream crossing, NW of Montgomery and ESE of Kaneville, Illinois (Kane County, Illinois). Photo by J.L. Robinson, INHS (13 September 2016).

INTRODUCTION

This report is submitted as a part of a response to a Further Studies Transmittal from Janel Veile Illinois Department of Transportation, Springfield (IDOT) to Rachel Vinsel and Wendy Schelsky, Illinois Natural History Survey (INHS) dated 29 July 2016, requesting that three parameter (biological, chemical and physical) water quality surveys be conducted in the proposed IDOT FAP 326/FAI 88 project corridor (IDOT Sequence Number 19435) along Illinois Route 47 in Lake County, Illinois. We performed site reconnaissance from aerial photography, GIS layers, and in the course of a field visit. IDOT tasked us specifically to assess instream habitat, benthic macroinvertebrates and chemical water quality at two stream crossings along Illinois Route 47 (**Figure 1**). This tasking included an additional request for winter chloride sampling after a snow event.

INHS entomologist Jason Robinson first performed site reconnaissance from aerial photography, GIS, and the USGS StreamStat tool (Ishii et al. 2010). Robinson and INHS graduate student assistant Dan R. Swanson visited the project corridor on 13 September 2016 to characterize the stream, complete field water quality monitoring and collect water samples for laboratory analyses. Winter chloride sampling was conducted after a snow event on 5 January 2017. Data collected during site visits, from stream characterizations of the designated segment, results from field and laboratory water quality estimation, and winter chloride sampling are included in this report (summarized in **Table 1**).

Water Resource Site	Surrounding Land Use	Riparian Vegetation	Stream Substrates	Stream Width	Stream Depth	Aquatic Habitat Quality (mIBI/SHAP)	Flow Characteristics	Completed Sampling
Blackberry Creek at Illinois Route 47	Mostly agriculture, riparian green space around sampling site	Grasses, forbs and small trees	60% cobble, 20% gravel, 20% sand, 10% silt, 10% clay	16 ft	5 inches	50.1/ 80.4	perennial	3 parameter, winter chloride
Unnamed tributary of Blackberry Creek at Illinois Route 47	Mostly agriculture, residential and riparian green space around sampling site	Bush honeysuckle, grasses, lawn	20% gravel, 20% sand, 60% silt	3.3 ft	8 inches	44.2/ 53.1	perennial	3 parameter, winter chloride

Table 1. Summary of physical and biological parameters measured during completion of three parameter (biological, chemical and physical) water quality assessments of stream crossings in the proposed IDOT FAP 326/FAI 88 project corridor (IDOT Sequence No. 19435) along Illinois Route 47 in Kane County, Illinois.

PROJECT CORRIDOR

The tributary of Blackberry Creek flows southwesterly from the headwaters, primarily draining agricultural lands in Kane County, Illinois. The straightened tributary crosses Illinois Route 47 approximately 0.25 miles upstream of its confluence with Blackberry Creek (**Figure 2**). Near that confluence, the tributary flows through a residential area with riparian trees and adjacent hillslope forest (**Figure 3**), joining the mainstem in a wetland with several small wooded ponds visible from aerial photography.

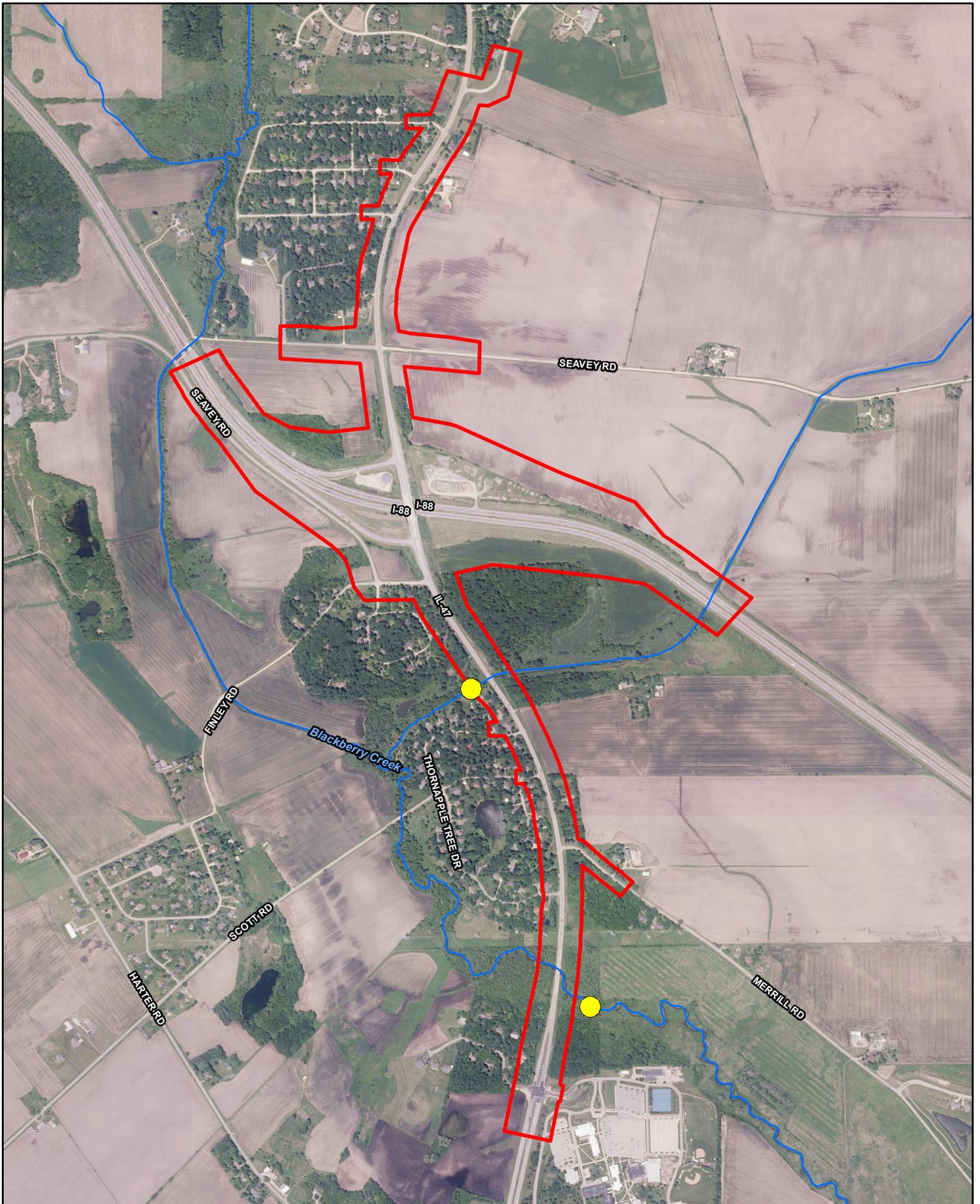


Figure 1. Three parameter aquatic survey locations near the I 88 and IL 47 interchange (Seq no. 19435), Kane County, Illinois.

Project Boundary
 Stream
 Three Parameter Aquatic Sample Location

0 1,000 2,000 Feet
 Appendix E

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 Jarvis, 1/23/2017

Blackberry Creek itself flows southward along most of its course, from headwaters through the project corridor. Downstream of the corridor, Blackberry Creek briefly turns east towards Aurora before trending westward as the stream enters Kendall County and eventually joining the Fox River just west of Illinois Route 47 at approximately the same longitudinal position as the headwaters. The course of the stream traverses a much greater variety of land uses than the unnamed tributary, but sampling site **FS951-BC** lies upstream of much of the more urbanized and commercial land use associated with suburbs of Aurora, Illinois.

Site selection. Site reconnaissance and sampling was performed on 13 September 2016. Actual site selection was dictated by the circumstances of the project tasking to sample at road crossings. The tributary of Blackberry Creek, at Illinois Route 47, has a watershed area of approximately 17.1 km² (6.6 mi²) as measured by the StreamStats tool. Blackberry Creek, at Illinois Route 47, has a much larger watershed, with an area upstream of the sample site of approximately 57.2 km² (22.1 mi²). The information in **Appendix 1** references a GIS shapefile with sampling point information for the Illinois Route 47 project crossing the unnamed tributary and Blackberry Creek (Kane County, Illinois).



Figure 2. Tributary of Blackberry Creek, upstream of Illinois Route 47 and approximately 200 yards upstream of the sample site **FS951TBC**, where habitat and benthic assemblages were characterized 13 September 2016 (latitude 41.81296°N, 88.46402°W). Photo by J. L. Robinson, INHS.

Both streams at the sampling sites fit the criteria for ILEPA site selection, although the unnamed tributary of Blackberry Creek upstream of **FS951TBC** (upstream and downstream of Illinois Route 47) is a long, straightened channel with limited visible flow and no riffle-pool sequences (ILEPA 2011a; 2011b) (**Figure 2, Figure 3**). Blackberry Creek, upstream of Illinois Route 47, had no riffle or pool sequences (**Figure 4**), but downstream of Illinois Route 47 had visible surface flow and suitable habitat for characterization and assessment (**Figure 5**).



Figure 3. Unnamed tributary of Blackberry Creek at Illinois Route 47, facing downstream towards sample site **FS951TBC**. Photo by J. L. Robinson, INHS.

Structured sampling for benthic macroinvertebrate IBIs, water quality parameters and stream habitat characterization was conducted 13 September 2016 at the Illinois Route 47 crossings of an unnamed tributary of Blackberry Creek (**Site FS951-TBC**) and Blackberry Creek (**Site FS951-BC**). A follow up winter chloride sampling event occurred at these sites on 5 January 2017 (**Table 1**).



Figure 4. Blackberry Creek, just upstream of Illinois Route 47 stream crossing at **Site FS951BC**. Stream channel upstream of bridge is deeper and more full of woody debris than downstream (41.80349°N, 88.45926°W). Photo by J. L. Robinson, INHS.



Figure 5. Blackberry Creek just downstream of Illinois Route 47 stream crossing at **Site FS951BC**. Downstream of the crossing, the stream channel is narrower, with larger substrate particles and slightly higher gradient (41.80349°N, 88.45926°W). Photo by J. L. Robinson, INHS.

PHYSICAL CHARACTERIZATION OF STREAMS

Site FS951BC (Blackberry Creek) and **Site FS951TBC** (Tributary of Blackberry Creek) were sampled on the same day under similar environmental conditions. Neither stream had experienced recent high discharge events or local precipitation. We characterized the physical dimensions of the stream channel at each site with three separate transects (**Figure 6**). For **Site FS951TBC** we performed channel characterization in a stream segment with visible flow (**Figure 7**).

Stream measurements — Site FS951TBC: Width, depth and flow were measured along 3 cross-stream transects 13 September 2016. Average **width** in this segment was 2.1 m (7 feet), ranged from 1.8- 2.4 meters (6- 8 feet) while **depth** ranged from 5- 28 centimeters. Current velocities in the thalweg averaged 0.17 meters (0.55 feet) per second.

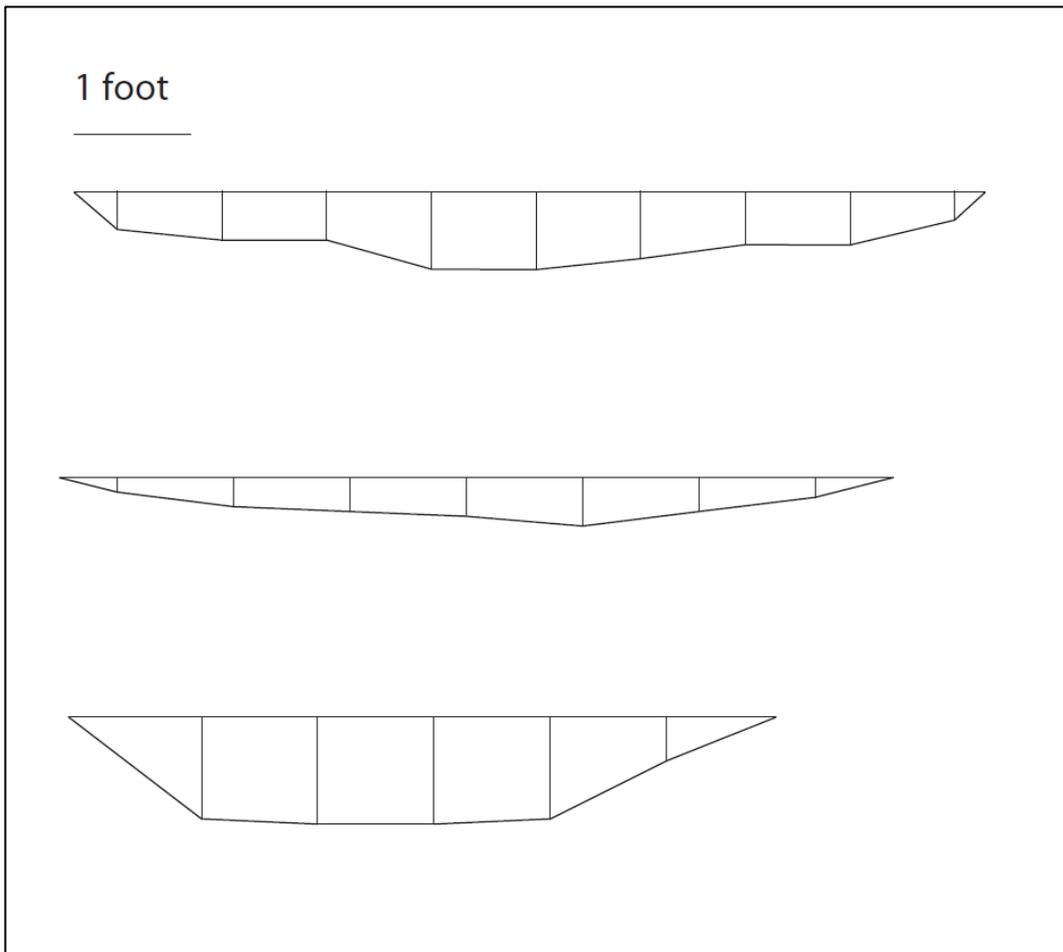


Figure 6. Representative stream cross sections of the unnamed tributary of Blackberry Creek at **Site FS951TBC**, downstream of Illinois Route 47 in Kane County, Illinois. Cross-sectional measurements in the tributary of Blackberry Creek were taken at every 1-foot interval, per protocol.



Figure 7. Unnamed tributary of Blackberry Creek at Illinois Route 47, at sample site **FS951TBC**, approximately 200 yards downstream of Illinois Route 47. Photo by J. L. Robinson, INHS.

Site FS951BC: Width, depth and flow were measured along 3 cross-stream transects 13 September 2016 (**Figure 8**). **Width** in this segment ranged 13.5 ft - 22.0 ft (average 18.3 ft), while **depths** along the three transects ranged from 0.5- 9.5 inches. Current velocities along the thalweg averaged 1.2 feet per second, in the sampled reach. We observed reduced visible flow in the segment immediately upstream of Illinois Route 47.

Substrates— Substrates observed in these segments were quite different in Blackberry Creek than in the unnamed tributary of Blackberry Creek. Blackberry Creek in the sampled reach was dominated by cobble and gravel (**Table 1**), while substrates in the unnamed tributary were primarily silt. We did not examine instream substrates outside the sample sites, and therefore cannot exclude the possibility that our sample sites are not entirely representative of stream segments outside of the sampling reach. At both sites the likelihood of this non-representativeness is somewhat supported by local conditions. The unnamed tributary of Blackberry Creek is very sluggish and has very low flow above the sample site (**FS951TBC**), with very deep mud and silt. At the Blackberry Creek site (**FS951BC**), the substrates in the sampled reach are likely higher quality than in upstream sections where the stream grade is apparently controlled by the bridge. Downstream of **FS951BC**, we observed lower stream flows and

deeper pools and woody debris jams, which were not as prevalent in the sampled reach and which could decrease average particle size.

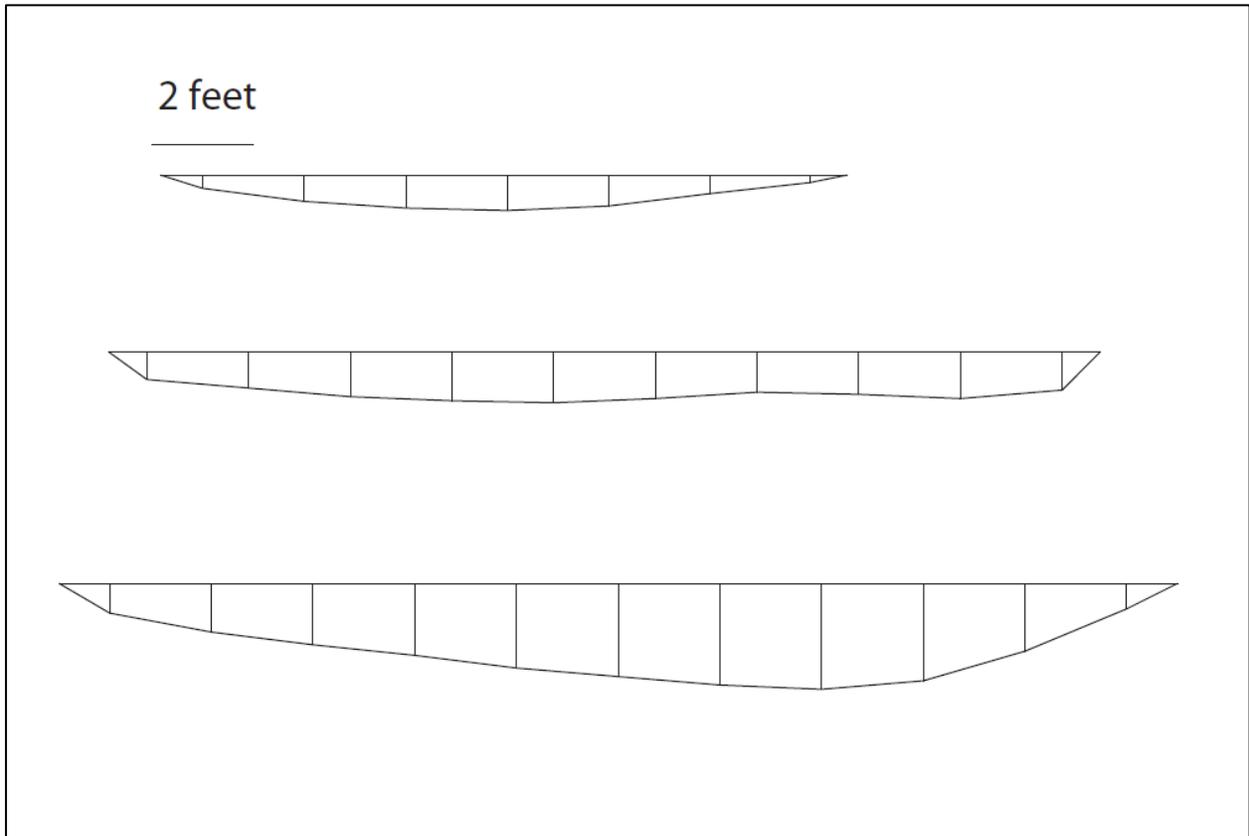


Figure 8. Representative stream cross sections of Blackberry Creek at **Site FS951BC**, downstream of Illinois Route 47 in Kane County, Illinois. Cross-sectional measurements in Blackberry Creek were taken at every 2-foot interval, per protocol.

Riparian vegetation — The riparian zone and surrounding landscape at **Site FS951TBC** is heavily modified, both upstream and downstream of the Illinois Route 47 crossing. Exotic species were prevalent at this site, particularly on the north side of the sampled reach (the southern bank of the tributary was primarily mowed lawn). The north bank was populated with grasses and forbs, and a number of trees including bush honeysuckle (*Lonicera* sp.), hackberry (*Celtis* sp.) and box elder (*Acer negundo*). The riparian zone around **Site FS951BC** had far fewer trees in general. Although there were no areas of maintained lawn, a riparian trail adjacent to the stream (associated with Waubensee Community College) appears to be regularly mowed for pedestrian access. The riparian zone in this section was dominated by grasses, forbs and small shrubs. Hackberry and autumn olive (*Eleagnus* sp.) were prevalent shrubs in the riparian zone immediately adjacent to the stream.

HABITAT ASSESSMENTS, STREAM CHARACTERIZATIONS, AND SURVEYS FOR AQUATIC MACROINVERTEBRATES

METHODS

On 13 September 2016, INHS personnel J.L. Robinson and D.R. Swanson visited the project corridor to complete habitat assessments, stream characterizations, take photographs, and conduct surveys for aquatic macroinvertebrates in the proposed IDOT FAP 326/FAI 88 project corridor (IDOT Sequence Number 19435) in Kane County, Illinois. Robinson returned to the site on 5 January 2017 to collect water samples for winter chloride assessment. See **Table 1** for work conducted at each site and specific site locality information. Habitat assessments, water quality collections and macroinvertebrate sampling were conducted at sites **FS951BC** (Blackberry Creek at Illinois Route 47) and **FS951TBC** (Tributary of Blackberry Creek at Illinois Route 47) (**Figure 1**).

SITE ASSESSMENT

Site assessment is used to select, based upon habitation conditions, sites suitable for sampling fishes, freshwater mussels, aquatic macroinvertebrates, and conducting water quality monitoring. These assessments are primarily useful for larger projects where numerous possible sampling locations are possible, allowing for site selection, as well as assessment of the relationship between habitat quality and biotic integrity. For small projects with one to few sites, site assessments serve to characterize the habitat quality, and sites may be sampled in spite of scoring poorly in site assessment.

Site assessment utilizes the *Qualitative Stream Habitat Assessment Procedure (SHAP)* in Appendix E-9 of the Illinois Environmental Protection Agency (ILEPA) DWPC Field QA Manual (DWPC-ILEPA 1994). This approach is described in detail in the section *5.0 Qualitative Stream Habitat Assessment Procedures (SHAP)* of the DWPC Field QA Manual (DWPC-ILEPA 1994, Appendix E-5.1). Based on the assessment of 15 parameters, this assessment results in a total score, providing an overall habitat quality rating for the stream reach. The total raw score could, theoretically, range from 15 to 208 (**Table 2**), but because different metrics may be better or worse, extreme values for the total score are unlikely. Overall score cutoff points for "poor", "fair", "good" and "excellent" are not provided by ILEPA, but guidance based on relative similarity of sites to reference conditions is provided (**Table 3**). The scores and metrics differ from the U.S. EPA Habitat Assessment approach (Plafkin et al. 1989, Barbour et al. 1999), though the general approach is similar. To allow evaluation of habitat assessments in cases where there is only a single site (with no comparisons among sites possible), and to allow more detailed understanding of individual sites, we first report the overall habitat assessment score then plot the individual metrics after adjusting them to a standardized scale to allow comparisons. The standardized scale ranges from 0 to 100 for each metric, and the value is calculated as

$$X_s = (X - 1) / (X_{\max} - 1) \times 100$$

where X_s is the standardized metric value, X is the metric value, and X_{\max} is the maximum possible value for the metric.

Table 2. Habitat metrics and habitat quality categories for the qualitative Stream Habitat Assessment Procedure (SHAP). Minimum and maximum values for metrics from DWPC-ILEPA (1994: Table 5.1). The maximum value for "Excellent" is used as X_{\max} in calculation of the standardized metric value (see methods).

Metric	Habitat Quality Categories								
	Poor		Fair		Good		Excellent		
	Min	Max	Min	Max	Min	Max	Min	Max	
Substrate and In-stream Cover									
1	Bottom Substrate	1	5	6	10	11	15	16	20
2	Deposition	1	3	4	6	7	9	10	12
3	Substrate Stability	1	4	5	8	9	12	13	16
4	In-stream Cover	1	3	4	6	7	9	10	12
5	Pool Substrate	1	5	6	10	11	15	16	20
Channel Morphology and Hydrology									
6	Pool Quality	1	4	5	8	9	12	13	16
7	Pool Variability	1	4	5	8	9	12	13	16
8	Channel Alteration	1	2	3	4	5	6	7	8
9	Channel Sinuosity	1	3	4	6	7	9	10	12
10	Width/Depth	1	4	5	8	9	12	13	16
11	Hydrologic Diversity	1	3	4	6	7	9	10	12
Riparian and Bank Features									
12	Canopy Cover	1	3	4	6	7	9	10	12
13	Bank Vegetation	1	4	5	8	9	12	13	16
14	Immediate Land Use	1	2	3	4	5	6	7	8
15	Flow Related Refugia	1	3	4	6	7	9	10	12

Table 3. Stream habitat percent similarity categories for site comparability assessments from Michigan Department of Natural Resources (1991), as given in the DWPC Field QA Manual [DWPC-ILEPA 1994: Table 5.2]).

<u>Habitat Quality Category</u>		<u>Percent Similarity</u>
Excellent	Very Similar to Reference	>= 90%
Good	Slightly Different	75-89%
Fair	Moderately Different	60-74%
Poor	Substantially Different	<=59%

TYPES AND AMOUNTS OF PERTINENT MACROINVERTEBRATE HABITATS

Aquatic macroinvertebrate sampling using the ILEPA 20-Jab Allocation method (ILEPA 2011a), which we use in the present study, requires that the types and amounts of pertinent habitats be determined in advance. We follow the methods given in ILEPA (2011b) to allocate the 20 jabs to appropriate bank and bottom habitats across a 300-foot long stream reach, which constitutes a sampling site. When suitably qualified, trained, and experienced personnel are conducting the sampling, we use the *Non-Transect habitat characterization method* (ILEPA 2011b); otherwise, the *11-transect habitat characterization method* (ILEPA 2011b), is used. Regardless, at each site we create three stream profiles and measure average flow (ft/sec).

SAMPLING AQUATIC MACROINVERTEBRATES

Site sampling of aquatic macroinvertebrates utilizes the 20-jab allocation method (ILEPA 2011a) with jabs allocated based on methods described above. Sample collection and preservation follows the standard operating procedures given by ILEPA (2011a). The 20 jabs are combined in the field to produce a single sample, preserved with 95% ethanol, and then taken to the laboratory for processing.

LABORATORY PROCESSING, IDENTIFICATION, ANALYSES, AND CALCULATION OF mIBI

In the laboratory, samples are sorted, subsampled (when appropriate) counted and identified following ILEPA methodology (ILEPA 2011c). Laboratory subsampling results in a random subsample comprised of ~300 (+/- 60) aquatic macroinvertebrate specimens. For each taxon, a tolerance value and functional feeding group is assigned based on values from ILEPA (2010). Using the identifications, counts, tolerance values, and functional feeding groups for the taxa present in the sample, we calculate site-level scores for seven metrics (**Table 4**). Note that Coleoptera Taxa, Intolerant Taxa, and Total Taxa metrics **do not** include taxa which are not considered aquatic by ILEPA – that is, these metrics do not include taxa for which there is no taxon tolerance value (ILEPA 2010).

Table 4. Seven metrics calculated for aquatic macroinvertebrates with response of metric to perturbation and best values (ILEPA 2011c: Table 1).

Metric	Response to Perturbation	Best Value
Coleoptera Taxa	Decrease	5
Ephemeroptera Taxa	Decrease	10.2
Total Taxa	Decrease	46
Intolerant Taxa	Decrease	9
MBI	Increase	4.9
Percent Scraper	Decrease	29.6
Percent EPT	Decrease	74

After calculation of metrics in **Table 4**, metrics are standardized and then averaged to produce the final macroinvertebrate Index of Biotic Integrity (mIBI), as described in ILEPA (2011c). The mIBI provides a basis for categorizing sites into mIBI quality categories based upon analyses of the aquatic macroinvertebrate fauna (**Table 5**).

Calculation of the seven metrics and the mIBI is carried out in the R statistical analysis software (R Core Team 2012), reading in a reference file of tolerance values and functional feeding groups for all Illinois aquatic macroinvertebrates based on ILEPA (2010). Project aquatic macroinvertebrate identifications and counts are read in as a second file, with a code for each taxon allowing matching of the two files and assignment of functional feeding groups and tolerance values. Within R, packages *plyr* (Wickham 2011) and *reshape* (Wickham 2007) are called to facilitate completion of analyses.

Table 5. Macroinvertebrate IBI quality categories (ILEPA 2011c: Table 2).

mIBI Index Score		Comparison to Reference	Narrative Description
Lower Boundary	Upper Boundary		
73.0	100.0	>75th percentile	Exceptional
41.8	72.9	>10th percentile	Good
20.9	41.8	bisect 10th percentile (upper)	Fair
0.0	20.8	bisect 10th percentile (lower)	Poor

RESULTS AND DISCUSSION

HABITAT ASSESSMENT

Site FS951TBC— Physical habitat assessment of the unnamed tributary of Blackberry Creek at Illinois Route 47 (Kane County, Illinois), scored **117** on the raw field score, and **53.1** on the standardized **IEPA SHAP** scale, a score associated with **Poor** values (i.e. a relatively poor correspondence with expected natural conditions; **Table 3**). Despite this score, when individual site metrics from this reach are plotted against the standardized range of values, there are benthic habitat features in this stream section that score as higher quality. However, some of these measures were not representative of the entire stream segment and only apply to the sampled reach. Within the sampled reach, an erosional area, there was less deposition, more cover and flow refugia and channel variability than in the upstream reaches and this score is an overestimate of the quality of the entire segment (**Figure 9**).



Figure 9. The fifteen metrics used to calculate the habitat assessment score, adjusted to standardized metric values, as scored for **Site FS951TBC** on the unnamed tributary of Blackberry Creek at Illinois Route 47 on 13 September 2016.

Site FS951BC— Physical habitat assessment of Blackberry Creek at Illinois Route 47 (Kane County, Illinois) scored **166** on the raw scale, a **78.0** on the **IEPA SHAP** scale. This is a standardized score associated with the lower range of **Good** values, suggesting that stream habitats are somewhat but not greatly different from expected reference conditions (**Table 3**). When individual site metrics from this reach are plotted against the standardized range of values, many metrics estimated from this stream segment are good or excellent conditions (**Figure 10**). In particular, channel sinuosity, width, depth and canopy cover were in the **Fair** range.

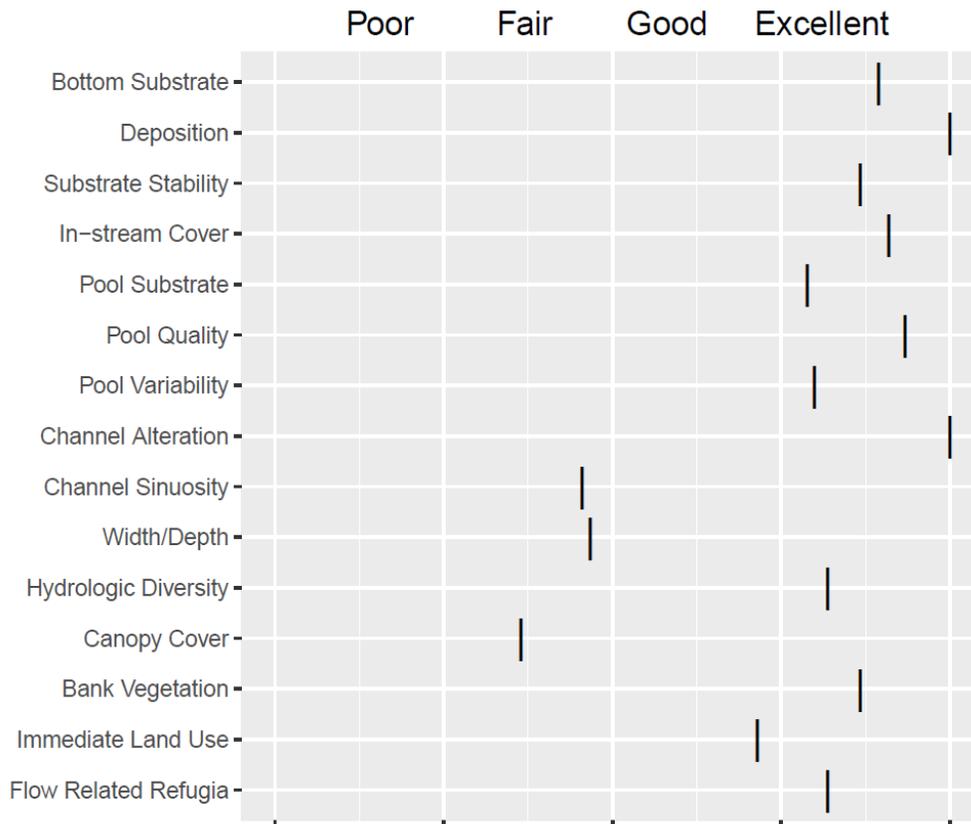


Figure 10. The fifteen metrics used to calculate the habitat assessment score, adjusted to standardized metric values, as scored for **Site FS951BC** on Blackberry Creek at Illinois Route 47 on 13 September 2016.

AQUATIC MACROINVERTEBRATES

Site FS951TBC— A total of 391 macroinvertebrates were identified from a subsample of the collection from the unnamed tributary of Blackberry Creek at Illinois Route 47, 13 September 2016. 26 total taxa were recorded from this sample, representing 4 phyla, 6 classes, 12 orders and 22 families. Some taxa have not been assigned tolerance values by ILEPA (**Table 6**), so for the purpose of this report we eliminated these records from the assemblage before calculating mIBI scores. One metric (% EPT) was near the minimum observed Illinois values, but most

macroinvertebrate metrics were in the middle of the range (**Figure 11**). Net-spinning caddisflies *Cheumatopsyche sp.*, planarians, mayflies *Fallceon quilleri* and chironomid larvae dominated the assemblage (55% of the assemblage) (**Table 6**). **Site FS951TBC** scored a **5.5** on the **MBI** tolerance metric, **44.2** on the **mIBI** composite metric, in the lower range of “**Good**” values in the narrative description (**Table 5**). Filter-feeders (45%) and collector-gatherers (32%) together accounted for over ¾ of the individuals in the assemblage (**Figure 12**).

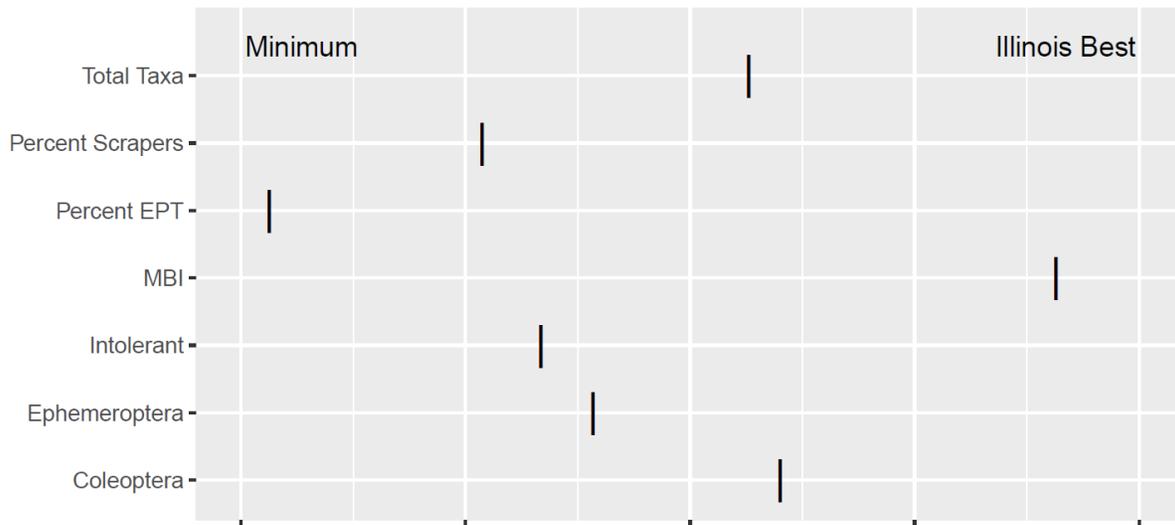
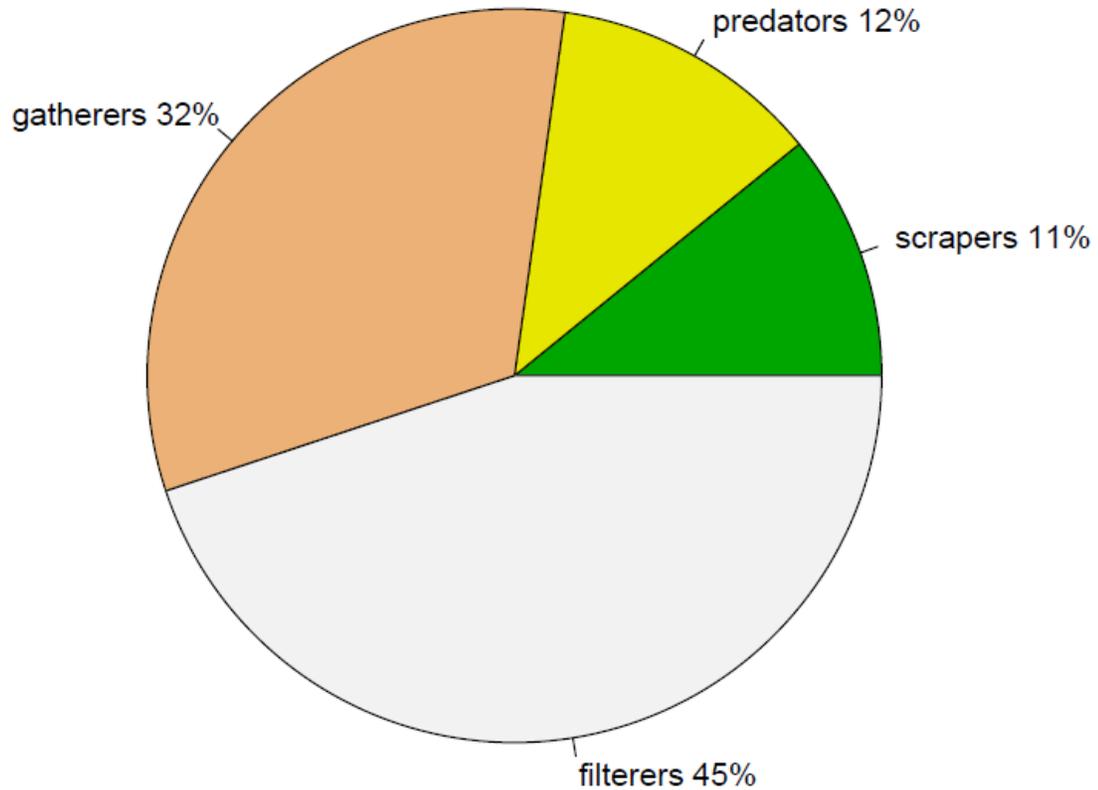


Figure 11. Aquatic macroinvertebrate summary metrics from sample collected at **Site FS951TBC**, unnamed tributary of Blackberry Creek at Illinois Route 47, Kane County, Illinois on 13 September 2016.

Functional Feeding Group Composition



Unnamed Tributary of Blackberry Creek

Figure 12. Functional feeding groups (FFG) of aquatic macroinvertebrates collected by INHS personnel on 13 September 2016 from **Site FS951TBC** (Unnamed tributary of Blackberry Creek at Illinois Route 47), Kane County, Illinois.

449 individual macroinvertebrate specimens, belonging to 29 different taxa, were identified from **Site FS951BC**, scoring a **4.7** on the **MBI** per-capita tolerance metric (**Figure 13**). This score indicates that the assemblage is composed of more intolerant taxa, and fewer mid- to tolerant taxa, than >95% of Illinois streams (ILEPA 2011c). Four intolerant taxa were sampled at this site, and eight EPT taxa (**Figure 9**). Together, filter-feeders and collector-gatherers comprised 88% of the subsampled assemblage (**Figure 14**). The assemblage was dominated by chironomid midges (15%), elmids beetles (17%) and filter feeding caddisflies (21%). The **mIBI** composite

metric for this site scored a **50.1**, which is in the middle range of “**Good**” values in the narrative description (**Table 5**).

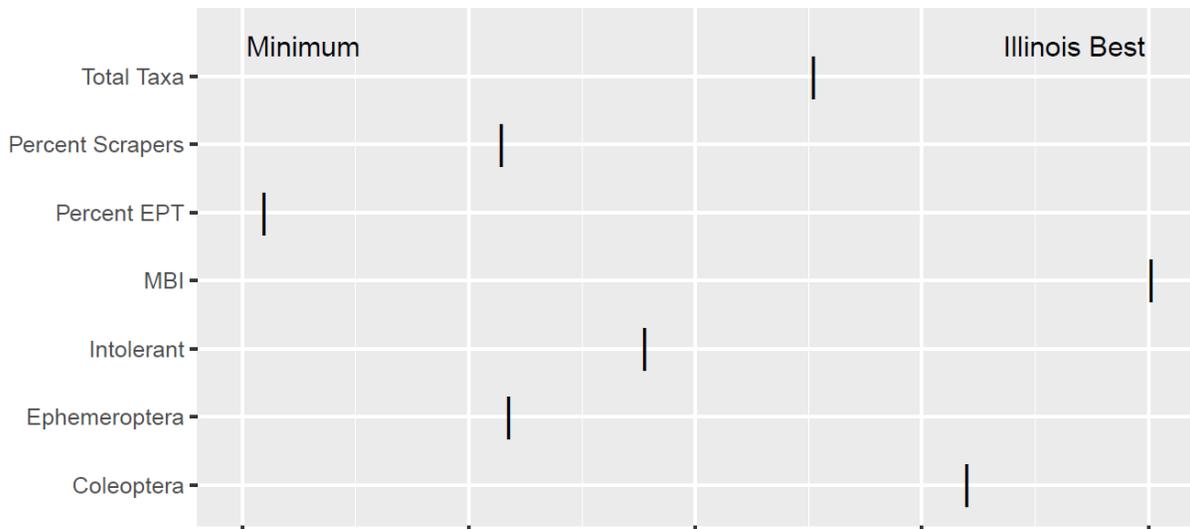
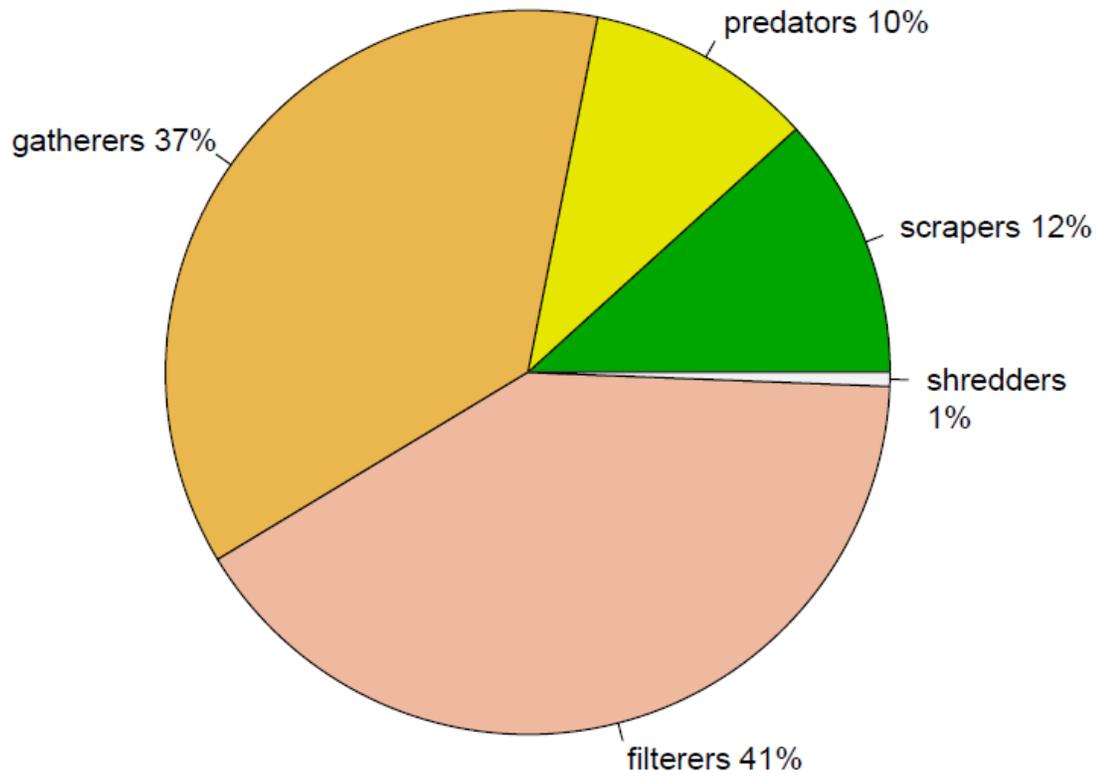


Figure 13. Aquatic macroinvertebrate summary metrics from sample collected at **Site FS951BC**, Blackberry Creek at Illinois Route 47, Kane County, Illinois on 13 September 2016.

No federally or state listed taxa were observed during the course of this sampling (USDI-FWS 1996, USDI-FWS 1997, USDI-FWS 1999, Mankowski 2010, IESPB 2015). Ambient environmental conditions on the day of sampling are given in **Table 7**. **Appendix 2** gives laboratory measurements of water quality parameters from water samples collected 13 September 2016 and shipped to Prairie Analytical Systems, Inc. (Springfield, Illinois) via UPS. **Appendix 3** gives laboratory measurements of water quality parameters from water samples collected 5 January 2016 and shipped to Prairie Analytical Systems, Inc. (Springfield, Illinois) via UPS.

Functional Feeding Group Composition



Blackberry Creek at Illinois Route 47

Figure 14. Functional feeding groups (FFG) of aquatic macroinvertebrates collected by INHS personnel on 13 September 2016 from **Site FS951BC** (Blackberry Creek at Illinois Route 47), Kane County, Illinois.

Table 6. List of aquatic macroinvertebrates identified from the sample collected from **Site FS951TBC** and **FS951BC** in Kane County, Illinois on 13 September 2016. Taxa denoted by * have not been assigned tolerance values by ILEPA.

Phylum: Class	Order: Family	Taxon	Trib of Blackberry Creek	Blackberry Creek
Annelida: Clitellata				
	Arhynchobdellida: Erpobdellidae	Erpobdellidae	1	1
	Clitellata	Clitellata		9
Arthropoda: Crustacea				
	Amphipoda: Gammaridae	Gammarus sp.	32	36
	Decapoda: Cambaridae	Cambaridae	1	2
Arthropoda: Insecta				
	Coleoptera: Dytiscidae	Coptotomus sp.		1
	Coleoptera: Elmidae	Dubiraphia sp.	13	44
	Coleoptera: Elmidae	Elmidae		4
	Coleoptera: Elmidae	Optioservus sp.		16
	Coleoptera: Elmidae	Stenelmis sp.	15	13
	Coleoptera: Haliplidae	Peltodytes sp.*		2
	Coleoptera: Hydrophilidae	Tropisternus sp.*		1
	Coleoptera: Scirtidae	Scirtidae	16	
	Diptera: Chironomidae	Chironomidae	48	3
	Diptera: Chironomidae	Chironomini		52
	Diptera: Chironomidae	Orthoclaadiinae		4
	Diptera: Chironomidae	Tanypodinae		9
	Diptera: Chironomidae	Tanytarsini		1
	Diptera: Simuliidae	Prosimulium sp.	2	44
	Diptera: Syrphidae	Syrphidae	1	
	Ephemeroptera: Baetidae	Baetis quilleri	49	12
	Ephemeroptera: Baetidae	Callibaetis sp.	12	1
	Ephemeroptera: Caenidae	Caenis sp.	5	
	Ephemeroptera: Heptageniidae	Stenacron sp.	1	1
	Hemiptera: Belostomatidae	Belostoma sp.*	1	1
	Hemiptera: Corixidae	Corixidae*		5
	Hemiptera: Gerridae	Rheumatobates sp.*		1
	Hemiptera: Veliidae	Microvelia sp.*	1	
	Odonata: Aeshnidae	Aeshna verticalis	1	
	Odonata: Aeshnidae	Boyeria sp.		1
	Odonata: Calopterygidae	Calopteryx maculata	6	8
	Odonata: Coenagrionidae	Enallagma sp.	26	
	Odonata: Coenagrionidae	Ischnura sp.		6
	Trichoptera: Helicopsychidae	Helicopsyche borealis		2
	Trichoptera: Hydropsychidae	Ceratopsyche morosa	7	9
	Trichoptera: Hydropsychidae	Ceratopsyche sparna		28
	Trichoptera: Hydropsychidae	Cheumatopsyche sp.	88	26
	Trichoptera: Hydropsychidae	Hydropsyche betteni	32	32
	Trichoptera: Hydropsychidae	Hydropsychidae	3	
	Trichoptera: Hydroptilidae	Hydroptila sp.	4	
Mollusca: Gastropoda				
	Basommatophora: Lymnaeidae	Lymnaeidae	1	
	Mesogastropoda: Physidae	Physa sp.	4	5
	Mesogastropoda: Pleuroceridae	Goniobasis sp.	7	
Mollusca: Pelecypoda				
	Veneroida: Corbiculidae	Corbicula sp.	2	
	Veneroida: Sphaeriidae	Sphaeriidae	1	29
Platyhelminthes: Turbellaria				
	Tricladida: Planariidae	Planariidae	49	2

Table 7. Values for field water quality parameters measured by INHS personnel on 13 September 2016 at **Site FS951TBC** and **Site FS951BC** at Illinois Route 47, Kane County, Illinois.

Parameter	Site	Site
	FS951TBC	FS951BC
Barometric Pressure	746.7 mm Hg	763.2 mm Hg
Air Temperature	26.5° C	26.0° C
Water Temperature	19.15° C	19.52° C
Hydrogen Ion Concentration as pH:	7.8 SU	8.05 SU
Specific Conductivity, @77 F/25 C	823 uS	912 uS
Total Dissolved Solids (TDS)	534	593.2

ACKNOWLEDGEMENTS

Kristen Potter (Prairie Analytical Systems, Inc., Springfield, Illinois) facilitated laboratory assessment of water quality.

LITERATURE CITED

- Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates, and fish. Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.
- Division of Water Pollution Control, Bureau of Water, Illinois Environmental Protection Agency (DWPC-ILEPA). 1994. Quality Assurance and Field Methods Manual. Section E: Stream Habitat and discharge monitoring. 42 p.
- Illinois Endangered Species Protection Board (IESPB). 2015. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. 17 p.
- Illinois Environmental Protection Agency (ILEPA). 2010. Macroinvertebrate-Index of Biotic Integrity (m-IBI) tolerance list and functional feeding group classification, January, 2010.
- Illinois Environmental Protection Agency (ILEPA). 2011a. Standard operating procedure for method to collect aquatic macroinvertebrates from wadeable streams for biotic integrity assessments. Document Control Number 168. 8 p.
- Illinois Environmental Protection Agency (ILEPA). 2011b. Methods utilized to determine the types and amounts of pertinent macroinvertebrate habitats in perennial wadeable streams for 20-jab allocation. Document Control Number 177. 6 p.
- Illinois Environmental Protection Agency (ILEPA). 2011c. Standard Operating Procedure for calculation of the macroinvertebrate index of Biotic Integrity (mIBI). Document Control Number 170. 8 p.
- Ishii, A.L., D.T. Soong and J.B. Sharpe. 2010. Implementation and evaluation of the Streamflow Statistics (StreamStats) Web application for computing basin characteristics and flood peaks in Illinois. United States Geological Survey Scientific Investigations Report 2009- 5197. 25 pp. (<http://streamstatsags.cr.usgs.gov/streamstats/>; last accessed 1 Dec 2016)
- Mankowski, A., editor. 2010. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 4 – 2009 and 2010 Changes to the Illinois List of Endangered and Threatened Species.
- Michigan Department of Natural Resources (Michigan DNR). 1991. Qualitative biological and habitat survey protocols for wadable streams and rivers. Mich. DNR Great Lakes and Environmental Assessment Section Procedure No. 51. Lansing, Michigan.
- Plafkin, J.L., M.T. Barbour, K.D. Porter, S.K. Gross, and R.M. Hughes. 1989. Rapid bioassessment protocols for use in streams and rivers: benthic macroinvertebrates and fish. U.S.

Environmental Protection Agency, Office of Water (WH-553), Assessment and Watershed Protection Division, 401 M Street, S.W., Washington, D.C. 20460. EPA/440/4-89-001. xv + eight separately numbered chapters + four appendices.

R Core Team. 2012. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.Rproject.org/>.

U.S. Department of the Interior, Fish and Wildlife Service (USDI-FWS). 1996. Endangered and threatened species, plant and animal taxa; proposed rule. Part iii. 50 CFR Part 17. Federal Register 61(40): 7596-7613.

U.S. Department of the Interior, Fish and Wildlife Service (USDI-FWS). 1997. Endangered and threatened wildlife and plants. Federal Register, 50 CFR Part 17.11 and 17.12. October 31, 1996. 46 p. [This document is a compilation and special reprint, current as of 31 October 1996, then printed by the U.S. Government Printing Office in 1997].

U.S. Fish and Wildlife Service (USDI-FWS). 1999. Endangered and threatened wildlife and plants; review of plant and animal taxa that are candidates or proposed for listing as endangered or threatened; annual notice of findings on recycled petitions; and annual description of progress on listing actions. Federal Register 64, 57534-57547.

Wickham, H. 2007. Reshaping data with the reshape package. Journal of Statistical Software, 21(12): 1- 20.

Wickham, H. 2011. The split-apply-combine strategy for data analysis. Journal of Statistical Software, 40(1): 1- 29.

Appendix 1

This appendix cover page references < **19435_Water_Quality_Survey_GIS.shp**> - an ArcGIS shapefile with sampling point information for sites FS951TBC (Unnamed Tributary of Blackberry Creek at Illinois Route 47) and FS951BC (Blackberry Creek at Illinois Route 47) in the IDOT FAP 326/ FAI 88 project corridor (Kane County, Illinois), where surveys for aquatic macroinvertebrates, habitat assessments, stream characterizations and water quality sampling were conducted by INHS personnel on 13 September 2016 and winter chloride water quality was assessed 5 January 2017. The ArcGIS shapefile and this report were both submitted to IDOT (via the IDOT Site Assessment Tracking System extranet website).

Appendix 2

Values for water quality parameters resulting from analyses of raw water samples collected by INHS personnel from sites **FS951TBC** and **FS951BC** in the IDOT FAP 326/ FAI 88 project corridor (Kane County, Illinois) 13 September 2016.

Laboratory analyses were completed by Prairie Analytical Systems, Inc., Springfield, Illinois.

LABORATORY RESULTS

Client: Illinois Natural History Survey
Project: FS-961 Kane County IL
Client Sample ID: FS 961 (Trib)
Collection Date: 9/13/16 13:30

Lab Order: 16I0313
Lab ID: 16I0313-01
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP-MS									
*Arsenic	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 16:15	EPA200.8	CCD
*Cadmium	U	0.00100		mg/L	1	9/16/16 11:03	9/16/16 16:15	EPA200.8	CCD
*Selenium	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 16:15	EPA200.8	CCD
*Silver	U	0.00300		mg/L	1	9/16/16 11:03	9/16/16 16:15	EPA200.8	CCD
Metals by ICP									
Total Hardness (as CaCO3)	489	66.2		mg/L	100	9/16/16 11:03	9/19/16 13:14	EPA 200.7	CCD
*Barium	0.0732	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
*Calcium	110	10.0		mg/L	100	9/16/16 11:03	9/19/16 13:14	EPA200.7	CCD
*Chromium	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
*Copper	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
*Iron	0.480	0.0500		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
*Lead	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
*Magnesium	52.3	10.0		mg/L	100	9/16/16 11:03	9/19/16 13:14	EPA200.7	CCD
*Manganese	0.140	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
*Nickel	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
*Zinc	U	0.0100		mg/L	1	9/16/16 11:03	9/16/16 20:41	EPA200.7	CCD
Dissolved Metals by ICP									
*Iron	0.463	0.0500		mg/L	1	9/19/16 14:16	9/19/16 22:03	EPA200.7	CCD
Anions by Ion Chromatography									
*Chloride	38.0	5.00		mg/L	100	9/16/16 14:00	9/17/16 0:52	EPA300.0	JKK
*Fluoride	0.161	0.100		mg/L	5	9/14/16 13:19	9/14/16 18:31	EPA300.0	JK
*Nitrate (as N)	1.13	0.250		mg/L	10	9/14/16 16:00	9/15/16 2:46	EPA300.0	JKK
*Nitrite (as N)	U	0.250		mg/L	10	9/14/16 16:00	9/15/16 3:05	EPA300.0	JKK
*Sulfate	61.6	15.0		mg/L	100	9/21/16 11:50	9/21/16 20:56	EPA300.0	JKK
Conventional Chemistry Parameters									
Total Nitrogen	1.91	1.00		mg/L	10	9/20/16 10:49	9/21/16 15:30	EPA300.0/SM	KSH
*Ammonia (as N)	0.114	0.100		mg/L	1	9/20/16 14:31	9/20/16 14:43	SM4500NH3-	KSH
*Hexavalent Chromium	U	0.0100	MC	mg/L	1	9/19/16 13:15	9/19/16 13:19	SM3500Cr-B	ADH
*Cyanide	0.00624	0.00500		mg/L	1	9/21/16 9:45	9/21/16 16:44	SM4500CN-E	DMS
Weak Acid Dissociable Cyanide	U	0.005		mg/L	1	9/22/16 10:00	9/22/16 12:43	SM4500CN-E	DMS
Total Kjeldahl Nitrogen	0.780	0.500		mg/L	1	9/20/16 10:49	9/21/16 15:30	SM4500NH3-	KSH
*Oil and Grease	U	1.03		mg/L	1	9/16/16 10:46	9/19/16 16:23	EPA1664A	CMM
*Phenolics	U	0.00500		mg/L	1	9/26/16 13:15	9/27/16 12:26	EPA420.4	schaf
*Phosphorus	0.106	0.0500		mg/L	2	9/21/16 11:31	9/22/16 12:18	SM4500P-E	KSH
*Total Suspended Solids	9.50	4.00		mg/L	1	9/19/16 12:06	9/19/16 17:05	SM2540D	DMS

Subcontractor: Microbac

Low Level Metals Analysis

Mercury	U	0.5		ng/L	1	9/16/16 9:04	9/19/16 13:38	EPA 1631E	SUB
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LABORATORY RESULTS

Client: Illinois Natural History Survey
Project: FS-961 Kane County IL
Client Sample ID: FS 961 BC Creek
Collection Date: 9/13/16 14:45

Lab Order: 16I0313
Lab ID: 16I0313-02
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP-MS									
*Arsenic	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 16:23	EPA200.8	CCD
*Cadmium	U	0.00100		mg/L	1	9/16/16 11:03	9/16/16 16:23	EPA200.8	CCD
*Selenium	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 16:23	EPA200.8	CCD
*Silver	U	0.00300		mg/L	1	9/16/16 11:03	9/16/16 16:23	EPA200.8	CCD
Metals by ICP									
Total Hardness (as CaCO3)	535	66.2		mg/L	100	9/16/16 11:03	9/19/16 13:20	EPA 200.7	CCD
*Barium	0.0673	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
*Calcium	119	10.0		mg/L	100	9/16/16 11:03	9/19/16 13:20	EPA200.7	CCD
*Chromium	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
*Copper	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
*Iron	0.268	0.0500		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
*Lead	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
*Magnesium	58.1	10.0		mg/L	100	9/16/16 11:03	9/19/16 13:20	EPA200.7	CCD
*Manganese	0.0757	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
*Nickel	U	0.00500		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
*Zinc	U	0.0100		mg/L	1	9/16/16 11:03	9/16/16 20:47	EPA200.7	CCD
Dissolved Metals by ICP									
*Iron	0.174	0.0500		mg/L	1	9/19/16 14:16	9/19/16 22:09	EPA200.7	CCD
Anions by Ion Chromatography									
*Chloride	80.6	5.00		mg/L	100	9/16/16 14:00	9/17/16 1:11	EPA300.0	JKK
*Fluoride	0.136	0.100		mg/L	5	9/14/16 13:19	9/14/16 18:53	EPA300.0	JK
*Nitrate (as N)	0.573	0.250		mg/L	10	9/14/16 16:00	9/15/16 3:24	EPA300.0	JKK
*Nitrite (as N)	U	0.250		mg/L	10	9/14/16 16:00	9/15/16 2:46	EPA300.0	JKK
*Sulfate	55.2	15.0		mg/L	100	9/21/16 11:50	9/21/16 21:15	EPA300.0	JKK
Conventional Chemistry Parameters									
Total Nitrogen	1.24	1.00		mg/L	10	9/20/16 10:49	9/21/16 15:30	EPA300.0/SM	KSH
*Ammonia (as N)	U	0.100		mg/L	1	9/20/16 14:31	9/20/16 14:43	SM4500NH3-	KSH
*Hexavalent Chromium	U	0.0100	MC	mg/L	1	9/19/16 13:15	9/19/16 13:19	SM3500Cr-B	ADH
*Cyanide	U	0.00500		mg/L	1	9/21/16 9:45	9/21/16 16:44	SM4500CN-E	DMS
Weak Acid Dissociable Cyanide	U	0.005		mg/L	1	9/22/16 10:00	9/22/16 12:43	SM4500CN-E	DMS
Total Kjeldahl Nitrogen	0.663	0.500		mg/L	1	9/20/16 10:49	9/21/16 15:30	SM4500NH3-	KSH
*Oil and Grease	U	1.03		mg/L	1	9/16/16 10:46	9/19/16 16:23	EPA1664A	CMM
*Phenolics	U	0.00500		mg/L	1	9/26/16 13:15	9/27/16 12:31	EPA420.4	schaf
*Phosphorus	0.108	0.0500		mg/L	2	9/21/16 11:31	9/22/16 12:18	SM4500P-E	KSH
*Total Suspended Solids	4.50	4.00		mg/L	1	9/19/16 12:20	9/19/16 17:06	SM2540D	DMS

Subcontractor: Microbac

Low Level Metals Analysis

Mercury	U	0.5		ng/L	1	9/16/16 9:04	9/19/16 13:40	EPA 1631E	SUB
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LABORATORY RESULTS

Client: Illinois Natural History Survey
Project: FS-961 Kane County IL

Lab Order: 16I0313

Notes and Definitions

- S Spike recovery outside acceptance limits.
- MC Matrix correction performed due to the presence of turbidity.
- M Reporting limit set between LOQ and MDL.
- I Matrix interference.
- E Result above quantitation range.
- * NELAC certified compound.
- U Analyte not detected (i.e. less than RL or MDL).

Appendix 3

Values for water quality parameters resulting from analyses of raw water samples collected by INHS personnel from sites **FS951TBC** and **FS951BC** in the IDOT FAP 326/ FAI 88 project corridor (Kane County, Illinois) 5 January 2017.

Laboratory analyses were completed by Prairie Analytical Systems, Inc., Springfield, Illinois.

LABORATORY RESULTS

Client: Illinois Natural History Survey
Project: Blackberry Creek
Client Sample ID: BC
Collection Date: 1/5/17 13:00

Lab Order: 17A0087
Lab ID: 17A0087-01
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP-MS									
*Arsenic	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 19:04	EPA200.8	CCD
*Cadmium	U	0.00100		mg/L	1	1/9/17 8:55	1/10/17 19:04	EPA200.8	CCD
*Selenium	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 19:04	EPA200.8	CCD
*Silver	U	0.00300		mg/L	1	1/9/17 8:55	1/10/17 19:04	EPA200.8	CCD
Metals by ICP									
Total Hardness (as CaCO3)	325	0.662		mg/L	20	1/9/17 8:55	1/11/17 14:44	EPA 200.7	JTC
*Barium	0.0708	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
*Calcium	95.0	2.00		mg/L	20	1/9/17 8:55	1/11/17 14:44	EPA200.7	JTC
*Chromium	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
*Copper	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
*Iron	0.556	0.0500		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
*Lead	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
*Magnesium	45.2	2.00		mg/L	20	1/9/17 8:55	1/11/17 14:44	EPA200.7	JTC
*Manganese	0.0893	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
*Nickel	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
*Zinc	U	0.0100		mg/L	1	1/9/17 8:55	1/10/17 21:25	EPA200.7	JTC
Dissolved Metals by ICP									
*Iron	0.458	0.0500		mg/L	1	1/10/17 9:35	1/10/17 18:10	EPA200.7	JTC
Anions by Ion Chromatography									
*Chloride	74.6	5.00		mg/L	100	1/6/17 14:13	1/7/17 4:46	EPA300.0	JKK
*Fluoride	0.107	0.100		mg/L	5	1/9/17 15:21	1/9/17 18:31	EPA300.0	JKK
*Nitrate (as N)	1.82	0.250		mg/L	10	1/6/17 14:13	1/6/17 19:35	EPA300.0	JKK
*Nitrite (as N)	U	0.250		mg/L	10	1/6/17 14:13	1/6/17 19:35	EPA300.0	JKK
*Sulfate	54.9	15.0		mg/L	100	1/6/17 14:13	1/7/17 4:46	EPA300.0	JKK
Conventional Chemistry Parameters									
Total Nitrogen	1.82	1.00		mg/L	10	1/11/17 16:25	1/11/17 16:28	EPA300.0/SM	ADH
*Ammonia (as N)	U	0.100		mg/L	1	1/9/17 11:59	1/9/17 14:31	SM4500NH3-	DMS
*Hexavalent Chromium	U	0.0100	MC	mg/L	1	1/6/17 13:00	1/6/17 13:00	SM3500Cr-B	LAH
*Cyanide	U	0.00500		mg/L	1	1/12/17 10:31	1/12/17 14:06	SM4500CN-E	ADH
Weak Acid Dissociable Cyanide	0.007	0.005		mg/L	1	1/9/17 16:07	1/9/17 16:09	SM4500CN-E	ADH
Total Kjeldahl Nitrogen	U	0.500		mg/L	1	1/11/17 16:25	1/11/17 16:28	SM4500NH3-	ADH
*Oil and Grease	U	1.01		mg/L	1	1/9/17 14:25	1/10/17 14:04	EPA1664A	CMM
*Phenolics	U	0.00500		mg/L	1	1/9/17 10:20	1/9/17 12:59	EPA420.4	schaf
Phosphorus	0.548	0.0500		mg/L	2	1/9/17 13:59	1/10/17 11:49	SM4500P-E	LAH
*Total Suspended Solids	8.50	4.00		mg/L	1	1/10/17 11:12	1/11/17 8:25	SM2540D	DMS

Subcontractor: Microbac

Low Level Metals Analysis

Mercury	4.93	0.5		ng/L	1	1/11/17 18:11	1/13/17 10:54	EPA 1631E	SUB
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LABORATORY RESULTS

Client: Illinois Natural History Survey
Project: Blackberry Creek
Client Sample ID: TBC
Collection Date: 1/5/17 13:30

Lab Order: 17A0087
Lab ID: 17A0087-02
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Prepared	Date Analyzed	Method	Analyst
Metals by ICP-MS									
*Arsenic	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 19:43	EPA200.8	CCD
*Cadmium	U	0.00100		mg/L	1	1/9/17 8:55	1/10/17 19:43	EPA200.8	CCD
*Selenium	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 19:43	EPA200.8	CCD
*Silver	U	0.00300		mg/L	1	1/9/17 8:55	1/10/17 19:43	EPA200.8	CCD
Metals by ICP									
Total Hardness (as CaCO3)	423	13.2		mg/L	20	1/9/17 8:55	1/11/17 14:50	EPA 200.7	JTC
*Barium	0.0733	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
*Calcium	95.3	2.00		mg/L	20	1/9/17 8:55	1/11/17 14:50	EPA200.7	JTC
*Chromium	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
*Copper	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
*Iron	0.518	0.0500		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
*Lead	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
*Magnesium	44.9	2.00		mg/L	20	1/9/17 8:55	1/11/17 14:50	EPA200.7	JTC
*Manganese	0.143	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
*Nickel	U	0.00500		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
*Zinc	U	0.0100		mg/L	1	1/9/17 8:55	1/10/17 21:53	EPA200.7	JTC
Dissolved Metals by ICP									
*Iron	0.482	0.0500		mg/L	1	1/10/17 9:35	1/10/17 18:16	EPA200.7	JTC
Anions by Ion Chromatography									
*Chloride	44.6	5.00		mg/L	100	1/6/17 14:13	1/7/17 5:05	EPA300.0	JKK
*Fluoride	U	0.100		mg/L	5	1/9/17 15:21	1/9/17 18:50	EPA300.0	JKK
*Nitrate (as N)	3.22	0.250		mg/L	10	1/6/17 14:13	1/6/17 19:54	EPA300.0	JKK
*Nitrite (as N)	U	0.250		mg/L	10	1/6/17 14:13	1/6/17 19:54	EPA300.0	JKK
*Sulfate	61.7	15.0		mg/L	100	1/6/17 14:13	1/7/17 5:05	EPA300.0	JKK
Conventional Chemistry Parameters									
Total Nitrogen	8.83	1.00		mg/L	10	1/11/17 16:25	1/11/17 16:28	EPA300.0/SM	ADH
*Ammonia (as N)	0.116	0.100		mg/L	1	1/9/17 11:59	1/9/17 14:31	SM4500NH3-	DMS
*Hexavalent Chromium	U	0.0100	MC	mg/L	1	1/6/17 13:00	1/6/17 13:00	SM3500Cr-B	LAH
*Cyanide	U	0.00500		mg/L	1	1/12/17 10:31	1/12/17 14:06	SM4500CN-E	ADH
Weak Acid Dissociable Cyanide	U	0.005		mg/L	1	1/9/17 16:07	1/9/17 16:09	SM4500CN-E	ADH
Total Kjeldahl Nitrogen	5.61	0.500		mg/L	1	1/11/17 16:25	1/11/17 16:28	SM4500NH3-	ADH
*Oil and Grease	1.10	1.00		mg/L	1	1/9/17 14:25	1/10/17 14:04	EPA1664A	CMM
*Phenolics	U	0.00500		mg/L	1	1/9/17 10:20	1/9/17 13:05	EPA420.4	schaf
Phosphorus	0.0520	0.0500		mg/L	2	1/9/17 13:59	1/10/17 11:49	SM4500P-E	LAH
*Total Suspended Solids	8.50	4.00		mg/L	1	1/10/17 11:12	1/11/17 8:25	SM2540D	DMS
Subcontractor: Microbac									
Low Level Metals Analysis									
Mercury	1.51	0.5		ng/L	1	1/11/17 18:11	1/13/17 10:56	EPA 1631E	SUB

LABORATORY RESULTS

Client: Illinois Natural History Survey
Project: Blackberry Creek

Lab Order: 17A0087

Notes and Definitions

- S Spike recovery outside acceptance limits.
- R RPD outside acceptance limits.
- MC Matrix correction performed due to the presence of turbidity.
- E Result above quantitation range.
- * NELAC certified compound.
- U Analyte not detected (i.e. less than RL or MDL).

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Illinois State Geological Survey Preliminary Environmental Site Assessment

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Illinois Natural History Survey Three-Season Avian Surveys



Three-season Avian Surveys at IL-47 (FAP 326)/I-88 (FAI 88) interchange in Sugar Grove, Kane County, Illinois

IDOT Sequence Numbers: 19435



Prepared by:
Wendy Schelsky

INHS/IDOT Statewide Biological Survey & Assessment Program
2017 (135), August 2017



-Project Summary

The Illinois Department of Transportation (IDOT) is proposing modifications to add full access to the IL-47 (FAP 326) at I-88 (FAI 88) interchange. Modifications will be made to both IL-47 and I-88 to accommodate the interchange improvements. Work will include acquisition of additional ROW or easement, in-stream work, and tree removal. The site is primarily rural intermixed with several forest preserves that include wetlands and prairie restorations including the Hannaford Woods-Nickels Farm Forest Preserve and the Blackberry Maples Marsh Forest Preserve (INAI) to the south and north of the project area respectively. The project also intersects parts of Blackberry Creek and tributaries and comes within one mile of the Sauer Family-Prairie Kame Forest preserve where an historical record (2008) of breeding Wilson's Phalaropes, an Illinois Endangered species, exists. IDOT requested breeding bird surveys and surveys during spring and fall migration to determine whether there are any threatened or endangered species or species of conservation concern within the project area. We conducted avian surveys of the area on six dates along one major driving transect and six census points for all avian species on the following dates: September 7 and October 13, 2016 and April 20, May 22, June 12, July 14, 2017. In total, we documented 99 species including nesting Least Bitterns (State Threatened, SGNC) and migrant American Bitterns (State Endangered, SGNC) and Northern Harriers (State Endangered, SGNC). The three Illinois Threatened/Endangered species that we detected were found outside of the project area and there was not suitable breeding habitat for any of the T&E species within the study limits of the project. Marsh nesting habitat for bitterns was not found within the study limits and grassland habitat for nesting Northern Harriers was found at the Hannaford Woods-Nickels Farm Forest Preserve on the south end of the project area, but the restored prairie (i.e. grassland) portion was adjacent to, but outside the project area. We also documented 15 more SGNCs with the most notable being Sedge Wren, Marsh Wren and Dickcissel (also PIF Watch List), Bobolink (PIF Watch List), and Henslow's Sparrow (PIF Watch List and IUCN-near threatened) all detected during the breeding season. We also found that the historical Great Blue Heron Rookery (last observed in 2012, Natural Heritage Database) at the Blackberry Maples Marsh and Forest Preserve, north of the project area, was still active with approximately 20-30 nests with larger offspring seen during the June visit.

Surveys Conducted By:

Steve Bailey, Ornithologist

GIS Layers:

Janet Jarvis, Remote Sensing Specialist

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Cover Photo: *Great Blue Heron nest (Ardea herodias)*. Photo taken by Mary Elfner.

Introduction

The Illinois Department of Transportation (IDOT) is proposing modifications to add full access to the IL-47 (FAP 326) at I-88 (FAI 88) interchange in Sugar Grove, Kane County, Illinois. Modifications will be made to both IL-47 and I-88 to accommodate the interchange improvements. Work will include acquisition of additional ROW or easement, in-stream work, and tree removal. IDOT has requested breeding bird surveys and fall and spring migration surveys to determine whether there are threatened or endangered species or species of conservation concern in the proposed project area.

Project Area

The IL-47/I-88 interchange project area is primarily rural areas intermixed with several forest preserves that include wetlands and prairie restorations including the Hannaford Woods-Nickels Farm Forest Preserve and the Blackberry Maples Marsh Forest Preserve (F.P.). The Blackberry Maples F.P. is an Illinois Natural Areas Inventory site (INAI), sites designated as high quality natural communities, and is located to the north of the project area. The project area also intersects Blackberry Creek and one of its tributaries and is also located within one mile of the Sauer Family-Prairie Kame Forest preserve where an historical record (2008) of breeding Wilson's Phalaropes (*Phalaropus tricolor*), an Illinois Endangered species, exists.

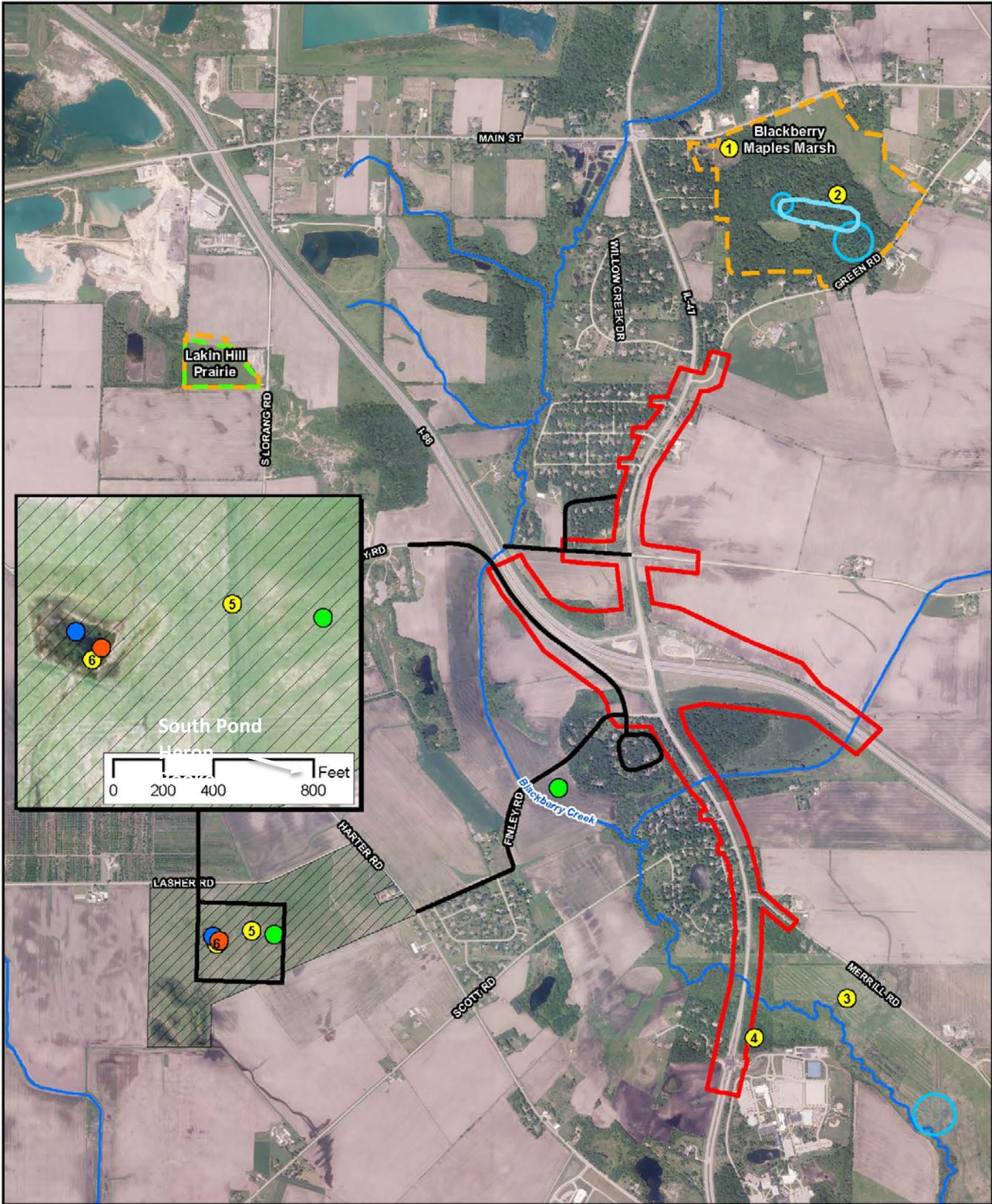
Records and Potential Habitat for Species of Conservation Concern Within and Near Project Area

I consulted the Illinois Natural Heritage Database (IDNR) to determine whether any historical records for Threatened or Endangered species in the study area and within one mile existed. There were three historical records (Figure 1) in the database including two for a Great Blue Heron Rookery (1997 & 2012) and one record for breeding Wilson's Phalarope (State Endangered) (2008) from the Sauer Family-Prairie Forest Preserve (F.P.) (Figure 1).

Wilson's Phalarope are Endangered in Illinois and considered a Species in Greatest Need of Conservation (SGNC) by the Illinois Department of Natural Resources (IDNR). Wilson's Phalaropes are regular migrants throughout Illinois; however, they are not regular breeders and breeding records have been restricted to the northern third of the state. Their habitat requirements during breeding are varied and they can be found in marshes and grasslands, whereas migrants are typically found in wet habitats such as marshes, mudflats, and lakes (Colwell & Jehl 1994). Breeding birds typically arrive in Illinois from late April to mid-May to breed.

Several of the areas in or near the IL-47/I-88 interchange project area provide larger tracts of restored grassland/shrublands with small wetlands or riparian areas. These areas can provide good habitat for nesting and migrant grassland and shrubland species, many of which are declining and are considered SGNC in Illinois. The two most notable locations for these types of habitat are the Hannaford Woods-Nickels Farm F.P. located on the south end of the project corridor and the Sauer Family-Prairie Kame F.P. located less than one mile west of the project area.

The Blackberry Maples Marsh and Forest Preserve, located just to the north but outside of the project corridor has a small wetland and hardwood forest that in the past has provided habitat for a Great Blue Heron Rookery (IDNR records from 1997 & 2012). This area could provide sufficient nesting habitat for other marsh dependent species, such as American or Least bitterns, and is also designated as an Illinois Natural Areas Inventory site which provides high quality natural areas for migrant and breeding birds, many of which are SGNC in Illinois.



Avian Survey near the crossing of IL 47 and I 88 (Sequence no. 19435) Kane County, Illinois.

Project Boundary	Rookery EOR	Census Location
Stream	Wilson's Phalarope EOR	Northern Harrier Observed
Nature Preserve	Great Blue Heron Rookery	Migrant American Bittern Observed
INAI Site	Driving Survey Route	Breeding Pair of Least Bittern Observed

N
 Feet
Jarvis 8/29/2017

Figure 1. Locations of six census points, one driving transect, and locations of historical and current records of avian threatened or endangered species at the IL-47 (FAP 326)/I-88 (FAI 88) project area in Sugar Grove, Kane County, Illinois. Appendix E

Methods

Habitat was assessed using USGS topographic maps, aerial photographs of the study site, and visual assessment during field visits to the study site. I consulted the Illinois Natural Heritage Database for historical records of all threatened and endangered species within one mile of the IL-47/I-88 interchange project area.

Steve Bailey visited the project area for six surveys during three seasons (Fall migration, Spring migration, and breeding season). Steve visited the site on September 7 and October 13, 2016 and April 20, May 22, June 12, July 14, 2017. During each visit, he conducted point counts at six locations and drove a transect throughout the remaining habitat throughout the project area. Steve conducted each point count for ten minutes between first light and 11 a.m. and recorded all species seen and/or heard out to 300 feet. After point counts at two locations (1 & 6) (Table 1 & Figure 1) during the breeding season visits May through July for wetland species) Steve used playbacks of nine wetland species including, Black Rail (*Laterallus jamaicensis*), Sora (*Porzana carolina*), Virginia Rail (*Rallus limicola*), King Rail (*Rallus elegans*), Least Bittern (*Ixobrychus exilis*), American Bittern (*Botaurus lentiginosus*), Pied-billed Grebe (*Podilymbus podiceps*), Common Gallinule (*Gallinula galleata*), and Wilson's Phalarope (*Phalaropus tricolor*) to maximize observation of these difficult to detect species. Each species' song was played for one minute followed by one minute of silence for observation. He also surveyed birds along the driving transect through areas that were less suitable for point counts. The transect survey was also conducted between first light and 11 a.m. The numbers reported for each survey are summarized by type and date. The total number of species was reported from each point count and the total number of species seen or heard was reported for the driving transect. Locations of any T&E species were recorded.

Table 1. Descriptions and locations of six census points and one driving transect at the IL-47/I-88 project area in Sugar Grove in Kane County, Illinois (Seq. No. 19435)

Census Point/Transect	Habitat	Physiographic Features	Latitude	Longitude
CP 1	cattail marsh	Blackberry Maples Forest Preserve, small cattail marsh surrounded by forest	41.841030°	-88.462295°
CP 2	oak forest	Blackberry Maples Forest Preserve, older oak forest adjacent to scattered wetlands	41.839070°	-88.455909°
CP 3	restored prairie	Nickels Farm Forest Preserve, restored prairie with shrubby areas, fencerow and tree row nearby. Prairie was burned in early spring 2017	41.803845°	-88.454549°
CP 4	oak forest	Waubonsee College, tract of older oak forest dominated by White and Burr oaks intermixed with wild Black Cherry trees.	41.802030°	-88.459928°
CP 5	restored prairie	Sauer Family-Prairie Kame Forest Preserve, prairie restoration along brome dike between two fields and next to grassy waterway. Record of breeding Wilson's Phalarope from 2008 from this area	41.806357°	-88.489498°
CP 6	marsh	Sauer Family-Prairie Kame Forest Preserve, small wetland marsh surrounded by prairie restoration. Record of breeding Wilson's Phalarope from 2008 from this area	41.805763°	-88.491557°
Driving Transect	rural areas with agriculture, forest tracts, small riparian areas intermixed with residential areas	Area is interspersed rural agriculture, forest tracts, small waterways, wetlands and riparian areas amongst residential areas	See Figure 1	

Results

Overall, a total of 99 species of birds were documented within or in areas near the IL-47/I-88 interchange project area (Table 2, overall species list). Three species that are considered Threatened or Endangered in Illinois were documented in areas near, but outside of the project area, including the American Bittern (*Botaurus lentiginosus*), an Illinois Endangered species and Illinois DNR, Species in Greatest Need of Conservation (IDNR SGNC), Least Bittern (*Ixobrychus exilis*), an Illinois Threatened species and IDNR SGNC, and Northern Harrier (*Circus cyaneus*), an Illinois Endangered species and IDNR SGNC. The two American Bitterns were documented in early spring at Sauer Family F.P. (Figure 1, Table 5, Appendix A) and were likely migrants. The Least Bitterns were observed at the Sauer Family F.P. both during migration and in June, during the breeding season. They were presumed breeding in the marsh as they were present later in the breeding season and they responded to playbacks. There was not suitable marsh nesting habitat for the two bittern species within the project area. The two Northern Harriers that were documented were both observed during spring migration outside of the project area. One was observed at the Sauer Family F.P. and the second was observed in old field habitat to the west of the project area (Figure 1, Appendix A). The only grassland suitable for potentially breeding Northern Harriers that we found either within or adjacent to the project area was found at the Hannaford Woods-Nickels Farm F.P. and the grassland portion of this forest preserve was adjacent to, but outside of the project area. Steve also confirmed the presence of the historical (1997 & 2013) Great Blue Heron rookery in the Blackberry Maples F.P. with 25-30 active nests and many with larger offspring during the June surveys (Figure 1, Appendix A).

In addition to the three threatened or endangered species, we also documented 15 more SGNC, including Broad-winged Hawk (*Buteo platypterus*), Sedge (*Cistothorus platensis*) and Marsh (*Cistothorus palustris*) wrens, Dickcissels (*Spiza americana*) and Bobolink (*Dolichonyx oryzivorus*). Two of the SGNCs had additional conservation designations [Chimney Swift (*Chaetura pelagica*), IUCN-near threatened and Henslow's Sparrow (*Ammodramus henslowii*)-PIF Watch List and IUCN-Vulnerable]. The majority of the 15 additional SGNC were seen during either the fall or spring migration with the exception of Northern Flicker (*Colaptes auratus*), Dickcissels (*Spiza americana*), Henslow's Sparrow (*Ammodramus henslowii*), Sedge Wren (*Cistothorus platensis*), and Willow Flycatcher (*Empidonax traillii*) (Tables 3, 4 & 5). We also documented 15 species of Parulidae wood warblers, many of which are IDNR SGNC but that used areas throughout the project area after a large migration fallout on May 22, 2017.

Table 2. List of species detected during three-season surveys at the IL-47 (FAP 326)/I-88 (FAI 88) project area Sugar Grove, Kane County, Illinois (IDOT seq. 19435) including their habitat associations (G=grassland, W=wetland, F=forest, S=shrubland, R=rural, U=urban, O=open); migratory status [Neo=Neotropical (National Migratory Bird Center, Washington, D.C.), NM=North American, and R=resident (Birds of North America, Cornell, Ithaca, N.Y.)]; and designations as Species in Greatest need of Conservation by IDNR, PIF Watch List, and IUCN Redlist status.

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Anseriformes	Anatidae	Canada Goose	<i>Branta canadensis</i>	W	Neo				Least Concern
Anseriformes	Anatidae	Wood Duck	<i>Aix sponsa</i>	W, F	Neo				Least Concern
Anseriformes	Anatidae	Mallard	<i>Anas platyrhynchos</i>	W	Neo				Least Concern
Anseriformes	Anatidae	Blue-winged Teal	<i>Anas discors</i>	W	Neo				Least Concern
Anseriformes	Anatidae	Northern Shoveler	<i>Anas clypeata</i>	W	Neo				Least Concern
Pelecaniformes	Ardeidae	American Bittern	<i>Botaurus lentiginosus</i>	W	Neo	Endangered	Yes		Least Concern
Pelecaniformes	Ardeidae	Least Bittern	<i>Ixobrychus exilis</i>	W	Neo	Threatened	Yes		Least Concern
Pelecaniformes	Ardeidae	Great Blue Heron	<i>Ardea herodias</i>	W	Neo				Least Concern
Pelecaniformes	Ardeidae	Green Heron	<i>Butorides virescens</i>	W	Neo				Least Concern
Accipitriformes	Cathartidae	Turkey Vulture	<i>Cathartes aura</i>	F, R, O	Neo				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Accipitriformes	Accipitridae	Northern Harrier	<i>Circus cyaneus</i>	G	Neo	Endangered	Yes		Least Concern
Accipitriformes	Accipitridae	Cooper's Hawk	<i>Accipiter cooperii</i>	F, R, U	Neo				Least Concern
Accipitriformes	Accipitridae	Broad-winged Hawk	<i>Buteo platypterus</i>	F	Neo		Yes		Least Concern
Accipitriformes	Accipitridae	Red-tailed Hawk	<i>Buteo jamaicensis</i>	G, R, O	Neo				Least Concern
Gruiformes	Rallidae	Virginia Rail	<i>Rallus limicola</i>	W	Neo				Least Concern
Gruiformes	Rallidae	Sora	<i>Porzana carolina</i>	W	Neo				Least Concern
Charadriiformes	Charadriidae	Killdeer	<i>Charadrius vociferus</i>	W	Neo				Least Concern
Columbiformes	Columbidae	Rock Pigeon	<i>Columba livia</i>	All	R				Least Concern
Columbiformes	Columbidae	Mourning Dove	<i>Zenaida macroura</i>	F, U, R, O	Neo				Least Concern
Cuculiformes	Cuculidae	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	F, S	Neo		Yes		Least Concern
Apodiformes	Apodidae	Chimney Swift	<i>Chaetura pelagica</i>	F, O	Neo		Yes		Near Threatened
Coraciiformes	Alcedinidae	Belted Kingfisher	<i>Megaceryle alcyon</i>	W, F	Neo				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Piciformes	Picidae	Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	F	R				Least Concern
Piciformes	Picidae	Downy Woodpecker	<i>Picoides pubescens</i>	F	R				Least Concern
Piciformes	Picidae	Hairy Woodpecker	<i>Picoides villosus</i>	F	R				Least Concern
Piciformes	Picidae	Northern Flicker	<i>Colaptes auratus</i>	F, O	Neo		Yes		Least Concern
Falconiformes	Falconidae	American Kestrel	<i>Falco sparverius</i>	O, R	Neo				Least Concern
Passeriformes	Tyrannidae	Eastern Wood-Pewee	<i>Contopus virens</i>	F	Neo				Least Concern
Passeriformes	Tyrannidae	Willow Flycatcher	<i>Empidonax traillii</i>	S	Neo		Yes	Yes	Least Concern
Passeriformes	Tyrannidae	Eastern Phoebe	<i>Sayornis phoebe</i>	F, S, R	Neo				Least Concern
Passeriformes	Tyrannidae	Great Crested Flycatcher	<i>Myiarchus crinitus</i>	W, F, U, R	Neo				Least Concern
Passeriformes	Tyrannidae	Eastern Kingbird	<i>Tyrannus tyrannus</i>	G, S, R, O	Neo				Least Concern
Passeriformes	Vireonidae	Yellow-throated Vireo	<i>Vireo flavifrons</i>	F	Neo				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Passeriformes	Vireonidae	Warbling Vireo	<i>Vireo gilvus</i>	W, F, R	Neo				Least Concern
Passeriformes	Vireonidae	Red-eyed Vireo	<i>Vireo olivaceus</i>	F	Neo				Least Concern
Passeriformes	Corvidae	Blue Jay	<i>Cyanocitta cristata</i>	F, R, U, O	R				Least Concern
Passeriformes	Corvidae	American Crow	<i>Corvus brachyrhynchos</i>	All	NM				Least Concern
Passeriformes	Alaudidae	Horned Lark	<i>Eremophila alpestris</i>	G, R, O	NM				Least Concern
Passeriformes	Hirundinidae	Tree Swallow	<i>Tachycineta bicolor</i>	W, G, O	Neo				Least Concern
Passeriformes	Hirundinidae	Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	O	Neo				Least Concern
Passeriformes	Hirundinidae	Bank Swallow	<i>Riparia riparia</i>	W, O	Neo				Least Concern
Passeriformes	Hirundinidae	Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	W, O	Neo				Least Concern
Passeriformes	Hirundinidae	Barn Swallow	<i>Hirundo rustica</i>	R, O	Neo				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Passeriformes	Paridae	Black-capped Chickadee	<i>Poecile atricapillus</i>	F	R				Least Concern
Passeriformes	Paridae	Tufted Titmouse	<i>Baeolophus bicolor</i>	F	R				Least Concern
Passeriformes	Sittidae	Red-breasted Nuthatch	<i>Sitta canadensis</i>	F	NM				Least Concern
Passeriformes	Sittidae	White-breasted Nuthatch	<i>Sitta carolinensis</i>	F	R				Least Concern
Passeriformes	Troglodytidae	House Wren	<i>Troglodytes aedon</i>	F, S, R, U	Neo				Least Concern
Passeriformes	Troglodytidae	Sedge Wren	<i>Cistothorus platensis</i>	G, W	Neo		Yes		Least Concern
Passeriformes	Troglodytidae	Marsh Wren	<i>Cistothorus palustris</i>	W	Neo		Yes		Least Concern
Passeriformes	Troglodytidae	Carolina Wren	<i>Thryothorus ludovicianus</i>	F	R				Least Concern
Passeriformes	Poliophtilidae	Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	F	Neo				Least Concern
Passeriformes	Regulidae	Ruby-crowned Kinglet	<i>Regulus calendula</i>	F	Neo				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Passeriformes	Turdidae	Swainson's Thrush	<i>Catharus ustulatus</i>	F	Neo				Least Concern
Passeriformes	Turdidae	Hermit Thrush	<i>Catharus guttatus</i>	F	Neo				Least Concern
Passeriformes	Turdidae	Wood Thrush	<i>Hylocichla mustelina</i>	F	Neo		Yes	Yes	Least Concern
Passeriformes	Turdidae	American Robin	<i>Turdus migratorius</i>	F, S, R, U, O	Neo				Least Concern
Passeriformes	Mimidae	Gray Catbird	<i>Dumetella carolinensis</i>	F, S, R, U	Neo				Least Concern
Passeriformes	Mimidae	Brown Thrasher	<i>Toxostoma rufum</i>	F, S, R	NM		Yes		Least Concern
Passeriformes	Sturnidae	European Starling	<i>Sturnus vulgaris</i>	R, U, O	R/Introduced				Least Concern
Passeriformes	Bombycillidae	Cedar Waxwing	<i>Bombycilla cedrorum</i>	F, G, S, R, U	Neo				Least Concern
Passeriformes	Parulidae	Tennessee Warbler	<i>Oreothlypis peregrina</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Connecticut Warbler	<i>Oporornis agilis</i>	F	Neo		Yes	Yes	Least Concern
Passeriformes	Parulidae	Mourning Warbler	<i>Geothlypis philadelphia</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Common Yellowthroat	<i>Geothlypis trichas</i>	F, S, R	Neo				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Passeriformes	Parulidae	American Redstart	<i>Setophaga ruticilla</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Northern Parula	<i>Parula americana</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Magnolia Warbler	<i>Setophaga magnolia</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Blackburnian Warbler	<i>Setophaga fusca</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Yellow Warbler	<i>Setophaga petechia</i>	S, F, R	Neo				Least Concern
Passeriformes	Parulidae	Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	F, S	Neo				Least Concern
Passeriformes	Parulidae	Blackpoll Warbler	<i>Setophaga striata</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Yellow-rumped Warbler	<i>Setophaga coronata</i>	All	Neo				Least Concern
Passeriformes	Parulidae	Yellow-throated Warbler	<i>Setophaga dominica</i>	F	Neo				Least Concern
Passeriformes	Parulidae	Black-throated Green Warbler	<i>Setophaga virens</i>	F	Neo				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Passeriformes	Parulidae	Canada Warbler	<i>Cardellina canadensis</i>	F	Neo			Yes	Least Concern
Passeriformes	Parulidae	Wilson's Warbler	<i>Cardellina pusilla</i>	S	Neo				Least Concern
Passeriformes	Emberizidae	Chipping Sparrow	<i>Spizella passerina</i>	F, S, R, U	Neo				Least Concern
Passeriformes	Emberizidae	Field Sparrow	<i>Spizella pusilla</i>	G	Neo		Yes		Least Concern
Passeriformes	Emberizidae	Savannah Sparrow	<i>Passerculus sandwichensis</i>	G	Neo		Yes		Least Concern
Passeriformes	Emberizidae	Henslow's Sparrow	<i>Ammodramus henslowii</i>	G	NM		Yes	Yes	Near Threatened
Passeriformes	Emberizidae	Song Sparrow	<i>Melospiza melodia</i>	G, S, R, U	Neo				Least Concern
Passeriformes	Emberizidae	Swamp Sparrow	<i>Melospiza georgiana</i>	W	Neo				Least Concern
Passeriformes	Emberizidae	White-throated Sparrow	<i>Zonotrichia albicollis</i>	F, R	NM				Least Concern
Passeriformes	Cardinalidae	Scarlet Tanager	<i>Piranga olivacea</i>	F	Neo				Least Concern
Passeriformes	Cardinalidae	Northern Cardinal	<i>Cardinalis cardinalis</i>	F, S, R, U	R				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Passeriformes	Cardinalidae	Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	F, S, R, U, W	Neo				Least Concern
Passeriformes	Cardinalidae	Indigo Bunting	<i>Passerina cyanea</i>	F, S, R	Neo				Least Concern
Passeriformes	Cardinalidae	Dickcissel	<i>Spiza americana</i>	G	Neo		Yes	Yes	Least Concern
Passeriformes	Icteridae	Bobolink	<i>Dolichonyx oryzivorus</i>	G	Neo		Yes	Yes	Least Concern
Passeriformes	Icteridae	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	W, S, R	Neo				Least Concern
Passeriformes	Icteridae	Eastern Meadowlark	<i>Sturnella magna</i>	G	Neo				Least Concern
Passeriformes	Icteridae	Common Grackle	<i>Quiscalus quiscula</i>	All	R/NM				Least Concern
Passeriformes	Icteridae	Brown-headed Cowbird	<i>Molothrus ater</i>	All	Neo				Least Concern
Passeriformes	Icteridae	Orchard Oriole	<i>Icterus spurius</i>	F, S, O	Neo				Least Concern
Passeriformes	Icteridae	Baltimore Oriole	<i>Icterus galbula</i>	S, F	Neo				Least Concern
Passeriformes	Fringillidae	House Finch	<i>Carpodacus mexicanus</i>	R, U	R/NM				Least Concern

Order	Family	Common Name	Scientific Name	Habitat	Migratory Status	Illinois Threatened / Endangered	Illinois Species in Greatest need of Conservation	Partners in Flight Watch List	IUCN REDLIST Status
Passeriformes	Fringillidae	American Goldfinch	<i>Spinus tristis</i>	G, S, R, O	Neo				Least Concern
Passeriformes	Passeridae	House Sparrow	<i>Passer domesticus</i>	R, U, O	R/Introduced				Least Concern
Totals		Overall Species: 99				American Bittern (Endangered), Least Bittern (Threatened) & Northern Harrier (Endangered)	18	7	Chimney Swift & Henslow's Sparrow (near threatened)

Table 3. List of species detected during the three-season driving transect bird survey at the IL-47 (FAP 326)/I-88 (FAI 88) project area in Sugar Grove, Kane County, Illinois (IDOT seq. 19435). IE = Illinois Endangered, § = Species in Greatest Need of Conservation in Illinois, IUCN-NT = IUCN Redlist, Near Threatened.

Table 3				Driving Transect				
Common Name	Scientific Name	Habitat	Migratory Status	9/7/16	4/20/17	5/22/17	6/12/17	7/14/17
Wood Duck	<i>Aix sponsa</i>	W, F	Neo		x			
Mallard	<i>Anas platyrhynchos</i>	W	Neo		x			
Blue-winged Teal	<i>Anas discors</i>	W	Neo					
Great Blue Heron	<i>Ardea herodias</i>	W	Neo		x		x	
Turkey Vulture	<i>Cathartes aura</i>	F, R, O	Neo			x	x	
Northern Harrier ^{IE, §}	<i>Circus cyaneus</i>	G	Neo		x			
Cooper's Hawk	<i>Accipiter cooperii</i>	F, R, U	Neo				x	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	G, R, O	Neo	x		x	x	x
Killdeer	<i>Charadrius vociferus</i>	W	Neo				x	x
Rock Pigeon	<i>Columba livia</i>	All	R					x
Mourning Dove	<i>Zenaida macroura</i>	F, U, R, O	Neo	x	x	x	x	x
Chimney Swift ^{§, IUCN-NT}	<i>Chaetura pelagica</i>	F, O	Neo				x	
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	F	R	x	x	x		
Downy Woodpecker	<i>Picoides pubescens</i>	F	R	x	x		x	x
Northern Flicker [§]	<i>Colaptes auratus</i>	F, O	Neo	x				x
American Kestrel	<i>Falco sparverius</i>	O, R	Neo		x			x
Eastern Wood-Pewee	<i>Contopus virens</i>	F	Neo			x	x	x
Eastern Phoebe	<i>Sayornis phoebe</i>	F, S, R	Neo		x	x	x	x

Common Name	Scientific Name	Habitat	Migratory Status	Driving Transect				
				9/7/16	4/20/17	5/22/17	6/12/17	7/14/17
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	W, F, U, R	Neo				x	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	G, S, R, O	Neo					x
Warbling Vireo	<i>Vireo gilvus</i>	W, F, R	Neo				x	
Red-eyed Vireo	<i>Vireo olivaceus</i>	F	Neo			x		
Blue Jay	<i>Cyanocitta cristata</i>	F, R, U, O	R	x	x	x		x
American Crow	<i>Corvus brachyrhynchos</i>	All	NM	x	x			x
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	O	Neo		x	x	x	
Bank Swallow	<i>Riparia riparia</i>	W, O	Neo					x
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	W, O	Neo					x
Barn Swallow	<i>Hirundo rustica</i>	R, O	Neo		x	x	x	
Black-capped Chickadee	<i>Poecile atricapillus</i>	F	R		x	x	x	
White-breasted Nuthatch	<i>Sitta carolinensis</i>	F	R	x	x	x	x	
House Wren	<i>Troglodytes aedon</i>	F, S, R, U	Neo		x	x	x	x
Sedge Wren ^s	<i>Cistothorus platensis</i>	G, W	Neo			x		
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	F	Neo		x	x	x	
Wood Thrush ^{s, WL}	<i>Hylocichla mustelina</i>	F	Neo			x		
American Robin	<i>Turdus migratorius</i>	F, S, R, U, O	Neo	x	x	x	x	x
Gray Catbird	<i>Dumetella carolinensis</i>	F, S, R, U	Neo	x		x	x	x

Common Name	Scientific Name	Habitat	Migratory Status	Driving Transect				
				9/7/16	4/20/17	5/22/17	6/12/17	7/14/17
Brown Thrasher [§]	<i>Toxostoma rufum</i>	F, S, R	NM					
European Starling	<i>Sturnus vulgaris</i>	R, U, O	R/Introduced	x	x	x	x	x
Cedar Waxwing	<i>Bombycilla cedrorum</i>	F, G, S, R, U	Neo	x		x	x	x
Tennessee Warbler	<i>Oreothlypis peregrina</i>	F	Neo			x		
Common Yellowthroat	<i>Geothlypis trichas</i>	F, S, R	Neo			x	x	x
American Redstart	<i>Setophaga ruticilla</i>	F	Neo			x		
Blackburnian Warbler	<i>Setophaga fusca</i>	F	Neo			x		
Yellow Warbler	<i>Setophaga petechia</i>	S, F, R	Neo			x	x	
Blackpoll Warbler	<i>Setophaga striata</i>	F	Neo			x		
Yellow-rumped Warbler	<i>Setophaga coronata</i>	All	Neo		x			
Chipping Sparrow	<i>Spizella passerina</i>	F, S, R, U	Neo	x	x	x	x	x
Field Sparrow [§]	<i>Spizella pusilla</i>	G	Neo					x
Savannah Sparrow [§]	<i>Passerculus sandwichensis</i>	G	Neo		x		x	x
Song Sparrow	<i>Melospiza melodia</i>	G, S, R, U	Neo	x	x	x	x	x
White-throated Sparrow	<i>Zonotrichia albicollis</i>	F, R	NM		x			
Northern Cardinal	<i>Cardinalis cardinalis</i>	F, S, R, U	R	x	x	x	x	x
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	F, S, R, U, W	Neo			x		
Indigo Bunting	<i>Passerina cyanea</i>	F, S, R	Neo				x	x
Dickcissel ^{§, WL}	<i>Spiza americana</i>	G	Neo			x	x	

Common Name	Scientific Name	Habitat	Migratory Status	Driving Transect				
				9/7/16	4/20/17	5/22/17	6/12/17	7/14/17
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	W, S, R	Neo		X	X	X	X
Common Grackle	<i>Quiscalus quiscula</i>	All	R/NM	X	X	X	X	X
Brown-headed Cowbird	<i>Molothrus ater</i>	All	Neo		X	X	X	X
Orchard Oriole	<i>Icterus spurius</i>	F, S, O	Neo			X	X	
Baltimore Oriole	<i>Icterus galbula</i>	S, F	Neo			X		
House Finch	<i>Carpodacus mexicanus</i>	R, U	R/NM		X		X	
American Goldfinch	<i>Spinus tristis</i>	G, S, R, O	Neo	X	X	X	X	X
House Sparrow	<i>Passer domesticus</i>	R, U, O	R/Introduced		X	X	X	X
Total Species	Overall: 63			17	31	38	37	31

Table 4. List of species detected during the three-season census point bird surveys at Blackberry Maples F.P., Nickels Farm F.P., and Waubonsee College within or near the IL-47(FAP 326/ I-88 (FAI 88) project area in Sugar Grove, Kane County, Illinois (IDOT seq. 19435). § = Species in Greatest Need of Conservation in Illinois, WL = PIF WatchList, IUCN-NT = IUCN Redlist, Near Threatened, IUCN-V = IUCN Redlist, Vulnerable.

*Indicates Great Blue Herons tending active nests in Heron Rookery (see Figure 1).

Table 4		Blackberry Maples Forest Preserve												Nickels Farm Forest Preserve					Waubonsee College				
		CP #1						CP #2						CP #3					CP #4				
		9/7	10/13	4/20	5/22	6/12	7/14	9/7	10/13	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14
Common Name	Scientific Name																						
Canada Goose	<i>Branta canadensis</i>		5	3						18												4	
Wood Duck	<i>Aix sponsa</i>			2	2																		
Mallard	<i>Anas platyrhynchos</i>			1																			
Northern Shoveler	<i>Anas clypeata</i>			3																			
Great Blue Heron	<i>Ardea herodias</i>				1	1				5	1	1	9*		1								
Green Heron	<i>Butorides virescens</i>	1				1												1					
Cooper's Hawk	<i>Accipiter cooperii</i>																		1				
Broad-winged Hawk [§]	<i>Buteo platypterus</i>														22								
Red-tailed Hawk	<i>Buteo jamaicensis</i>		1																1				
Killdeer	<i>Charadrius vociferus</i>																1						1
Rock Pigeon	<i>Columba livia</i>														1								
Mourning Dove	<i>Zenaida macroura</i>			1																			
Yellow-billed Cuckoo [§]	<i>Coccyzus americanus</i>										1											1	

Table 4

Common Name	Scientific Name	Blackberry Maples Forest Preserve												Nickels Farm Forest Preserve					Waubonsee College				
		CP #1						CP #2						CP #3					CP #4				
		9/7	10/13	4/20	5/22	6/12	7/14	9/7	10/13	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14
Belted Kingfisher	<i>Megaceryle alcyon</i>			2																			
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	1			1			1	1		2		2								2	2	1
Downy Woodpecker	<i>Picoides pubescens</i>	2		1			1	1		5				1	1					1	1	1	1
Hairy Woodpecker	<i>Picoides villosus</i>									1		1									1		
Northern Flicker ^s	<i>Colaptes auratus</i>							1	1	3					1	1		1				1	1
Eastern Wood-Pewee	<i>Contopus virens</i>				1	1	1	2			4	2	1					1			1	1	1
Willow Flycatcher ^s , wl	<i>Empidonax traillii</i>				1											2	1						
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	1			2																		
Eastern Kingbird	<i>Tyrannus tyrannus</i>										1										2		
Yellow-throated Vireo	<i>Vireo flavifrons</i>																					1	
Warbling Vireo	<i>Vireo gilvus</i>				1		1																1
Red-eyed Vireo	<i>Vireo olivaceus</i>				2						3		3									3	1
Blue Jay	<i>Cyanocitta cristata</i>	2		3			1	2	2	4		1	8		1			1	1	2	1		2
American Crow	<i>Corvus brachyrhynchos</i>															1							

Table 4

Common Name	Scientific Name	Blackberry Maples Forest Preserve												Nickels Farm Forest Preserve					Waubonsee College					
		CP #1						CP #2						CP #3					CP #4					
		9/7	10/13	4/20	5/22	6/12	7/14	9/7	10/13	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	
Tree Swallow	<i>Tachycineta bicolor</i>					1									2				1					
Barn Swallow	<i>Hirundo rustica</i>				1										1	1			3			1	1	
Black-capped Chickadee	<i>Poecile atricapillus</i>	2					1		3	5	1	3	2						1	1	3	1	3	2
Tufted Titmouse	<i>Baeolophus bicolor</i>												4											
Red-breasted Nuthatch	<i>Sitta canadensis</i>																				1			
White-breasted Nuthatch	<i>Sitta carolinensis</i>								2	4	1	1							1	2				1
House Wren	<i>Troglodytes aedon</i>						2			4		1	4		1				2				1	
Sedge Wren [§]	<i>Cistothorus platensis</i>													2							3			1
Carolina Wren	<i>Thryothorus ludovicianus</i>						1																	
Blue-gray Gnatcatcher	<i>Poliptila caerulea</i>				2	1	2			1	1	2	1								1			2
Ruby-crowned Kinglet	<i>Regulus calendula</i>																				1			
Swainson's Thrush	<i>Catharus ustulatus</i>										2													
Hermit Thrush	<i>Catharus guttatus</i>								2															
Wood Thrush ^{§, WL}	<i>Hylocichla mustelina</i>				2						2													

Table 4

Common Name	Scientific Name	Blackberry Maples Forest Preserve												Nickels Farm Forest Preserve					Waubonsee College					
		CP #1						CP #2						CP #3					CP #4					
		9/7	10/13	4/20	5/22	6/12	7/14	9/7	10/13	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	
American Robin	<i>Turdus migratorius</i>	1	2	1	1	1	1			1	1	2	2	3	5	2	1	2			3	2	5	6
Gray Catbird	<i>Dumetella carolinensis</i>	1			1	1	1							1								3	2	3
Brown Thrasher ^s	<i>Toxostoma rufum</i>														1						1	1		
European Starling	<i>Sturnus vulgaris</i>			1				3							1			2			1		1	
Cedar Waxwing	<i>Bombycilla cedrorum</i>				1													1				1	2	3
Tennessee Warbler	<i>Oreothlypis peregrina</i>										6													
Connecticut Warbler ^{s, WL}	<i>Oporornis agilis</i>				1																			
Mourning Warbler	<i>Geothlypis philadelphia</i>																					1		
Common Yellowthroat	<i>Geothlypis trichas</i>		1		4	3	3									2	4	2					1	
American Redstart	<i>Setophaga ruticilla</i>				1							3											3	
Northern Parula	<i>Parula americana</i>											1											1	
Magnolia Warbler	<i>Setophaga magnolia</i>											1											1	
Blackburnian Warbler	<i>Setophaga fusca</i>				1																			
Yellow Warbler	<i>Setophaga petechia</i>				1											1	1							
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>											4											3	

Table 4

Common Name	Scientific Name	Blackberry Maples Forest Preserve												Nickels Farm Forest Preserve					Waubensee College						
		CP #1						CP #2						CP #3					CP #4						
		9/7	10/13	4/20	5/22	6/12	7/14	9/7	10/13	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14		
Blackpoll Warbler	<i>Setophaga striata</i>				1						1														
Yellow-rumped Warbler	<i>Setophaga coronata</i>									1	2														
Yellow-throated Warbler	<i>Setophaga dominica</i>				1																				
Black-throated Green Warbler	<i>Setophaga virens</i>											1													
Canada Warbler ^{WL}	<i>Cardellina canadensis</i>				1																				
Wilson's Warbler	<i>Cardellina pusilla</i>																								
Chipping Sparrow	<i>Spizella passerina</i>				1																				
Field Sparrow ^S	<i>Spizella pusilla</i>																								
Song Sparrow	<i>Melospiza melodia</i>		1	1	1	1									1	2	2	1	3						
Swamp Sparrow	<i>Melospiza georgiana</i>		3	4																					
White-throated Sparrow	<i>Zonotrichia albicollis</i>			1						2															
Scarlet Tanager	<i>Piranga olivacea</i>						1				2														
Northern Cardinal	<i>Cardinalis cardinalis</i>		2	1							1			1				1							
Rose-breasted	<i>Pheucticus ludovicianus</i>				1																				

Table 4		Blackberry Maples Forest Preserve												Nickels Farm Forest Preserve					Waubonsee College				
		CP #1						CP #2						CP #3					CP #4				
		9/7	10/13	4/20	5/22	6/12	7/14	9/7	10/13	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14	9/7	4/20	5/22	6/12	7/14
Common Name	Scientific Name																						
Grosbeak																							
Indigo Bunting	<i>Passerina cyanea</i>				1						3										2		1
Dickcissel [§] , WL	<i>Spiza americana</i>																2	3				2	
Bobolink [§] , WL	<i>Dolichonyx oryzivorus</i>													1									
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	2	14	23	9	9	4			3	6					25	5	2	7		1	1	1
Eastern Meadowlark	<i>Sturnella magna</i>																		1				
Common Grackle	<i>Quiscalus quiscula</i>		2							4									1		1		1
Brown-headed Cowbird	<i>Molothrus ater</i>						1				3					1	2		1		2		1
Orchard Oriole	<i>Icterus spurius</i>																1						
Baltimore Oriole	<i>Icterus galbula</i>				2	1								1								1	
House Finch	<i>Carpodacus mexicanus</i>														1	3					1		
American Goldfinch	<i>Spinus tristis</i>	2	2		2					1		3				3	2			2	2	4	
House Sparrow	<i>Passer domesticus</i>			3			1																
Total Species	Overall: 82	10	10	16	29	11	15	8	11	15	20	9	13	8	18	11	9	22	5	19	29	22	15

Table 5. List of species detected during the three-season census point bird surveys at the Sauer Family-Prairie F.P. within one mile of the IL-47 (FAP 326)/I-88 (FAI 88) project area in Sugar Grove, Kane County, Illinois (IDOT seq. 19435). IT = Illinois Threatened, IE = Illinois Endangered, § = Species in Greatest Need of Conservation in Illinois, IUCN-NT = IUCN Redlist, Near Threatened.

Table 5		Sauer Family Prairie Forest Preserve (grassland)					Sauer Family Prairie Forest Preserve (marsh)			
		CP #5					CP #6			
		9/7	4/20	5/22	6/12	7/14	4/20	5/22	6/12	7/14
Common Name	Scientific Name									
Mallard	<i>Anas platyrhynchos</i>			3				1		
Blue-winged Teal	<i>Anas discors</i>						2	1		
American Bittern ^{IE, §}	<i>Botaurus lentiginosus</i>						2			
Least Bittern ^{IT, §}	<i>Ixobrychus exilis</i>							2	1	
Great Blue Heron	<i>Ardea herodias</i>		2							
Turkey Vulture	<i>Cathartes aura</i>			1						
Northern Harrier ^{IE, §}	<i>Circus cyaneus</i>		1							
Cooper's Hawk	<i>Accipiter cooperii</i>	1								
Virginia Rail	<i>Rallus limicola</i>							1		
Sora	<i>Porzana carolina</i>						4	1	2	1
Mourning Dove	<i>Zenaida macroura</i>					2				
Chimney Swift ^{§, IUCN-NT}	<i>Chaetura pelagica</i>					1				1
Willow Flycatcher ^{§, WL}	<i>Empidonax traillii</i>				1				3	
American Crow	<i>Corvus brachyrhynchos</i>						1			
Horned Lark	<i>Eremophila alpestris</i>		1							
Tree Swallow	<i>Tachycineta bicolor</i>			1					2	
Barn Swallow	<i>Hirundo rustica</i>	3						2	2	
Sedge Wren [§]	<i>Cistothorus platensis</i>	4		3	2	3		1		
Marsh Wren [§]	<i>Cistothorus palustris</i>					1		3	5	1
Cedar Waxwing	<i>Bombycilla cedrorum</i>					1			5	
Common Yellowthroat	<i>Geothlypis trichas</i>	1		3	5	7			8	6
Savannah Sparrow [§]	<i>Passerculus sandwichensis</i>						1			

Table 5

		Sauer Family Prairie Forest Preserve (grassland)					Sauer Family Prairie Forest Preserve (marsh)			
		CP #5					CP #6			
Common Name	Scientific Name	9/7	4/20	5/22	6/12	7/14	4/20	5/22	6/12	7/14
Henslow's Sparrow ^S , WL, IUCN-NT	<i>Ammodramus henslowii</i>				5					
Song Sparrow	<i>Melospiza melodia</i>	1		4	1	4			4	1
Swamp Sparrow	<i>Melospiza georgiana</i>				1		6		8	3
Dickcissel ^S , WL	<i>Spiza americana</i>				1	2			4	
Bobolink ^S , WL	<i>Dolichonyx oryzivorus</i>	3								
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	1	9	4	6	4			7	
Eastern Meadowlark	<i>Sturnella magna</i>			1		2				2
Brown-headed Cowbird	<i>Molothrus ater</i>		2							
American Goldfinch	<i>Spinus tristis</i>	4	2	1		1			1	
Total Species	Overall: 31	8	6	9	8	11	6	8	13	7

Discussion

A total of 99 species were seen within and in areas near the proposed project corridor at the IL-47/I-88 interchange in Sugar Grove, Kane County, Illinois. Three species, American Bittern (Illinois Endangered), Least Bittern (Illinois Threatened) and Northern Harrier (Illinois Endangered) were documented in the vicinity but outside of the project area; but only the Least Bittern were confirmed breeding during our surveys. None of these species have been documented (EOR, IDNR) previously within the project area and the pair of Least Bitterns were found at the Sauer Family-Prairie Kame Forest Preserve almost a mile west of the project corridor. The migrant American Bitterns were found at the same marsh, but were not detected late enough to be breeding. We did not find suitable marsh nesting habitat for the two bittern species and other marsh-dependent species anywhere within the project limits. The two Northern Harriers were documented in grasslands outside of the project area during spring surveys and were not considered breeders. There was suitable nesting habitat for Northern Harriers at the Hannaford Woods-Nickels Farm F.P.; however, this area was adjacent, but outside of the project limits. We did not find harriers using this area for breeding. We also confirmed that the historical Great Blue Heron rookery at the Blackberry Maples Marsh north of the project corridor is still active with 25+ active nests in 2017. We did not find any evidence of migrant or breeding Wilson's Phalaropes within or near the project area.

In addition to the three threatened or endangered species, we also documented 15 more SGNC, including Broad-winged Hawk (*Buteo platypterus*), Sedge (*Cistothorus platensis*) and Marsh (*Cistothorus palustris*) wrens, Dickcissels (*Spiza americana*) and Bobolink (*Dolichonyx oryzivorus*). Two of the SGNCs had additional conservation designations [Chimney Swift (*Chaetura pelagica*), IUCN-near threatened and Henslow's Sparrow (*Ammodramus henslowii*)-PIF Watch List and IUCN-Vulnerable]. The majority of the 15 additional SGNC were seen during either the fall or spring migration with the exception of Northern Flicker (*Colaptes auratus*), Dickcissels (*Spiza americana*), Henslow's Sparrow (*Ammodramus henslowii*), Sedge Wren (*Cistothorus platensis*), and Willow Flycatcher (*Empidonax traillii*) (Tables 3, 4 & 5). We also documented 15 species of Parulidae wood warblers, many of which used areas throughout the project area after a large migration fallout on May 22, 2017.

American Bittern and Least Bittern, an Endangered and Threatened species in Illinois respectively, are considered a SGNC by the Illinois Department of Natural Resources (IDNR). Bitterns require wetlands with dense vegetation but with open water that are generally protected from disturbance (e.g. humans, floods), of high quality, with a good food source, even in urban areas (Kleen 2004). They have been declining in Illinois as wetlands disappear throughout the state. The Sauer Family-Prairie Kame marsh is relatively small, but is of good quality given the number of marsh birds detected there including the two bitterns, Soras, Virginia Rail, and Sedge and Marsh wrens. This marsh is located approximately one mile outside of the project area within a protected lands complex. There were no other marshes suitable for marsh-dependent species within the project limits.

Several of the areas in or near the IL-47/I-88 interchange project area provide larger tracts of restored grassland/shrublands, and/or forest tracts with small wetlands or riparian areas. These areas can provide good habitat for nesting and migrant grassland and shrubland species, many of which are declining and are considered SGNC in Illinois. The two most notable locations for these types of habitat are the Hannaford Woods-Nickels Farm F.P (including Waubensee College census point), located on the south end of the project corridor, and the Blackberry Maples Marsh and Forest Preserve, located just to the north of the project corridor. The grasslands/shrublands at the Nickels Farm F.P. had breeding Field Sparrows, Dickcissels and Willow Flycatchers all of which are IDNR SGNC. The grassland areas appear suitable for breeding Northern Harriers; however, these tracts are adjacent to but outside of the project limits. The forest tracts/grasslands at Waubensee College had breeding Northern Flicker, Sedge Wren, and Dickcissel all of which are IDNR SGNC. The Blackberry Maples F.P., just north of the project corridor has a small wetland and hardwood forest that in the past has provided habitat for a Great Blue Heron

Rookery (IDNR records from 1997 & 2012). This area is also designated as an Illinois Natural Areas Inventory site which provides high quality natural areas for migrant and breeding birds, many of which are SGNC in Illinois; however, Northern Flicker was the only IDNR SGNC found breeding at the site. We did, however, find evidence that the heron rookery is still active and productive given the number of larger offspring seen there during June 2017. The marsh within the Blackberry Maples F.P. was not of significant quality for marsh birds given that much of the marsh is closed in with vegetation and it is surrounded by woodlands. It does provide habitat, however, for migrants that prefer wetter habitats.

Our driving transect covered a larger portion of area both within and adjacent to the project area with the two most notable areas being along Red Oak Drive on the north end of the transect and Marian Circle and Finley Road along the south end. Numerous notable species were detected both during migration and the breeding season with the most notable breeding species being Chimney Swift, Field Sparrow, Savannah Sparrow, and Dickcissel. The Chimney Swift was documented along Red Oak Drive just outside of the study limits, and the grassland species were all documented along Finley road, also in areas adjacent to, but just outside of the study limits.

Literature Cited

- Colwell, M. A. and J. R. Jehl Jr. 1994. Wilson's Phalarope (*Phalaropus tricolor*), The Birds of North American Online (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: <https://birdsna.org/Species-Account/bna/species/wilpha>; DOI: 10.2173/bna.83
- Kleen, V. M., L. Cordle, and R. A. Montgomery. 2004. The Illinois breeding bird atlas. Illinois Natural History Survey, Champaign, IL.

Appendix A. Geographic Coordinates and dates detected for all Illinois Threatened and Endangered species recorded within or near the IL-47 (FAP 326)/I-88 (FAI 88) project area (IDOT seq. 19435)

T&E species	Scientific Name	Date Seen	habitat	T&E status	Species in greatest need of conservation (IL Wildlife Action Plan)	PIF Watch List	IUCN Redlist Status	Latitude	Longitude	description
American Bittern	<i>Botaurus lentiginosus</i>	4/20/17	W	Illinois Endangered	Yes	No	Least Concern	41.805891°	-88.491421°	Presumed migrant, not seen or heard during breeding season
Least Bittern	<i>Ixobrychus exilis</i>	5/22/2017 & 6/12/2017	W	Illinois Threatened	Yes	No	Least Concern	41.806075°	-88.491788°	Breeding Pair
Great Blue Heron Rookery	<i>Ardea herodias</i>	25-30 nests	W, F	None	No	No	Least Concern	See delineation on Figure 1		Active heron rookery with larger offspring seen during June visit
Northern Harrier	<i>Circus cyaneus</i>	4/20/17	G	Illinois Endangered	Yes	No	Least Concern	41.806192°	-88.488171°	spring migrant, seen outside of breeding season
Northern Harrier	<i>Circus cyaneus</i>	4/20/17	G	Illinois Endangered	Yes	No	Least Concern	41.812838°	-88.471682°	spring migrant, seen outside of breeding season



Illinois Natural History Survey
Botanical Survey and Assessment of the Eastern Prairie Fringed
Orchid



ILLINOIS NATURAL
HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

BOTANICAL SURVEY REPORT

Botanical Survey and Assessment of the IDOT 2016 Illinois Route 47 Eastern Prairie Fringed Orchid Study Area, Kane County, Illinois

Seq. No.: 19435



Prepared by:

Michael J. C. Murphy and Janet L. Jarvis (GIS & Maps)

INHS/IDOT Statewide Biological Survey & Assessment Program

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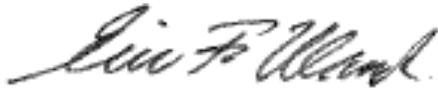


Project Summary

Following protocols outlined by the U.S. Fish and Wildlife Service, Wetland Site 8, previously identified by the INHS Wetlands Science Program during the spring of 2016, was searched for *Platanthera leucophaea* (Nutt.) Lindl. (eastern prairie fringed orchid [EPFO]) during June and July of 2016. Eastern prairie fringed orchid is listed as federally threatened and Illinois state endangered.

Occurring in Kane County, IL, Wetland Site 8 is a 0.7 acre remnant sedge meadow. This habitat is moderately to heavily degraded (Grade C to C-), but still possesses remnant vegetation composition and structure. This site was surveyed on 28 and 30 June, and 6 July 2016. A total of 68 species were observed during surveys, with 54 (79.4%) representing natives and 14 (20.6%) representing non-natives. Dominant species were common tussock sedge (*Carex stricta*) and the non-native, reed canary grass (*Phalaris arundinacea*).

Although Wetland Site 8 still possesses vegetation composition and structure similar to habitats where EPFO has been found, no EPFO individuals were located during surveys. Additionally, many of the non-native species in this community, including reed canary grass, are highly invasive and tend to dispossess and replace native species. This shift from native species to non-natives is advanced in many portions of this remnant sedge meadow.



Signed: _____

14 September 2016
Date: _____

Eric F. Ulaszek
Biological Surveys and Assessment Program, Group Coordinator for Botanical Surveys

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INTRODUCTION

The Illinois Natural History Survey (INHS) received a request from the Illinois Department of Transportation (IDOT) for botanical surveys to be conducted within the IDOT 2016 Illinois Route 47 Eastern Prairie Fringed Orchid Study Area, located in Kane County, IL (**App. 1, Map 1**). The specific request was for surveys to be conducted for *Platanthera leucophaea* (Nutt.) Lindl. (eastern prairie fringed orchid [EPFO]) within Wetland Site 8, which is a 0.7 acre remnant sedge meadow identified during wetland surveys completed in the spring of 2016 (Olnas et al. 2016). The study area occurs approximately 3 miles north of Sugar Grove, IL, and 0.75 mile south of Interstate-88, along the east side of IL Route 47 (**App. 1, Map 1**). Eastern prairie fringed orchid is a species listed as federally threatened and Illinois state endangered (Illinois Endangered Species Protection Board [IESPB] 2015).

METHODS

Surveys for *Platanthera leucophaea* followed the United States Fish and Wildlife Service (USFWS) protocol (<http://www.fws.gov/midwest/endangered/plants/epfo.html>). This protocol requires EPFO surveys to be conducted between 28 June and 11 July. Wetland Site 8 was surveyed on 28 and 30 June, and 6 July 2016.

Throughout surveys a species list was compiled for Wetland Site 8, with the relative abundance of each species recorded. Relative abundance values are used to estimate abundances by individual site, community type and/or the entire study area. Relative abundance values are:

- 1 = very uncommon: very few individuals observed
- 2 = occasional: infrequently observed
- 3 = common: frequently observed
- 4 = abundant: very frequently observed
- 5 = very abundant: community dominant

A Floristic Quality Assessment (FQA) based on Taft et al. (1997) was conducted on Wetland Site 8 to further evaluate and substantiate empirical determinations of community quality. Two components of the FQA that are routinely used to evaluate a particular site include the Floristic Quality Index (FQI) and Mean C-values. Botanical nomenclature follows Taft et al. (1997), and if not specifically stated, scientific names followed by an asterisk (*) throughout this report denote vascular plants that are not native to the region. Community classification and grades of natural quality generally follow White (1978) as recently modified (Illinois Department of Natural Resources 2010), and grades of natural quality are as follows:

Grade A: Very high quality natural community – Community exhibits native species composition, structure, and function with no or very minimal signs of degradation.

Grade B: High quality natural community – Community that has experienced some level of degradation, but community structure and composition are still intact, or have recovered sufficiently to that of a complete and functional community.

Grade C: Medium quality natural community – Community that has experienced moderate to heavy degradation, but has sufficiently recovered its structure, composition and function, or has restoration potential to bring back its structure, composition and function.

Grade D: Low quality natural community – Community that has experienced severe degradation and not recovered its structure, composition and function. Original structure, composition and function typically cannot be restored, but intensive management efforts can improve conditions.

Grade E: Original vegetation community has been altered beyond recovery or removed from the landscape (e.g., areas converted to agricultural production or livestock grazing, areas planted in turf grasses, etc.). Grade E communities are no longer considered natural vegetation communities.

Within these grades, modifiers (+ or -) are sometimes used to further refine the grade, and indicate a slightly higher quality condition (+) within that grade, or a slightly lower quality condition (-).

RESULTS

Eastern Prairie Fringed Orchid

Though Wetland Site 8 possesses vegetation composition and structure similar to habitats where EPFO has been found (Sheviak 1974, Bowles 1983, Swink & Wilhelm 1994), no EPFO individuals were located during surveys.

Description: Wetland Site 8 – Sedge Meadow

The following discussion of native plant species occurring within Wetland Site 8 will include use of the terms conservative, matrix, and ruderal. Definitions of these are as follows:

Conservative Species – those with C-values of 7-10 that have high fidelity to more intact native vegetation communities. When too much degradation has occurred these native species are typically the first to decrease in abundance and/or disappear.

Matrix Species – those with C-values of 4-6 that have high consistency within, and are indicative of, certain community types. These native species usually tolerate higher levels of degradation and persist even when conservatives are sparse or no longer present.

Ruderal Species – those with C-values of 0-3 and often associated with areas that have been highly degraded, especially when the diversity of these species is high and they are abundant to dominant within the community. Although these native species often grow along side conservative species in high quality habitats, the diversity and abundance of these species tends to increase (often dramatically) with increasing disturbance to a community and consequent degradation. Species with C-values 2-3 are sometimes further categorized as Ruderal-competitors; species that compete well for resources and persist.

Wetland Site 8 (**App. 2., Figs. 1 – 2**) is a remnant sedge meadow identified during wetland surveys conducted by INHS during the spring of 2016 (Olnas et al. 2016). This 0.7 acre site is moderately to heavily degraded (Grade C to C-) and located on the east side of IL Route 47, 0.75 mile south of Interstate-88 (**App. 1, Map 1**).

A total of 68 species were observed during surveys, with 54 (79.4%) representing natives and 14 (20.6%) representing non-natives (**App. 3, Table 1**). Of the 54 native species, only four (7.4%) were conservatives, while 21 (38.8%) were matrix species, and the majority (29 [53.7%]) were native ruderals (**App. 3, Table 1**). The native FQI for Wetland Site 8 is 24.4 (21.7 with non-natives) and the native Mean C is 3.3 (2.6 with non-natives) (**App. 3, Table 1**).

The two dominant species throughout this entire community were tussock sedge (*Carex stricta*) and the non-native, reed canary grass (*Phalaris arundinacea*) (**App. 3, Table 1; App 2, Figs. 1 – 2**). In some portions of this community, one or the other of these species dominated, while in other areas, they were intermixed. Common mountain mint (*Pycnanthemum virginianum*) was a localized dominant is scattered areas, especially on the eastern and southeastern margins.

In addition to tussock sedge and common mountain mint, species occurring within this community that are indicators of remnant wetland habitat include (but are not limited to): willow aster (*Aster praealtus*), bulb bittercress (*Cardamine bulbosa*), wooly sedge (*Carex lanuginosa*), blue-fruited dogwood (*Cornus obliqua*), spotted joe pye weed (*Eupatorium maculatum*), sweet grass (*Hierochloe odorata*), marsh vetchling (*Lathyrus palustris*), great blue lobelia (*Lobelia siphilitica*), northern bugle weed (*Lycopus uniflorus*), marsh skullcap (*Scutellaria galericulata*), and prairie cord grass (*Spartina pectinata*) (**see also App. 3, Table 1**).

Of the 14 non-native species observed during surveys, several have the potential to be highly invasive. In addition to the already mentioned reed canary grass, these species include: quack grass (*Agropyron repens*), field thistle (*Cirsium arvense*), cut-leaved teasel (*Dipsacus laciniatus*) showy fly honeysuckle (*Lonicera X bella*), wild parsnip (*Pastinaca sativa*), common buckthorn (*Rhamnus cathartica*), and multiflora rose (*Rosa multiflora*). As mentioned above, reed canary grass has already invaded and taken over large portions of this community (**App. 3, Figs. 1B & 2A**).

CONCLUSION

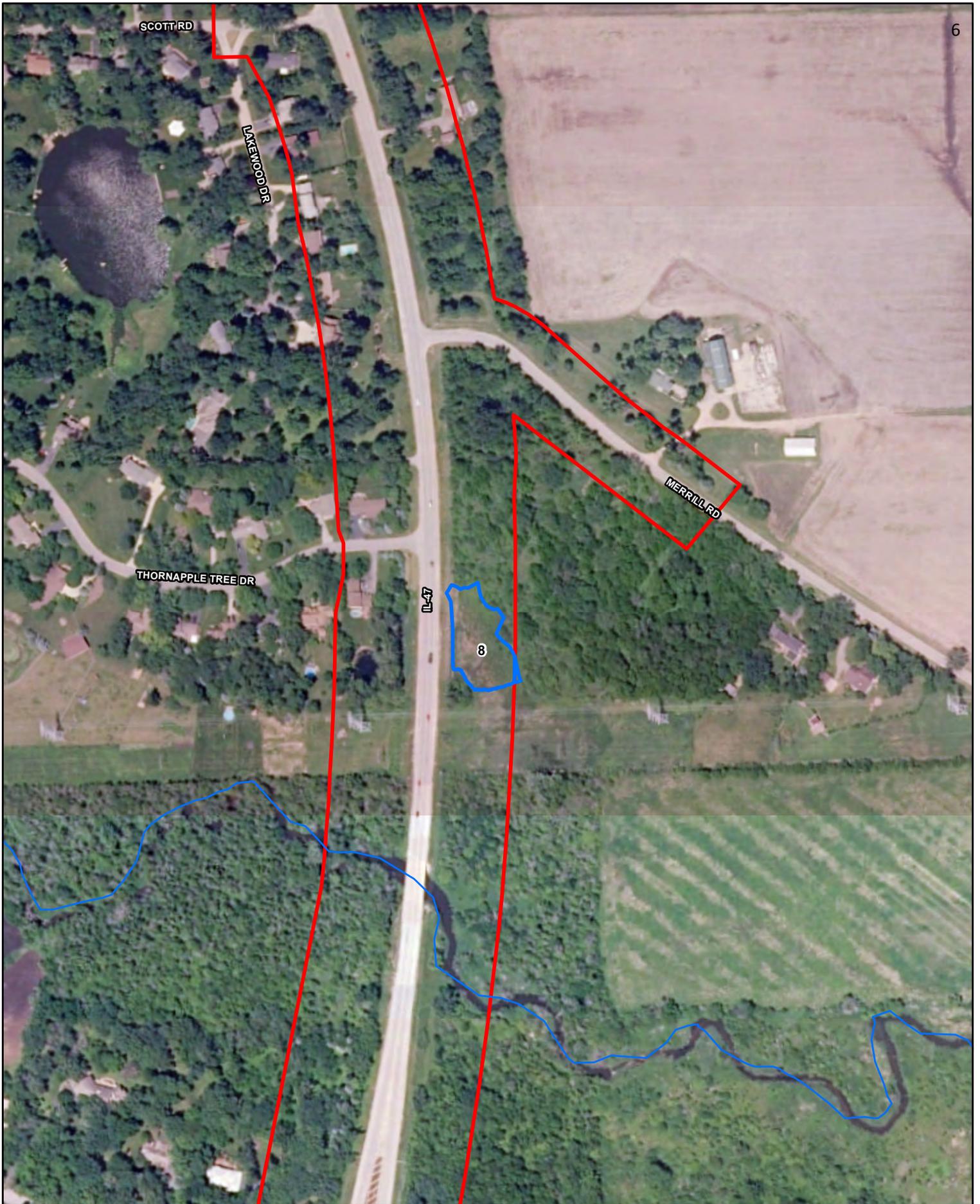
Wetland Site 8, previously identified by the INHS Wetlands Science Program during the spring of 2016, was searched for EPFO during June and July of the 2016 growing season, following protocols of the U.S. Fish and Wildlife Service. Wetland Site 8 is a moderately to heavily degraded remnant sedge meadow, and though it possesses vegetation composition and structure similar to habitats where EPFO has been found, no EPFO individuals were located during surveys.

REFERENCES

- Bowles, M. L. 1983. The tallgrass prairie orchids *Platanthera leucophaea* (Nutt.) Lindl. and *Cypripedium candidum* Muhl. ex Willd.; some aspects of their status, biology, and ecology, and implications toward management. *Natural Areas Journal* 3:14-37.
- Illinois Department of Natural Resources. 2010. The Standards and Guidelines for Illinois Natural Areas Inventory. Natural Areas Program, Division of Natural Heritage, Springfield, IL. 148 pp.
- Illinois Endangered Species Protection Board. 2015. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. 18 pp. Published online at <http://www.dnr.state.il.us/esp/index.htm>
- Olnas, A., J. Tsai, J. Nieset, and D. Skultety. 2016. FAP 326?FAI 88 (IL 47) Kane County, Illinois. INHS/IDOT Wetland Science Program, June 2016. 118 pp.
- Sheviak, C. J. 1974. An introduction to the ecology of the Illinois Orchidaceae. *Illinois State Museum Scientific Papers* 14. 89 pp.
- Swink, F. and G. S. Wilhelm. 1994. *Plants of the Chicago Region*. 4th Edition. Indiana Academy of Science, Indianapolis, Indiana. 921 pp.
- Taft, J. B., G. S. Wilhelm, D. M. Ladd, and L. A. Masters. 1997. Floristic quality assessment for vegetation in Illinois. A method for assessing vegetation integrity. *Erigenia* 15:3-95.
- White, J. 1978. Illinois natural areas inventory technical report. Vol. 1. Survey methods and results. Illinois Natural Areas Inventory, Urbana. 426 pp.

Appendix 1

Maps



Map 1. Aerial image showing boundaries of Wetland Site 8 (Sedge Meadow), in the IDOT 2016 Illinois Route 47 Eastern Prairie Fringed Orchid Study Area, Kane Co., IL.

 Project Boundary  Stream  Wetland Site #8

0 100 200 400 600 feet

N

Jarvis, 9/12/2016

Appendix 2

Figures

Figure 1 A & B. Wetland Site 8 (Sedge Meadow) occurring in the IDOT 2016 Illinois Route 47 Eastern Prairie Fringed Orchid Study Area, Kane Co., IL. **A** - facing northwest, showing the two dominant species; tussock sedge (*Carex stricta*), more prevalent in foreground, and the non-native, reed canary grass (*Phalaris arundinacea*), more prevalent in background. **B** - facing southeast, showing area closer to Route 47 that is nearly completely dominated by reed canary grass.



Figure 2 A & B. Wetland Site 8 (Sedge Meadow) occurring in the IDOT 2016 Illinois Route 47 Eastern Prairie Fringed Orchid Study Area, Kane Co., IL. **A** - standing on east edge of IL Route 47, facing northeast, showing the the degree to which the non-native, reed canary grass (*Phalaris arundinacea*) has invaded this community (note the tan coloration which is comprised of the mature inflorescences). **B** - close up photograph of elevated clump of tussock sedge (*Carex stricta*), the other dominant species at this site (the Japanese digging knife is 12.5 inches in length).



Appendix 3

Tables

Table 1. Floristic quality assessment and cumulative list of vascular plant species occurring in **Wetland Site 8 (Sedge Meadow)**, within the IDOT 2016 Illinois Route 47 Eastern Prairie Fringed Orchid Study Area, Kane County, IL. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = very uncommon, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = biennial, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate non-native species. Species in bold type are community dominants, subdominants or localized dominants.

C	Scientific Name	Physiog.	Common Name	Rel. Abun.
1	<i>Acer negundo</i>	Tree	BOXELDER	1-2
1	<i>Acer saccharinum</i>	Tree	SILVER MAPLE	1
3	<i>Agrimonia gryposepala</i>	P-Forb	TALL AGRIMONY	1-2
0	AGROPYRON REPENS	P-Grass	QUACK GRASS	1-2
0	<i>Agrostis alba</i>	P-Grass	RED TOP	2
4	<i>Anemone virginiana</i>	P-Forb	TALL ANEMONE	2
4	<i>Asclepias incarnata</i>	P-Forb	SWAMP MILKWEED	1-2
0	<i>Asclepias syriaca</i>	P-Forb	COMMON MILKWEED	2
4	<i>Aster praealtus</i>	P-Forb	WILLOW ASTER	2
3	<i>Aster simplex</i>	P-Forb	PANICLED ASTER	2
0	BROMUS INERMIS	P-Grass	HUNGARIAN BROME	1
3	<i>Calamagrostis canadensis</i>	P-Grass	BLUE JOINT GRASS	2
1	<i>Calystegia sepium</i>	P-Forb	AMERICAN BINDWEED	2
5	<i>Cardamine bulbosa</i>	P-Forb	BULB BITTERCRESS	1
4	<i>Carex lanuginosa</i>	P-Sedge	WOOLY SEDGE	2-3
2	<i>Carex molesta</i>	P-Sedge	FIELD OVAL SEDGE	2
5	<i>Carex stricta</i>	P-Sedge	COMMON TUSsock SEDGE	5
3	<i>Carex vulpinoidea</i>	P-Sedge	BROWN FOX SEDGE	2-3
0	CIRSIUM ARVENSE	P-Forb	FIELD THISTLE	2
0	CIRSIUM VULGARE	B-Forb	BULL THISTLE	1-2
4	<i>Cornus obliqua</i>	Shrub	PALE DOGWOOD	2-3
0	DAUCUS CAROTA	B-Forb	QUEEN ANNE'S LACE	1-2
0	DIPSACUS LACINIATUS	B-Forb	CUT-LEAVED TEASEL	1
3	<i>Eleocharis erythropoda</i>	P-Sedge	RED-ROOTED SPIKE RUSH	2
3	<i>Epilobium coloratum</i>	P-Forb	CINNAMON WILLOW HERB	2
0	<i>Equisetum arvense</i>	Fern	COMMON HORSETAIL	2
2	<i>Erechtites hieracifolia</i>	A-Forb	FIREWEED	1-2
3	<i>Erigeron philadelphicus</i>	P-Forb	MARSH FLEABANE	1-2
5	<i>Eupatorium maculatum</i>	P-Forb	SPOTTED JOE PYE WEED	1-2
7	<i>Gentiana andrewsii</i>	P-Forb	CLOSED GENTIAN	1
2	<i>Geum canadense</i>	P-Forb	WHITE AVENS	1
1	<i>Hackelia virginiana</i>	P-Forb	STICKSEED	2
4	<i>Heliopsis helianthoides</i>	P-Forb	FALSE SUNFLOWER	1

Table 1 continued

C	Scientific Name	Physiog.	Common Name	Rel. Abun.
7	Hierochloe odorata	P-Grass	SWEET GRASS	2
5	Iris shrevei	P-Forb	SOUTHERN BLUE FLAG	1-2
4	Juglans nigra	Tree	BLACK WALNUT	2
4	Juncus dudleyi	P-Forb	DUDLEY'S RUSH	2-3
0	LACTUCA SERRIOLA	B-Forb	PRICKLY LETTUCE	1
7	Lathyrus palustris	P-Forb	MARSH VETCHLING	1-2
4	Lobelia siphilitica	P-Forb	GREAT BLUE LOBELIA	1-2
0	LONICERA X BELLA	Shrub	SHOWY FLY HONEYSUCKLE	1-2
3	Lycopus americanus	P-Forb	COMMON WATER HOREHOUND	2
7	Lycopus uniflorus	P-Forb	NOTHERN BUGLE WEED	1
5	Lythrum alatum	P-Forb	WINGED LOOSESTRIFE	1
4	Mentha arvensis v. villosa	P-Forb	WILD MINT	1-2
1	Oenothera biennis	B-Forb	COMMON EVENING PRIMROSE	1
2	Parthenocissus quinquefolia	W-Vine	VIRGINIA CREEPER	2
0	PASTINACA SATIVA	B-Forb	WILD PARSNIP	2
0	PHALARIS ARUNDINACEA	P-Grass	REED CANARY GRASS	4-5
0	POA PRATENSIS	P-Grass	KENTUCKY BLUE GRASS	2
3	Polygonum amphibium	P-Forb	WATER KNOTWEED	2
2	Polygonum scandens	H-Vine	CLIMBING FALSE BUCKWHEAT	1-2
5	Pycnanthemum virginianum	P-Forb	COMMON MOUNTAIN MINT	3-4
0	RHAMNUS CATHARTICA	Shrub	COMMON BUCKTHORN	2
0	ROSA MULTIFLORA	Shrub	JAPANESE ROSE	1
4	Scirpus atrovirens	P-Sedge	DARK GREEN RUSH	2
3	Scirpus pendulus	P-Sedge	RED BULRUSH	1-2
6	Scutellaria galericulata	P-Forb	MARSH SKULLCAP	2
4	Smilax lasioneuron	H-Vine	COMMON CARRION FLOWER	1
1	Solidago canadensis	P-Forb	CANADA GOLDENROD	3
3	Solidago gigantea	P-Forb	LATE GOLDENROD	2
4	Spartina pectinata	P-Grass	PRAIRIE CORD GRASS	2
5	Stachys palustris	P-Forb	WOUNDWORT	2-3
3	Teucrium canadense v. virginicum	P-Forb	AMERICAN GERMANDER	2-3
1	Toxicodendron radicans	W-Vine	POISON IVY	2
0	VERBASCUM THAPSUS	B-Forb	WOOLLY MULLEIN	1
3	Verbena hastata	P-Forb	BLUE VERVAIN	2
2	Vitis riparia	W-Vine	RIVERBANK GRAPE	2-3

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Illinois Natural History Survey Survey and Habitat Assessment for Blanding's Turtle



Survey and Habitat Assessment for Blanding's Turtle, *Emydoidea blandingii*, along Illinois Route 47 (IDOT FAP 326 / FAI 88), in Kane County, Illinois

IDOT Job No. P-91-015-14; Sequence No. 19435



Prepared by:
Andrew R. Kuhns

INHS/IDOT Statewide Biological Survey & Assessment Program

2016: 63

29 August 2016



PROJECT SUMMARY

This report details results of herpetological surveys for the Blanding's Turtle, *Emydoidea blandingii*, as part of a Phase 1 study to add full access to the Illinois Route 47 (IDOT FAP 326 interchange with Interstate 88 (IDOT FAI 88) near Elburn, Kane County, Illinois. Information on the natural history and ecology of the Blanding's Turtle, the only threatened or endangered herptile known from near the project area, can be found in **Appendix A**. A survey was conducted by INHS Further Studies Herpetologist A.R. Kuhns from 08 — 10 August 2016 under IDNR State Threatened and Endangered Species Permit 05-11S. Survey methods are detailed in **Appendix B** and are approved under University of Illinois IACUC protocol 16-057. The project corridor and locations of surveys can be seen in **Appendix C**. Images of the proposed project area and adjacent habitat can be found in **Appendix D**. The spatial data shown in **Appendix C** were digitally uploaded to the Further Studies Illinois Site Assessment Tracking System (http://frostycap.isgs.uiuc.edu/idot_extranet/further_studies) on 29 August 2016, and are herein referenced as **Appendix E**. No threatened or endangered herpetofauna were encountered during the surveys, and no suitable habitat for the species was documented in the project area.



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Cover Photo: Snapping Turtle, *Chelydra serpentina*, captured from the unnamed tributary of Blackberry Creek passing under Illinois Route 47, near Elburn, Kane County, Illinois on 09 August 2016; photograph by A.R. Kuhns, INHS.

INTRODUCTION

In a transmittal dated 26 July 2016, Janel Veile of the Illinois Department of Transportation (IDOT) Bureau of Design and Environment tasked the Illinois Natural History Survey (INHS) to conduct herpetological surveys for the presence of the Blanding's Turtle for road improvements by IDOT (Job No. P-91-015-14; Sequence No. 19435) to the Illinois Route 47 (IDOT FAP 326) and Interstate 88 (IDOT FAI 88) interchange. Information on the natural history and ecology of the Blanding's Turtle can be found in **Appendix A**.

PROJECT AREA

This project is located between Elburn and Sugar Grove, IL at the intersection of Illinois Route 47 (IDOT FAP 326) and Interstate 88 (IDOT FAI 88) in Township 39N, Range 7E, sections 29 & 32 and Township 38, Range 7 East, section 5 of the USGS 1:24000 scale Sugar Grove, IL Quadrangle (**Appendix C: Figure C.1**). Most of the project will occur within the current Right of Way (ROW) although the acquisition of additional ROW is anticipated. The Environmental Survey Request (ESR) area extends from 150' up to 300' beyond the current Illinois Route 47 and Interstate 88 centerlines but is variable in width for some of the side streets.

METHODS

Database Review

The Illinois Natural Heritage Database maintained by the Illinois Department of Natural Resources (IDNR) was queried for Element Occurrence Records (EOR) of threatened and endangered amphibians and reptiles within a mile of the project boundary. Each EOR may be subdivided into multiple Element of Occurrence Identification numbers (EOID) to record separate identification events or sub-locations. Additionally, a search of both vouchered and un-vouchered specimens in the Illinois Natural History Survey (INHS), University of Illinois Museum of Natural History (UIMNH), and non-INHS Illinois Amphibian and Reptile databases maintained by the Illinois Natural History Survey was conducted. Together these databases are merged and accessed through the All_IL_Herps database at INHS and are updated semi-annually. The locations of any results were plotted onto aerial photographs of the ESR corridor and examined to search for suitable habitat for the species (**Appendix C, Figure C.1**).

Field Methods

Topographic maps, satellite maps, and Google maps indicated several potential wetlands and stream crossings (Blackberry Creek drainage) within the project area (**Appendix C. Figure C.2**). This was confirmed by a visit to the site on 08 August 2016, by INHS Further Studies Herpetologist A.R. Kuhns. Six aquatic sites were identified and examined for habitat suitability for the Blanding's Turtle in the ESR area (**Appendix C. Figure C.1; Appendix D**). Three sites were lentic systems and three were lotic (**Appendix C. Figure C.2. Appendix D**). On 08 August 2016, two double-throated hoop traps, each baited with sardines in oil, were placed at each of the

three lotic sites – one trap on each side of the road (**Appendix C. Figure C.2; Appendix D, Plates 1 - 6**). Traps were checked on 09 and 10 August 2016 before being pulled. Additional information on trapping methods can be found in **Appendix B**. The habitats at all three lentic systems (**Appendix C., Figure C.2; Appendix D, Plates 7 – 9**) were un-trappable (See discussion).

RESULTS

Database Review

There is one Element Occurrence Records for the Blanding's Turtle within one mile of the project area (**Appendix C., Figure C.1**). EOID 4920 is located at Blackberry Maples Forest Preserve along Main Street Road, approximately 0.5 mile north of the project area. The only reported observation occurred on 15 June 1999.

Field Surveys

Two Common Snapping Turtles, *Chelydra serpentina*, were captured on 09 August 2016 in Trap C (**Appendix C. Figure C.2**). The turtles were photographed and released at the site of capture. No Blanding's Turtles were detected and no suitable habitat for the species was found within the project area.

DISCUSSION

For this survey, six aquatic sites within the project boundary were identified and examined for habitat suitability for the Blanding's Turtle, *Emydoidea blandingii*. The three lentic sites were not trapped for various reasons. The first lentic site was a small, ornamental pond with a fountain located just north of Blackberry Creek in a privately owned, manicured yard (**Appendix C. Figure C.2; Appendix D, Plate 7**). Due to its small size and manicured habitat it was deemed unsuitable and thus not trapped. The second lentic site, a wetland, located along the edge of Seavey Road just south of Interstate 88, was dry during the sampling session but was also deemed unsuitable for trapping because it occurs within a field utilized for row crop agricultural production (**Appendix C. Figure C.2; Appendix D, Plate 8**). The third lentic site was a degraded wetland located near Green Road, on the west side of Illinois Route 47 (**Appendix C. Figure C.2; Appendix D, Plate 9**). While the wetland is rather large, it is choked with invasive vegetation leaving no open water and no open canopy for basking (**Appendix D. Plate 9**). There was no open water to trap during the survey, and the water level during the survey period was too shallow to submerge the trap throats, thus no trapping was attempted.

Lotic systems are not typical habitat for Blanding's Turtles, although they may be used for movements between other more suitable sites (**Appendix A**). As the three lotic sites were the only trappable water within the project area at the time of the surveys, each crossing was sampled for two nights. Given the habitat present, it was not surprising that only Snapping Turtles were captured during this survey. Snapping Turtles are habitat generalists that survive and thrive in habitats where more specialized species such as Blanding's Turtles cannot. In

conclusion, this survey failed to detect Blanding's Turtles, nor was habitat suitable to maintain a population of the species evident.

APPENDIX A.

Natural History of the Blanding's Turtle, *Emydoidea blandingii*, Listed as Endangered in the State of Illinois.

SYNOPSIS

This appendix contains information on the Blanding's Turtle, *Emydoidea blandingii*, a species listed as endangered in the State of Illinois that may be present within the Illinois Route 47 (IDOT FAP 326 / FAI 88) project area. The species account includes: diagnostic characters, range in Illinois, habitat requirements, spatial ecology and activity, reproduction, and the suitable sampling season in Illinois. Standard and scientific names follow Crother (2012).

Species range maps were created by Ethan J. Kessler. Maps were based upon data in the Illinois Natural History Survey's All_IL_Herps Database which contains records of vouchered and un-vouchered specimens in the Illinois Natural History Survey (INHS), University of Illinois Museum of Natural History (UIMNH), and amphibian and reptile specimens from ~30 other scientific museums. The database is maintained by INHS/UIMNH Amphibian and Reptile Curator, Christopher A. Phillips, with records from other institutions updated annually.

LITERATURE CITED

Crother, B.I. 2012. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. 7th Edition. SSAR Herpetological Circular. 39: 1–101.

BLANDING’S TURTLE, *EMYDOIDEA BLANDINGII*



General Description for Identification: The Blanding’s Turtle is distinguishable from other North American turtle species by the presence of a hinged plastron coupled with a bright yellow chin and throat (Ernst et al. 1994).

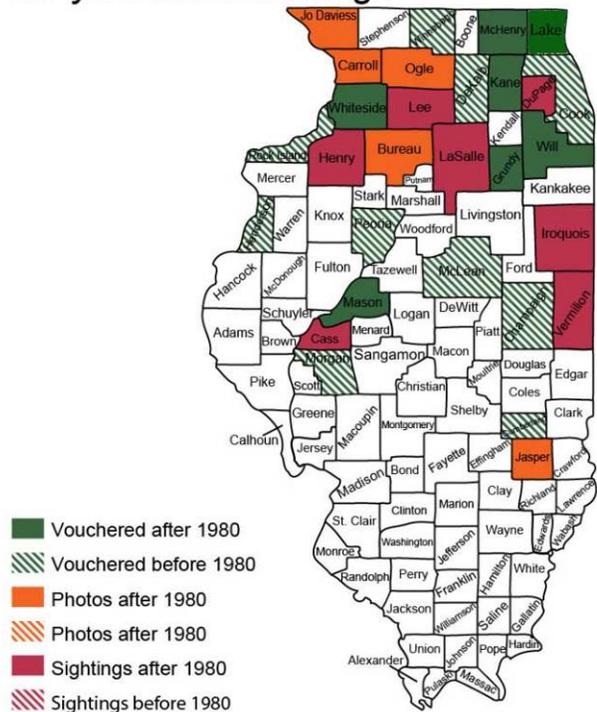
Range:

Within Illinois, *E. blandingii* was historically present in the extensive marsh systems of the northern half of the state (Kennicott 1855).

Suitable Habitat: Throughout their range, *E. blandingii* occupy eutrophic habitats with clear water and abundant aquatic vegetation with adjacent uplands available for nesting (Ernst et al. 1994). Typical Blanding’s Turtle sites in northeastern Illinois are a mosaic of multiple wetland types interspersed in a prairie or savanna landscape (Kuhns et al. 2007). Blanding’s Turtles are not great swimmers and typically prefer shallow wetlands with little to no discernable water flow.

Reproduction: Blanding’s Turtles are long lived, with wild-caught individuals over 77 years of age having been documented in the field (Congdon et al. 2001). Females typically mature

Blanding’s Turtle *Emydoidea blandingii*



between 14 and 20 years of age (Congdon et al. 1983; Ross 1989). Mature females lay only one clutch of eggs per year but may not nest annually. Nests of up to 19 eggs are laid in sand or sandy loam soils with good drainage and low canopy cover (Ross and Anderson 1990; Kuhns et al. 2007).

Spatial ecology and activity: Blanding's turtles in northern Illinois are active from late March through October (Rowe and Moll 1991; Kuhns et al. 2007). Females can travel considerable distances (up to 1 mi.) from their activity areas to nest (Congdon et al. 1983; Ross and Anderson 1990; Joyal et al. 2001; Kuhns et al. 2007). Radio-telemetry data from northeastern Illinois indicate that Blanding's Turtles moved an average straight-line distance of 60 to 75 feet/day (Kuhns et al 2007). Annual home range size is highly variable depending on individuals but in northern Illinois averaged 123,000 sq. ft. to 150000 sq. ft. (Kuhns et al. 2007).

Suitable Sampling Seasons: The greatest trapping success in northern Illinois occurs from May through mid-July (Benda et al. 2007, Kuhns et al. 2007).

Illinois Status: The Blanding's Turtle is considered endangered in Illinois (Illinois Endangered Species Protection Board 2015; Mankowski 2012).

Literature Cited

- Benda, C.D., A.R. Kuhns, and C.A. Phillips. 2007. Population and spatial ecology of Blanding's Turtles in northeastern Lake County with feasibility of initiating a head-starting program. INHS Technical Report 2007(4): vii+1-104.
- Congdon, J.D., D.W. Tinkle, G.L. Breitenbach, and R.C. van Loben Sels. 1983. Nesting ecology and hatching success in the turtle *Emydoidea blandingii*. *Herpetologica* 39:417-429.
- Congdon, J.D., R.D. Nagle, O.M. Kinney and, R.C. van Loben Sels. 2001. Hypotheses of aging in a long-lived vertebrate, Blanding's turtle (*Emydoidea blandingii*). *Experimental Gerontology* 36: 813-827.
- Ernst, C.H., R.W. Barbour, and J.E. Lovich. 1994. *Turtles of the United States and Canada*. Smithsonian Institution Press, Washington DC. p. 578.
- Illinois Endangered Species Protection Board. 2015. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. pp. 18. Published online at <http://dnr.state.il.us/iespb/index.htm>
- Joyal, L.A., M. McCollough, and M.L. Hunter. 2001. Landscape ecology approaches to wetland species conservation: a case study of two turtle species in southern Maine. *Conservation Biology* 15: 1755-1762.
- Kennicott, R. 1855. Catalogue of animals observed in Cook County, Illinois. Illinois State Agricultural Society Transactions for 1853-1854. 1:577-595.
- Kuhns, A.R., W.J. Banning, M.J. Dreslik, and C.A. Phillips. 2007. Ecology of the state threatened Blanding's Turtle, *Emydoidea blandingii*, in the Chicago wilderness area. INHS Technical Bulletin 2007(23):1-115+iii.
- Mankowski, A. 2012. The Illinois Endangered Species Protection Act at Forty: a review of the Act's provisions and the Illinois List of Endangered and Threatened Species. Illinois

Endangered Species Protection Board, Springfield, IL. 152 pp. Published online at:
<http://www.dnr.illinois.gov/ESPB/Pages/default.aspx>.

Phillips, C.A., R.A. Brandon, and E.O. Moll. 1999. Field Guide to Amphibians and Reptiles of Illinois. Illinois Natural History Survey Manual 8: 1-282.

Ross, D.A. 1989. Population ecology of painted and Blanding's turtles (*Chrysemys picta* and *Emydoidea blandingi*) in central Wisconsin. Transactions of the Wisconsin Academy of Sciences Arts and Letters 77: 77-84.

Ross, D.A. and R.K. Anderson. 1990. Habitat use, movements, and nesting of *Emydoidea blandingi* in central Wisconsin. Journal of Herpetology 24: 6-12.

Rowe, J.W. and E.O. Moll. 1991. A radiotelemetric study of activity and movements of the Blanding's Turtle (*Emydoidea blandingii*) in northeastern Illinois. Journal of Herpetology 25: 178-185.

APPENDIX B

Sampling methods appropriate for the detection of amphibians and reptiles listed as endangered or threatened in the state of Illinois.

Table B.1. Species of amphibians and reptiles listed as threatened or endangered in Illinois and

		Threatened	Endangered	Dip-Net	Minnow Trap	Call Survey	Visual Encounter	Hoop Trap	Fyke Net	Seine	Drift Fence	Coverboard	
State Listed Herptiles													
AMPHIBIANS	SALIENTIA	<i>Ambystoma jeffersonianum</i>	X										
		<i>Ambystoma platineum</i>		X									
		<i>Cryptobranchus alleganiensis</i>		X									
		<i>Desmognathus conanti</i>		X									
		<i>Hemidactylium scutatum</i>	X										
		<i>Necturus maculosus</i>	X										
	ANURA	<i>Hyla avivoca</i>		X									
		<i>Pseudacris streckerii</i>		X									
		<i>Gastrophryne carolinensis</i>	X										
REPTILES	TESTUDINES	<i>Apalone mutica</i>		X									
		<i>Clemmys guttata</i>		X									
		<i>Emydoidea blandingii</i>		X									
		<i>Kinosternon flavescens</i>		X									
		<i>Macrochelys temminckii</i>		X									
		<i>Pseudemys concinna</i>		X									
		<i>Terrapene ornata</i>	X										
	SERPENTES	<i>Clonophis kirtlandii</i>	X										
		<i>Crotalus horridus</i>	X										
		<i>Pantherophis emoryi</i>		X									
		<i>Heterodon nasicus</i>	X										
		<i>Masticophis flagellum</i>		X									
		<i>Nerodia fasciata</i>		X									
		<i>Nerodia cyclopion</i>	X										
		<i>Sistrurus catenatus</i>		X									
<i>Tantilla gracilis</i>	X												
<i>Thamnophis sauritus</i>	X												
<i>Tropidoclonion lineatum</i>	X												

potential sampling methods for their detection.

Sampling Methods for the Detection of State Listed Amphibians and Reptiles in Illinois

ACTIVE SAMPLING METHODS

Call Survey. This method is only effective for anurans during the breeding season. The researcher either visits wetlands in the evening hours to listen to the frog chorus, or places an audio recording device at the wetland during the day and returns the following morning to retrieve the recording. In either case, the researcher must be familiar with the calls of frogs and toads in the area in order to identify the species based only upon the calls in the chorus. To be effective, the researcher must also be familiar with the ecology of the target species and sample during its breeding season in habitats where it is likely to reside.

Dip Netting. A dip net is useful for sampling aquatic animals and can be used to capture individuals observed or as a means of blindly sampling for aquatic organisms in vegetation choked or turbid water. Typically, a researcher will pull the net along the substrate and through the water column for approximately 3 feet, and then finish the net sweep by pulling the net up and out of the water with the net opening facing upward. The researcher can then remove any substrate or detritus from the net and search for captured animals.

Seine. A seine is a fishing net that hangs vertically in the water column suspended by floats with the bottom edge held down by weights. The net is dragged along the bottom of aquatic habitats and captures aquatic amphibians and reptiles when it is drawn onto shore or scooped out of the water. In many ways, it functions much like a large dip net when used for amphibian and reptile sampling.

Visual Encounter Survey (VES). Visual encounter surveys involve searching appropriate habitat (mainly turning cover items such as logs, rocks and miscellaneous debris and also visually scanning open habitats) and recording all species encountered. Surveys can be regimented such as by walking pre-defined grid patterns and time limits, or in a more haphazard wandering pattern. This method is most effective if the researcher is familiar with the target species ecology and can focus on habitat areas where the species is most likely to be encountered, as well as time of day and seasons when the species is most active. A thorough explanation of this technique can be found in Heyer et al. (1994).

PASSIVE SAMPLING METHODS

Drift Fence. A drift fence is any object that is placed perpendicular to the ground surface as a way to intercept animals that may be passing through. It is often constructed of hardware cloth or silt fencing buried a few inches into the ground to prevent burrowing; but natural cover items such as large logs or rock formations may also function as a drift fence. Animals are captured by

travelling parallel to the fence until they fall into a receptacle, such as a bucket or coffee can, which has been buried flush with the substrate. Similarly, funnel traps can be placed along the drift fence to capture animals that are walking along the fence. This technique is covered in Heyer et al. (1994) and McDairmid et al. (2012).

Coverboards. Coverboards are essentially any item sitting flush with the substrate under which an amphibian or reptile may seek refuge. Artificial coverboards are often made of plywood or corrugated tin and are placed in areas likely to harbor the species of interest. Coverboards often attract small mammals and invertebrates as well, which may enhance their ability to attract amphibians and reptiles. Well-seasoned artificial cover objects with little vegetation underneath them seem to work better in attracting herptiles, therefore their use most effective for long term projects when they can be set out many months in advance of surveys.

Minnow Trap. Traps may be constructed of rope, monofilament, or steel and may have funnels or throats, at one or both ends, which allow the animal to enter into the trap body but prevent them from easily exiting the trap. Minnow traps may be cylindrical or rectangular and can be baited or not depending on the target species. If baited, the bait is refreshed every 2 to 4 days. Traps are usually placed so that a portion of the trap placed in water is emergent so that captured animals have access to air and will not drown. However, in riverine environments, where there is little to no probability of capturing non-gilled species, the traps may be fully submerged. Effort is recorded in trap hours (i.e., number of traps multiplied by the number of hours the traps were deployed). Results are reported as the numbers of each species captured.

Hoop Trap. These traps work on the same principal as minnow traps but are larger in diameter and have larger throats to allow for the capture of larger animals such as turtles (Legler 1960). All hoop traps are placed such that at least 5cm of the trap is above the surface of the water to ensure captured turtles have access to air. Traps are tied via string or rope to surrounding vegetation to ensure that captured turtles do not roll traps into deeper water and drown. Traps are placed parallel to either the shoreline or potential basking sites. Traps are baited (usually with sardines canned in spring water or oil). Traps are checked daily and bait is changed every 2 to 4 days. Effort is recorded in trap hours (i.e., number of traps multiplied by the number of hours the traps were deployed). Results are reported as the numbers of each species captured.

Fyke Net. This trapping method is essentially a combination of a Drift Fence and a Hoop Trap. It consists of a hoop trap body with a single throat, and long wings and a lead that extend out from the throat in a double V formation (**Figure B.1**). Wings and leads have a lead-line that makes them hang vertically in the water column. This essentially extends the reach of the throat and works well for turtle species that are not attracted to readily available baits. It can be used to intercept turtles entering a cove or attempting to access a popular basking site, by funneling them into the trap body where the throat prevents them from escaping. A description of Fyke Nets can be found in Vogt (1980).

LITERATURE CITED

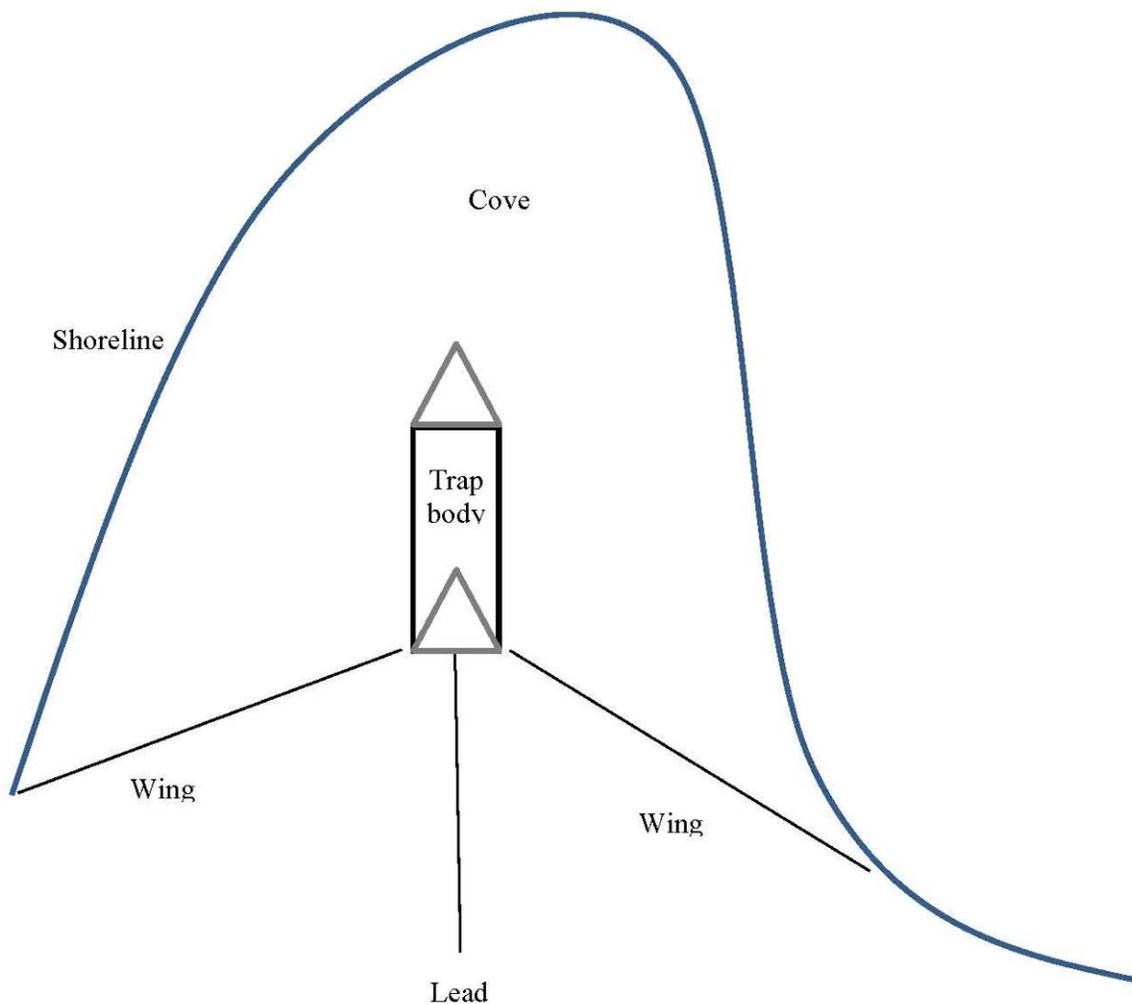
Heyer, W.R., M.A. Donnelly, R.W. McDiarmid, L.C. Hayek and M.S. Foster, eds. 1994. *Measuring and Monitoring Biodiversity: Standard methods for amphibians*. Smithsonian Institution Press, Washington D.C. 364 pp.

Legler, J.M. 1960. A simple and inexpensive device for trapping aquatic turtles. *Proceedings of the Utah Academy of Sciences, Arts and Letters* 37: 63-66.

McDiarmid, R.W., M.S. Foster, C. Guyer, J.W. Gibbons, and N. Chernoff. Eds. 2012. *Reptile Biodiversity: Standard Methods for Inventory and Monitoring*. University of California Press. Berkeley. 412 pp.

Vogt, R.C. 1980. New methods for trapping aquatic turtles. *Copeia* 1980:368-371.

Figure B.1. Fyke Net set to capture turtles attempting to enter a cove (as viewed from above).



APPENDIX C

Figures relevant to Illinois Route 47 / Interstate Tollway 88 (IDOT FAP 326 / FAI 88) project (IDOT Job No. P-91-015-14; Sequence No. 19435) in Kane County, Illinois

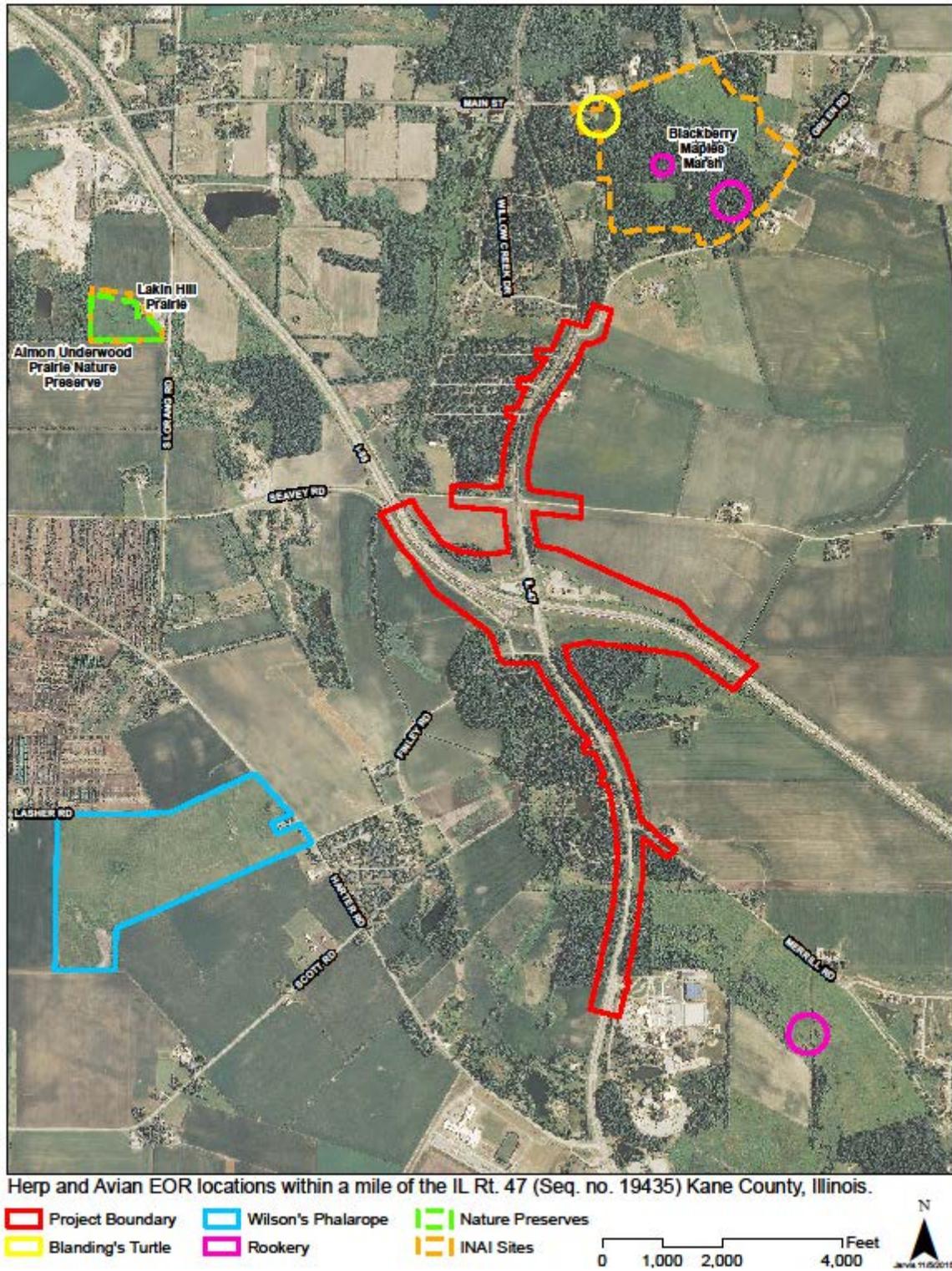
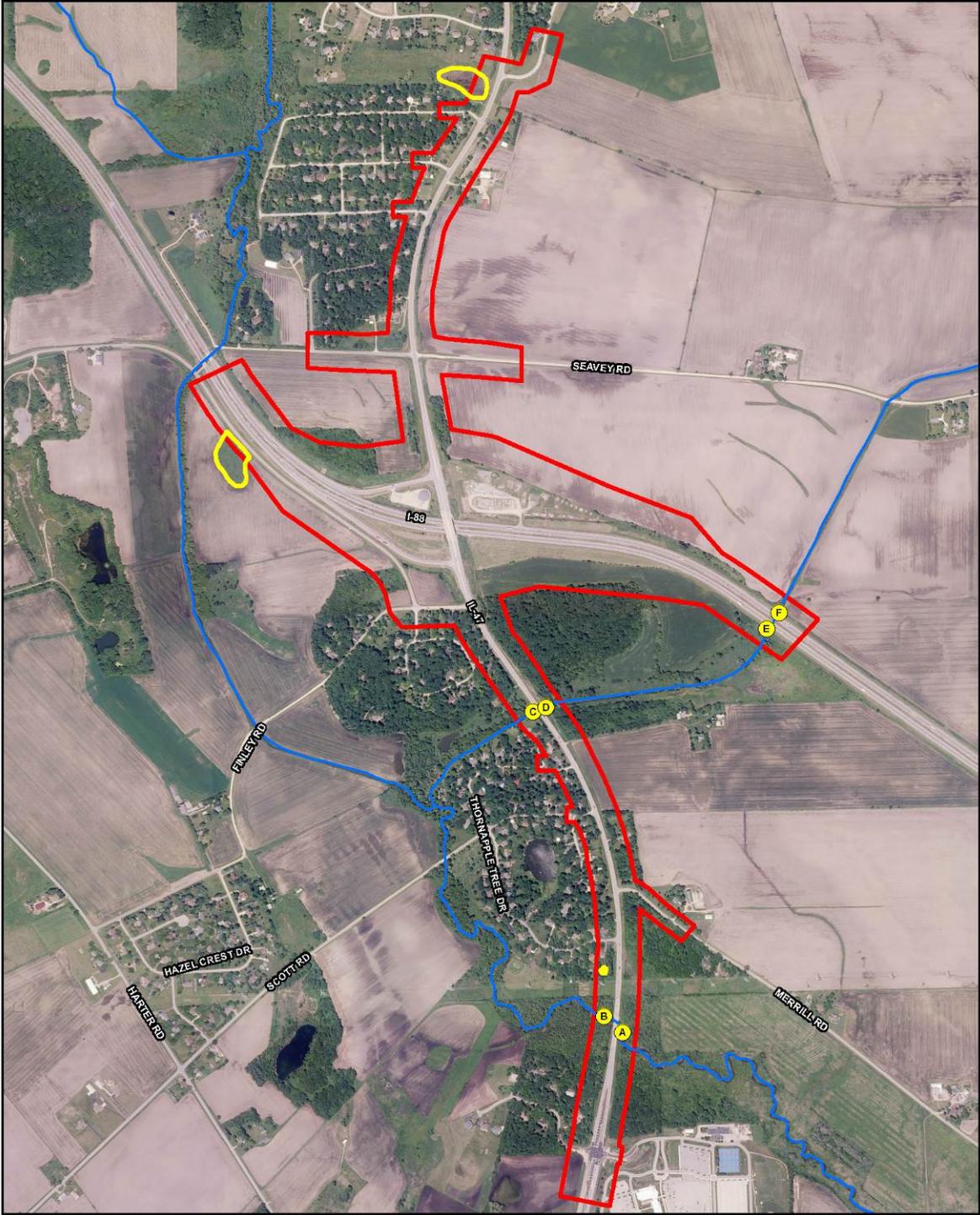


Figure C.1. Project boundary and Element Occurrence Record for Illinois Route 47 (IDOT FAP 326/FAI 88; IDOT Job No. P-91-015-14; Sequence No. 19435) interchange improvement in Kane County, Illinois.



Blanding's turtle survey areas near the IL 47/I 88 Interchange (Sequence no. 19435) Kane County, Illinois



Figure C.2 Project boundary and surveyed locations for Illinois Route 47 (IDOT FAP 326 / FAI 88; IDOT Job No. P-91-015-14; Sequence No. 19435) interchange improvement in Kane County, Illinois.

APPENDIX D

Plates relevant to Illinois Route 47 / Interstate Tollway 88 (IDOT FAP 326 / FAI 88) project (IDOT Job No. P-91-015-14; Sequence No. 19435) in Kane County, Illinois



Plate 1. Blackberry Creek facing downstream / southeast from the Illinois Route 47 (IDOT FAP 326) Bridge; photograph by A.R. Kuhns, INHS.



Plate 2. Blackberry Creek facing upstream / west of the Illinois Route 47 (IDOT FAP 326) Bridge; photograph by A.R. Kuhns, INHS.



Plate 3. Unnamed branch of Blackberry Creek facing upstream / east from the Illinois Route 47 (IDOT FAP 326) culvert; photograph by A.R. Kuhns, INHS.



Plate 4. Unnamed Branch of Blackberry downstream / west of the Illinois Route 47 (IDOT FAP 326) culvert. Two Snapping Turtle were captured at this location; photograph by A.R. Kuhns, INHS.



Plate 5. Unnamed branch of Blackberry Creek, facing downstream / south from Illinois Tollway 88 (IDOT FAI 88); photograph by A.R. Kuhns, INHS.



Plate 6. Unnamed branch of Blackberry Creek, facing upstream / north from Illinois Tollway 88 (IDOT FAI 88); photograph by A.R. Kuhns, INHS.



Plate 7. Facing west towards small pond in manicured lawn, located north of Blackberry Creek on the west side of Illinois Route 47 (IDOT FAP 326), Kane County, Illinois; photograph by A.R. Kuhns, INHS.



Plate 8. Facing east-southeast across dry wetland along south side of Seavey Rd., Elburn, Kane County, Illinois; photograph by A.R. Kuhns, INHS.



Plate 9. Wetland at intersection of Illinois Route 47 and Green Road, Elburn, Illinois. This wetland was holding some water but was unsuitable for Blanding's Turtles; photograph facing west. The lower images show the lack of open water (left) and invasive vegetation (right).

APPENDIX E

Arc-GIS Shapefiles

An ArcGIS folder <19435_Kane_Herp_Report.zip > containing an Arc-GIS shapefile of the sampled area constitutes this appendix. The ArcGIS shapefile and this report were both submitted to IDOT via the IDOT Site Assessment Tracking System extranet website [Frostycap] on 29 August 2016.

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Illinois Natural History Survey Survey for Fishes in Blackberry Creek



Survey for Fishes in Blackberry Creek at the Illinois Route 47 (IDOT FAP 326) Bridge, Kane County, Illinois

IDOT Sequence No. 19435



Prepared by:
Jeremy S. Tiemann and Andrew R. Kuhns

INHS/IDOT Statewide Biological Survey & Assessment Program
Program Report 2016:119

7 September 2016



PROJECT SUMMARY

This report is submitted in response to a request from IDOT to INHS to conduct a three-parameter survey (fish, macroinvertebrates, and water quality) in Blackberry Creek (Fox River drainage) at the Illinois Route 47 (IDOT FAP 326) bridge, Kane County, Illinois. We conducted the fish survey on 10 August 2016 by pull-seining and kick-seining for 1 hour (240 yards, or 20x wetted width sampled). During that survey, we captured 13 common (=non-listed) fish species. None of the fishes collected are listed as threatened or endangered at the federal or state level, nor are they candidates for listing in Illinois.

A separate report will summarize the results of the survey for aquatic macroinvertebrates, the values recorded during measurement of physical and chemical water quality parameters in the field and those resulting from laboratory analyses for physicochemical constituents of raw water samples collected in the field.



Report Approved By: Kevin Cummings, Further Studies Aquatics
Group Coordinator-Malacologist

Surveys Conducted By: Jeremy S. Tiemann, Aquatic Zoologist
Andrew R. Kuhns, Herpetologist

Edited by: Mark J. Wetzel, INHS Research Affiliate

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Cover photo: Blackberry Creek (Fox River drainage) at the Illinois Route 47 (IDOT FAP 326) bridge, approximately 4 miles SE Kaneville, Kane County, Illinois (Latitude 41.80460° N, Longitude 88.46055°W) on 10 August 2016. Picture facing upstream in a westerly direction (J.S. Tiemann photo).

INTRODUCTION

This report is submitted in response to a request made by Janel Veile of IDOT to Wendy Schelsky of INHS, dated 29 July 2016, for a three-parameter water survey which includes fish, macroinvertebrates, and water quality (after a snow event), in Blackberry Creek (Fox River drainage) at the Illinois Route 47 (FAP 326) / Interstate 88 (FAI 88) interchange, Kane County, Illinois [IDOT Sequence Number 19435; INHS Project No. FS-951]. In this report, we summarize the results of the fish survey conducted in the vicinity of the Illinois Route 47 (FAP 326) bridge by INHS personnel on 10 August 2016.

A separate report summarizing the results of the survey for aquatic macroinvertebrates, the values recorded during measurement of physical and chemical water quality parameters in the field and those resulting from laboratory analyses for physicochemical constituents of raw water samples collected in the field will be forthcoming.

PROJECT LOCATION

The project area includes Blackberry Creek (Fox River drainage) at the Illinois Route 47 (FAP 326) / Interstate 88 (FAI 88) interchange, approximately 4 miles SE Kaneville, Kane County (Latitude 41.80460°N, Longitude 88.46055°W; Second Principal Meridian: Township 38N Range 7E, Section 5) (**Figure 1**). Blackberry Creek flows in a southeasterly direction at this location.

Appendix 1 references a shapefile with sampling point information for the stream crossing, as discussed in this report.

HABITAT CHARACTERIZATION

During our site visit on 10 August 2016 to conduct surveys for fishes, Blackberry Creek at the Illinois Route 47 (FAP 326) bridge (**Cover Photo**) was approximately 12 yards wide and <3 feet deep with minimal flow. Stream substrates were primarily sand and gravel with some cobble and silt; some woody debris was present along the stream edge, but none established aquatic vegetation was observed (**Figure 2**). The stream banks were lined with trees and grasses.

BACKGROUND

The Blackberry Creek basin is located in northwest Kendall and southwest Kane counties. Land use in the 75 square-mile watershed is approximately 50% agricultural and 50% urban. The basin is within one of the fastest growing urban areas in Illinois, and covers portions of the Aurora, Batavia, Elburn, Oswego, Sugar Grove and Yorkville urban and suburban areas.

Nearly 50 species of fishes have been reported from Blackberry Creek (INHS Fish Collection, Champaign), and all are common inhabitants of northern Illinois streams (Smith, 1979). None of the fish species reported from the Blackberry Creek drainage are listed as endangered or threatened at the state or federal level, nor are any currently under consideration for such listing (IESPB, 2015). It appears that this 2016 survey for fishes was the first to be conducted in Blackberry Creek at the Illinois Route 47 (FAP 326) bridge, south of the Interstate 88 (FAI 88) interchange.

METHODS

A survey for fishes was conducted in Blackberry Creek at the Illinois Route 47 (IDOT FAP 326) bridge on 10 August 2016 at 1000 hrs by INHS personnel J.S. Tiemann and A.R. Kuhns. Fishes were collected from 40 yards upstream of the bridge to 200 yards downstream of the bridge via seining (pull-seining and kick seining); this distance was 20x the wetted width and took 1 hour. Fishes were identified and released on site. Nomenclature discussed in this report follows Page and Burr (2011) except that subspecies are not recognized. The current status of threatened and endangered species of fishes discussed in this report are taken from U.S. Department of Interior, Fish and Wildlife Service (USDI, FWS) (1996, 1997) and Illinois Endangered Species Protection Board (IESPB) (2015).

RESULTS AND DISCUSSION

The fish survey of Blackberry Creek at the Illinois Route 47 (IDOT FAP 326) bridge on 10 August 2016 yielded 124 individuals representing 13 species (**Table 1**). None of the fishes collected are listed as threatened or endangered at the federal or state level, nor are they candidates for listing in Illinois (IESPB, 2015).

All 13 species are widespread and locally abundant in northern Illinois headwater streams (Smith, 1979). None of the species collected are listed as an intolerant fish species in Illinois (Bertrand et al. 1996). However, the Common Carp (*Cyprinus carpio*) is a tolerant non-native species in Illinois, whereas the Creek Chub (*Semotilus atromaculatus*), White Sucker (*Catostomus commersonii*), Yellow Bullhead (*Ameiurus natalis*), and Green Sunfish (*Lepomis cyanellus*) are tolerant native species. These five species can be common in sluggish headwater streams with mud and sandy substrates, and all can withstand wide ecological tolerances and persist in highly degraded environments (Smith, 1979; Laird and Page, 1996; Smogor, 2000).

ACKNOWLEDGMENTS

J.L. Jarvis prepared the map in **Figures 1** and associated shape file referenced in **Appendix 1**, M.J. Wetzel edited the report, and J. Barnes provided the IDNR Heritage records.

LITERATURE CITED

- Bertrand, W.A., R.L. Hite, and D.M. Day. 1996. Biological Stream Characterization (BSC): Biological assessment of Illinois stream quality through 1993. Biological Streams Characterization Work Group, Springfield, Illinois. 44 pp.
- Illinois Endangered Species Protection Board. 2015. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. 18 pp. Published online at <http://www.dnr.state.il.us/espb/index.htm>.
- Laird, C.A. and L.M. Page. 1996. Non-native fishes inhabiting the streams and lakes of Illinois. Illinois Natural History Survey Bulletin 35:1-51.

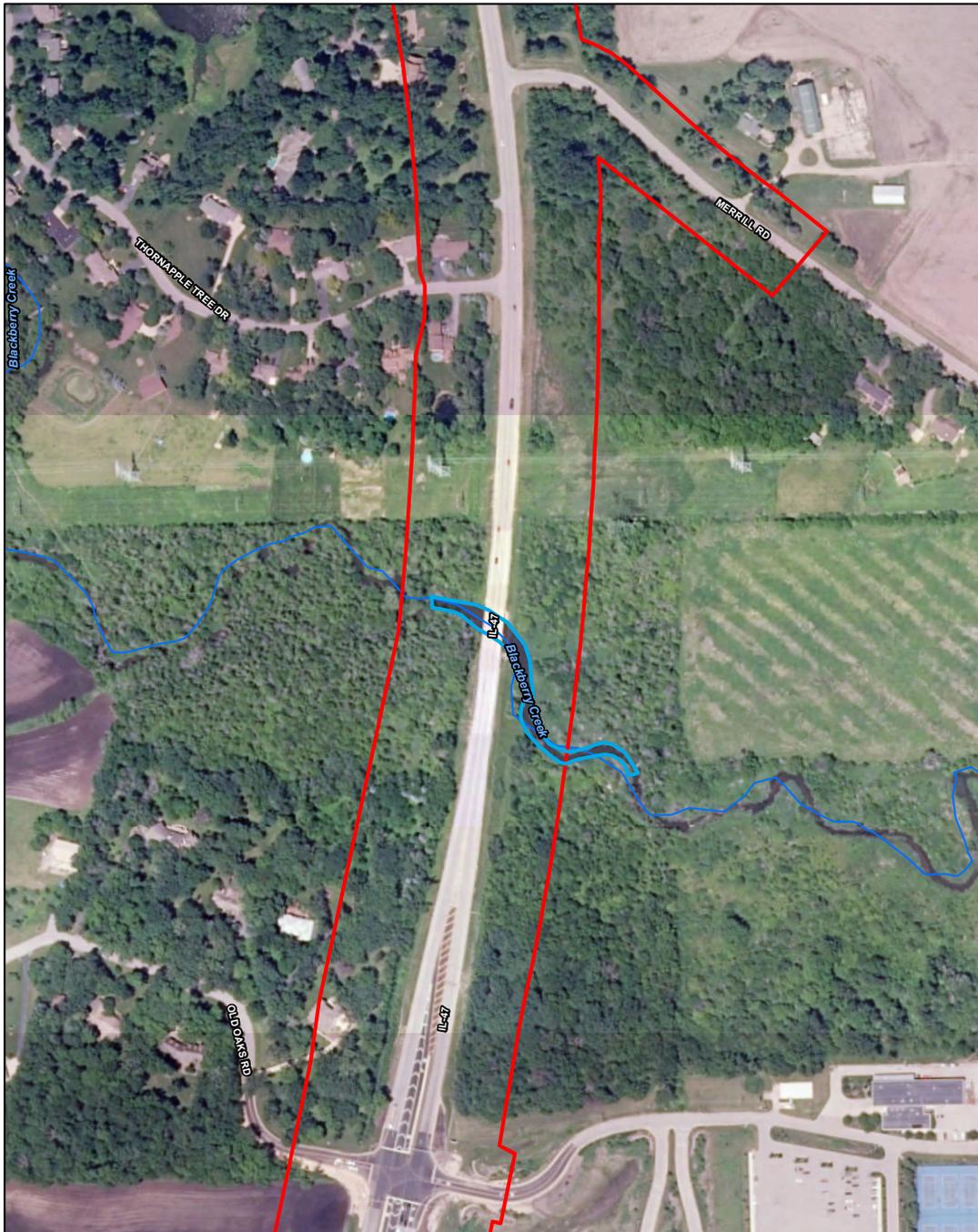
- Page, L.M. and B.M. Burr. 2011. Peterson Field Guide to Freshwater Fishes of North America North of Mexico. Houghton Mifflin Harcourt, Boston. xix + 663 pp.
- Smith, P.W. 1979. Fishes of Illinois. University of Illinois Press, Urbana, Illinois. 314 pp.
- Smogor, R. 2000. Draft manual for calculating index of biotic integrity scores for streams in Illinois. Illinois EPA, Bureau of Water, Division of Water Pollution Control, Springfield. 23 pp.
- U.S. Department of the Interior, Fish and Wildlife Service (USDI, FWS). 1996. Endangered and threatened species, plant and animal taxa; proposed rule. Part III. 50 CFR Part 17. Federal Register 61(40):7596-7613. February 28.
- U.S. Department of Interior, Fish and Wildlife Service (USDI, FWS). 1997. Endangered and threatened wildlife and plants. Federal Register, 50 CFR Part 17.11 and 17.12. October 31, 1996. 46 pp. [This document is a compilation and special reprint, current as of October 31, 1996, that was printed by the U.S. Government Printing Office in 1997].

Table 1. List of fishes known from Blackberry Creek (Fox River drainage) based upon historical records (INHS Fish Collection database, Champaign) and those collected from the stream at the Illinois Route 47 (IDOT FAP 326) bridge, approximately 4 miles SE Kaneville, Kane County, Illinois (Latitude 41.80460°N, Longitude 88.46055°W; Second Principal Meridian: Township 38N Range 7E, Section 5) by INHS personnel on 10 August 2016. Data include the number of individuals collected.

Family	Scientific name	Common name	2016
Clupeidae	<i>Dorosoma cepedianum</i>	Gizzard Shad	
Cyprinidae	<i>Campostoma anomalum</i>	Central Stoneroller	7
	<i>Cyprinella spiloptera</i>	Spotfin Shiner	
	<i>Cyprinus carpio</i>	Common Carp	3
	<i>Luxilus cornutus</i>	Common Shiner	
	<i>Lythrurus umbratilis</i>	Redfin Shiner	
	<i>Nocomis biguttatus</i>	Hornyhead Chub	6
	<i>Notemigonus crysoleucas</i>	Golden Shiner	
	<i>Notropis dorsalis</i>	Bigmouth Shiner	
	<i>Notropis stramineus</i>	Sand Shiner	21
	<i>Phenacobius mirabilis</i>	Suckermouth Minnow	
	<i>Pimephales notatus</i>	Bluntnose Minnow	3
	<i>Pimephales promelas</i>	Fathead Minnow	
	<i>Rhinichthys atratulus</i>	Blacknose Dace	
	<i>Semotilus atromaculatus</i>	Creek Chub	12
Catostomidae	<i>Catostomus commersonii</i>	White Sucker	10
	<i>Hypentelium nigricans</i>	Northern Hogsucker	
	<i>Moxostoma erythrurum</i>	Golden Redhorse	
Ictaluridae	<i>Ameiurus melas</i>	Black Bullhead	
	<i>Ameiurus natalis</i>	Yellow Bullhead	1
	<i>Noturus flavus</i>	Stonecat	
Esocidae	<i>Esox lucius</i>	Northern Pike	
Umbridae	<i>Umbra limi</i>	Central Mudminnow	
Fundulidae	<i>Fundulus notatus</i>	Blackstripe Topminnow	1

Table 1. Cont.

Family	Scientific name	Common name	2016
Centrarchidae	<i>Ambloplites rupestris</i>	Rock Bass	
	<i>Lepomis cyanellus</i>	Green Sunfish	3
	<i>Lepomis macrochirus</i>	Bluegill	13
	<i>Micropterus dolomieu</i>	Smallmouth Bass	
	<i>Micropterus salmoides</i>	Largemouth Bass	8
	<i>Pomoxis annularis</i>	White Crappie	
Percidae	<i>Etheostoma nigrum</i>	Johnny Darter	26
No. species total			13
No. individuals			124



Fish survey location on Blackberry Creek at IL 47 (Seq no. 19435), Kane County, Illinois.



Figure 1. Blackberry Creek (Fox River drainage) at the Illinois Route 47 (FAP 326) / Interstate 88 (FAI 88) interchange, approximately 4 miles SE Kaneville, Kane County (Latitude 41.80460°N, Longitude 88.46055°W; Second Principal Meridian: Township 38N Range 7E, Section 5), where a fish survey was conducted by INHS personnel on 10 August 2016. Blackberry Creek flows in a southeasterly direction at this location (map created by J.L. Jarvis).



Figure 2 – Blackberry Creek (Fox River drainage) at the Illinois Route 47 (IDOT FAP 326) bridge, approximately 4 miles SE Kaneville, Kane County, Illinois (Latitude 41.80460°N, Longitude 88.46055°W) on 10 August 2016. Picture facing downstream in an easterly direction (J.S. Tiemann photo).

Appendix 1

This appendix cover page references < **19435_Fish_Survey_GIS.zip** > containing an ArcGIS shapefile with sampling point information for the site discussed in this report. Specifically, this shapefile includes site information for Blackberry Creek, at the Illinois Route 47 (IDOT FAP 326) bridge, Kane County, Illinois, where a survey for fishes was conducted by INHS personnel on 10 August 2016.

The ArcGIS shapefile and this report were both submitted to IDOT via the IDOT Site Assessment Tracking System extranet website (Frostycap) on 7 September 2016.

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Illinois Natural History Survey
Survey for Freshwater Mussels in Blackberry Creek and an
Unnamed Tributary to Blackberry Creek



Survey for Freshwater Mussels in Blackberry Creek and an unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88), Kane County, Illinois

IDOT Sequence No. 19435; Job No. P-91-015-14



Prepared by:
Jeremy S. Tiemann

INHS/IDOT Statewide Biological Survey & Assessment Program
Program Report 2017:79

25 August 2017



PROJECT SUMMARY

This report is submitted in response to a request from the Illinois Department of Transportation to the Illinois Natural History Survey to conduct freshwater mussel surveys in Blackberry Creek (Fox River drainage) and an unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88), south of Interstate 88, near Sugar Grove, Kane County, Illinois. The surveys were conducted by INHS personnel on 19 July 2017.

In Blackberry Creek, mussels were collected from 120 yards upstream of the Illinois Route 47 bridge to 200 yards downstream of the bridge, which took 4 person-hours. In the unnamed tributary to Blackberry Creek, surveyors sampled approximately 35 yards on either side of the right-of-way of the Illinois Route 47 crossing for 1 person-hour.

Two individuals representing two species of mussels were collected alive in Blackberry Creek; however, no evidence of mussels was observed in the unnamed tributary. Neither of the two mussel species collected is listed as threatened or endangered in Illinois and both are widespread and locally abundant in northern Illinois headwater streams.



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Appendix 1. This appendix cover page references < 19435_Mussel_Survey_GIS.zip > containing an ArcGIS shapefile with sampling point information for the site discussed in this report. Specifically, this shapefile includes site information for Blackberry Creek (Fox River drainage) and an unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88), Kane County, Illinois, where surveys for freshwater mussels were conducted by INHS personnel on 19 July 2017	11
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Cover photo: Blackberry Creek (Fox River drainage) along Illinois Route 47 (IDOT FAP 326/FAI 88), south of Interstate 88, near Sugar Grove, Kane County, Illinois (Latitude 41.80460° N, Longitude 88.46055°W) on 19 July 2017. Picture facing downstream in an easterly direction, towards the Illinois Route 47 bridge (J.S. Tiemann photo).

INTRODUCTION

This report is submitted in response to a request made by Janel Veile of the Illinois Department of Transportation to Wendy Schelsky of the Illinois Natural History Survey, dated 1 March 2017, freshwater mussel surveys in Blackberry Creek (Fox River drainage) and an unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88), south of Interstate 88, near Sugar Grove, Kane County, Illinois [IDOT Sequence Number 19435, Job No. P-91-015-14; INHS Project No. FS-1045]. In this report, we summarize the results of the mussel surveys conducted in Blackberry Creek and the unnamed tributary along Illinois Route 47 (IDOT FAP 326/FAI 88) by INHS personnel on 19 July 2017.

PROJECT LOCATION

The project area is within the Fox River basin and includes two stream crossings along Illinois Route 47 (IDOT FAP 326/FAI 88), south of Interstate 88, near Sugar Grove, Kane County, Illinois:

Blackberry Creek: Latitude 41.80460°N, Longitude 88.46055°W; Second Principal Meridian: Township 38N Range 7E, Section 5) (**Figure 1; cover photo**). Blackberry Creek flows in a southeasterly direction at this location.

Unnamed tributary to Blackberry Creek: Latitude 41.81328°N, Longitude 88.46326°W; Second Principal Meridian: Township 39N Range 7E, Section 32) (**Figure 1; Figure 2**). The unnamed tributary flows in a southwesterly direction at this location.

Appendix 1 references a shapefile with sampling point information for the stream crossing, as discussed in this report.

HABITAT CHARACTERIZATION

During our site visit on 19 July 2017 to conduct surveys for freshwater mussels, Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88) (**Cover Photo**) was approximately 8 yards wide and 0.1 – 3 feet deep with minimal flow. Stream substrates were primarily sand and gravel with some cobble and silt; some woody debris was present along the stream edge, and some submergent aquatic vegetation was observed in the main channel. The stream banks were lined predominantly with trees and some grasses.

The unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88) (**Figure 1**) was approximately 5 yards wide and 0.1 – 2 feet deep with no flow. Stream substrates were entirely silt; some woody debris was present along the stream edge, and aquatic vegetation, both submergent and floating, was observed in the main channel. The stream banks were lined predominantly with grasses and some trees.

BACKGROUND

The Blackberry Creek basin is located in northwest Kendall and southwest Kane counties. Land use in the 75 square-mile watershed is approximately 50% agricultural and 50% urban. The basin is within one of the fastest growing urban areas in Illinois, and covers portions of the

Aurora, Batavia, Elburn, Oswego, Sugar Grove and Yorkville urban and suburban areas (Shasteen et al. 2013; Tiemann and Kuhns 2016).

Seventeen species of freshwater mussels have been reported from Blackberry Creek (**Table 1**), and most are common inhabitants of northern Illinois streams (Cummings and Mayer 1992; Cummings and Mayer 1997; Tiemann et al. 2007; Douglass and Stodola 2014). Of the four state-listed species (IESPB, 2015) reported from the Blackberry Creek drainage (**Table 1**), only the Slippershell Mussel (*Alasmidonta viridis*) has been collected alive in the past 50 years.

The Slippershell Mussel (**Figure 3**) was, and currently is, sporadically found in small streams in the northern half of Illinois in sand or fine gravel (Cummings and Mayer 1992; Cummings and Mayer 1997; Tiemann et al. 2007). The mussel has been recorded throughout the Fox River drainage, including Blackberry Creek (data from INHS Mollusk Collection, Champaign).

Specifically, three live Slippershell Mussels were collected at the Smith Road bridge, 6.5 mi N Sugar Grove (Latitude 41.8527°N, Longitude 88.4636°W) on 3 July 1997 by Illinois Department of Natural Resources (IDNR) personnel R.W. Schanzle et al. (INHS Mollusk Catalogue #20184) and two fresh-dead individuals were collected at the Ka-De-Ka Road bridge, 1.5 mi N Sugar Grove (Latitude 41.7852°N, Longitude 88.4479°W) on 13 June 1997 by Illinois Department of Natural Resources (IDNR) personnel R.W. Schanzle et al. (INHS Mollusk Catalogue #20212).

It appears that these 2017 surveys for freshwater mussels was the first to be conducted in Blackberry Creek and the unnamed tributary to Blackberry Creek along the Illinois Route 47 (IDOT FAP 326/FAI 88) project corridor (INHS Mollusk Collection database, Champaign).

METHODS

A survey for freshwater mussels was conducted in Blackberry Creek and the unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88) on 19 July 2017 at 0830 hrs by INHS personnel J.S. Tiemann, A.P. Stodola, M.M. Votoupal, and D.P. Morrill. In Blackberry Creek, mussels were collected from 120 yards upstream of the bridge to 200 yards downstream of the Illinois Route 47 bridge, which took 4 person-hours. In the unnamed tributary to Blackberry Creek, surveyors sampled approximately 35 yards on either side of the right-of-way of the Illinois Route 47 crossing for 1 person-hour.

Live mussels were surveyed by hand grabbing and visual detection via snorkeling (e.g., trails, siphons, exposed shell). Efforts were made to cover all available habitat types present at the site, including riffles, pools, slack water, and areas of differing substrates. All mussels collected were identified to species, enumerated, and relocated downstream of the project area.

Nomenclature used for freshwater mussels discussed in this report follows Graf and Cummings (2007), with slight modifications and updates presented in the primary literature. The current status of threatened and endangered species of freshwater mussels discussed in this report are taken from U.S. Department of Interior, Fish and Wildlife Service (USDI, FWS) (1996, 1997) and Illinois Endangered Species Protection Board (IESPB) (2015).

RESULTS AND DISCUSSION

The mussel survey of Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88) project corridor on 19 July 2017 yielded two individuals representing two species (**Table 1**), whereas no evidence of freshwater mussels was encountered in the unnamed tributary to Blackberry Creek. Neither of the two freshwater mussels collected during this survey are listed as threatened or endangered at the federal or state level (IESPB, 2015), and both are widespread and locally abundant in northern Illinois headwater streams (Cummings and Mayer 1992; Cummings and Mayer 1997; Tiemann et al. 2007; Douglass and Stodola 2014).

ACKNOWLEDGMENTS

INHS employees Alison P. Stodola, Megan M. Votoupal and Danny P. Morrill assisted in the field. J.L. Jarvis prepared the map in **Figures 1** and associated shape file referenced in **Appendix 1**, M.J. Wetzel edited the report.

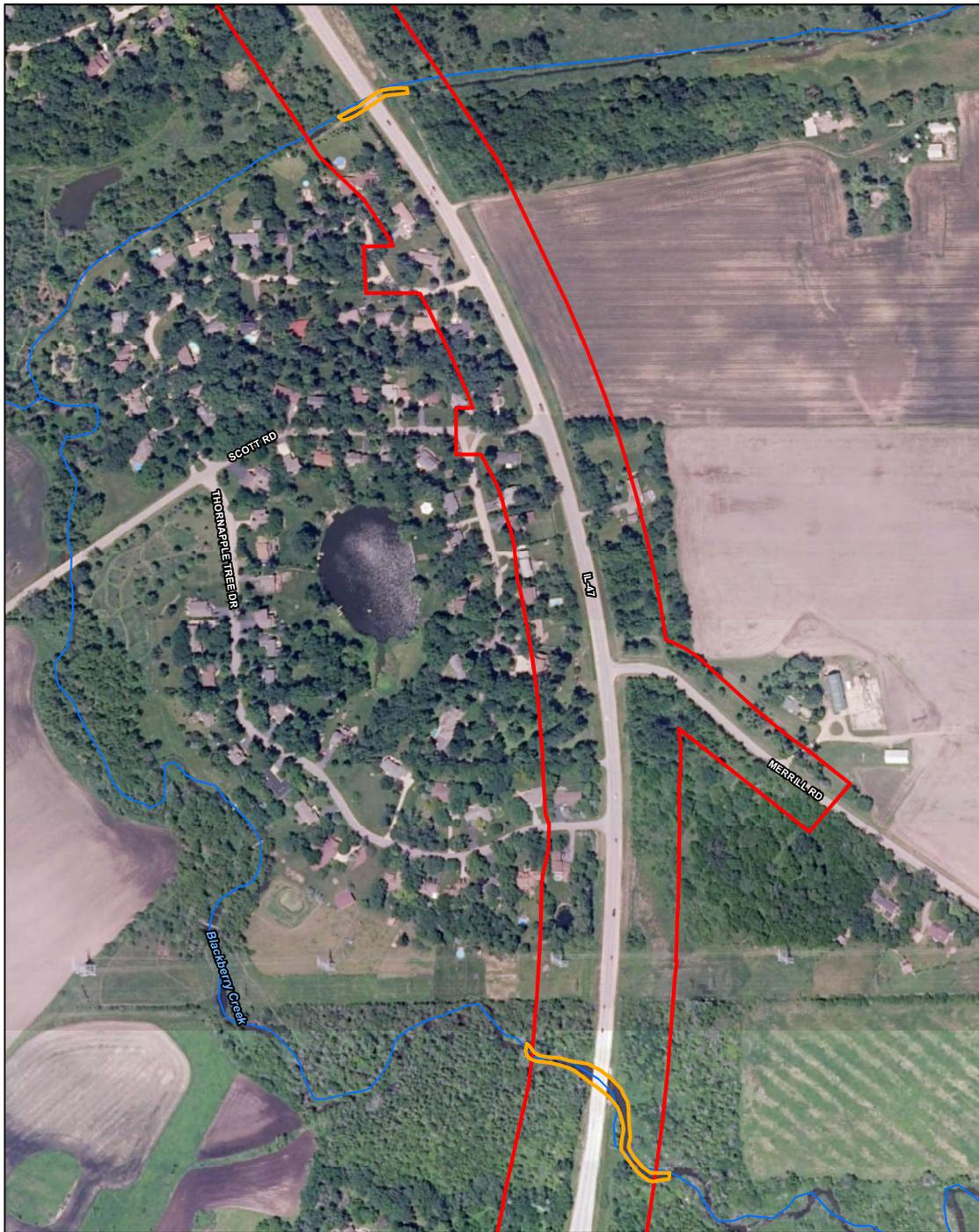
LITERATURE CITED

- Cummings, K.S., and C.A. Mayer. 1992. Field Guide to Mussels of the Midwest. Illinois Natural History Survey Manual 5. xiii +194 pp.
- Cummings, K.S., and C.A. Mayer. 1997. Distributional checklist and status of Illinois freshwater mussels (Mollusca: Unionacea). Pp. 129-145, *in* K.S. Cummings, A.C. Buchanan, C.A. Mayer, and T.J. Naimo (eds.). Conservation and Management of Freshwater Mussels II: Initiatives for the Future. Proceedings of a UMRCC Symposium, 16-18 October 1995, St. Louis, MO. Upper Mississippi River Conservation Committee, Rock Island, IL. 293 pp.
- Douglass, S.A., and A.P. Stodola. 2014. Status revision and update for Illinois' freshwater mussel Species in Greatest Need of Conservation. Illinois Natural History Survey Technical Report 2014(47). 159 pp.
- Graf, D.L., and K.S. Cummings. 2007. Review of the systematics and global diversity of freshwater mussel species (Bivalvia: Unionoida). *Journal of Molluscan Studies* 73:291-314.
- Illinois Endangered Species Protection Board (IESPB). 2015. Checklist of Endangered and Threatened Animals and Plants of Illinois. Illinois Endangered Species Protection Board, Springfield, Illinois. 18 pp. Published online at <http://www.dnr.state.il.us/espb/index.htm>.
- Shasteen, D.K., S.A. Bales, and A.P. Stodola. 2013. Freshwater mussels of the Fox River basin in Illinois. Illinois Natural History Survey Technical Report 2013 (12), Champaign, Illinois, 21 pp. + appendix.
- Stodola, A.P., S.A. Douglass, and D.K. Shasteen. 2014. Historical and current distributions of freshwater mussels in Illinois. Prepared for: Illinois Department of Natural Resources, State Wildlife Grant/Project Number (T-82-R-1). 83 p.
- Tiemann, J.S., and A.R. Kuhns. 2016. Survey for Fishes in Blackberry Creek at the Illinois Route 47 (IDOT FAP 326) Bridge, Kane County, Illinois; IDOT Sequence No. 19435. INHS/IDOT Statewide Biological Survey & Assessment Program Report 2016:119. 10 pp.

- Tiemann, J.S., K.S. Cummings, and C.A. Mayer. 2007. Updates to the distributional checklist and status of Illinois freshwater mussels (Mollusca: Unionidae). *Transactions of the Illinois State Academy of Science* 100: 107-123.
- U.S. Department of the Interior, Fish and Wildlife Service (USDI, FWS). 1996. Endangered and threatened species, plant and animal taxa; proposed rule. Part III. 50 CFR Part 17. *Federal Register* 61(40):7596-7613. February 28.
- U.S. Department of Interior, Fish and Wildlife Service (USDI, FWS). 1997. Endangered and threatened wildlife and plants. *Federal Register*, 50 CFR Part 17.11 and 17.12. October 31, 1996. 46 pp. [This document is a compilation and special reprint, current as of October 31, 1996, that was printed by the U.S. Government Printing Office in 1997].

Table 1. List of freshwater mussels known from Blackberry Creek (Fox River drainage) based upon historical records (INHS Mollusk Collection database, Champaign) and those collected from the stream along Illinois Route 47 (IDOT FAP 326/FAI 88), south of Interstate 88, near Sugar Grove, Kane County, Illinois (Latitude 41.80460°N, Longitude 88.46055°W) by INHS personnel on 19 July 2017. Data include the number of individuals collected. Special status includes ST – Illinois state-threatened and ^{SE} – Illinois state-endangered.

Family	Scientific name	Common name	2017
	<i>Alasmidonta marginata</i>	Elktoe	
	<i>Alasmidonta viridis</i> ST	Slippershell Mussel	
	<i>Anodontoides ferussacianus</i>	Cylindrical Papershell	
	<i>Lasmigona compressa</i>	Creek Heelsplitter	
	<i>Lasmigona costata</i>	Flutedshell	
	<i>Pyganodon grandis</i>	Giant Floater	1
	<i>Simpsonaias ambigua</i> ^{SE}	Salamander Mussel	
	<i>Strophitus undulates</i>	Creeper	
	<i>Utterbackia imbecillis</i>	Paper Pondshell	
	<i>Elliptio dilatata</i> ST	Spike	
	<i>Fusconaia flava</i>	Wabash Pietoe	
	<i>Lampsilis cardium</i>	Plain Pocketbook	
	<i>Lampsilis siliquoidea</i>	Fatmucket	1
	<i>Pleurobema sintoxia</i>	Round Pigtoe	
	<i>Toxolasma parvum</i>	Lilliput	
	<i>Venustaconcha ellipsiformis</i>	Ellipse	
	<i>Villosa iris</i> ^{SE}	Rainbow	



Mussel survey locations on Blackberry Creek at IL 47 (Seq no. 19435) Kane County, Illinois.

▭ Project Boundary ▭ Mussel Survey Location
— Stream

0 100 200 400 600 800 Feet
 Jarvis, 8/24/2017

Figure 1. Blackberry Creek (Fox River drainage) and an unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88), south of Interstate 88, near Sugar Grove, Kane County, Illinois, where freshwater mussel surveys were conducted by INHS personnel on 19 July 2017 (map created by J.L. Jarvis).



Figure 2 – Unnamed tributary to Blackberry Creek (Fox River drainage) along Illinois Route 47 (IDOT FAP 326/FAI 88), south of Interstate 88, near Sugar Grove, Kane County, Illinois (Latitude 41.81328°N, Longitude 88.46326°W) on 19 July 2017. Picture facing upstream from the Illinois Route 47 crossing in an easterly direction (A.P. Stodola photo).



Slippershell mussel (*Alasmidonta viridis*)

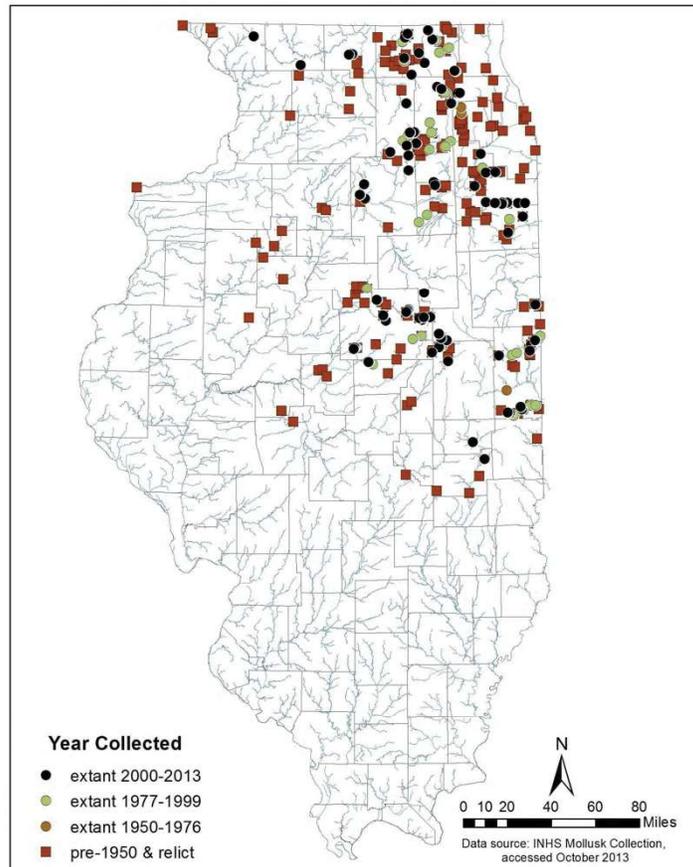


Figure 3. The distribution of the Illinois state-threatened Slippershell Mussel *Alasmidonta viridis* (K.S. Cummings photo; map from Stodola et al. 2014).

Appendix 1

This appendix cover page references < **19435_Mussel_Survey_GIS.zip** > containing an ArcGIS shapefile with sampling point information for the site discussed in this report. Specifically, this shapefile includes site information for Blackberry Creek (Fox River drainage) and an unnamed tributary to Blackberry Creek along Illinois Route 47 (IDOT FAP 326/FAI 88), Kane County, Illinois, where surveys for freshwater mussels were conducted by INHS personnel on 19 July 2017.

The ArcGIS shapefile and this report were both submitted to IDOT via the IDOT Site Assessment Tracking System extranet website (Frostycap) on 25 August 2017.



US Department of Agriculture
AD-1006 Form

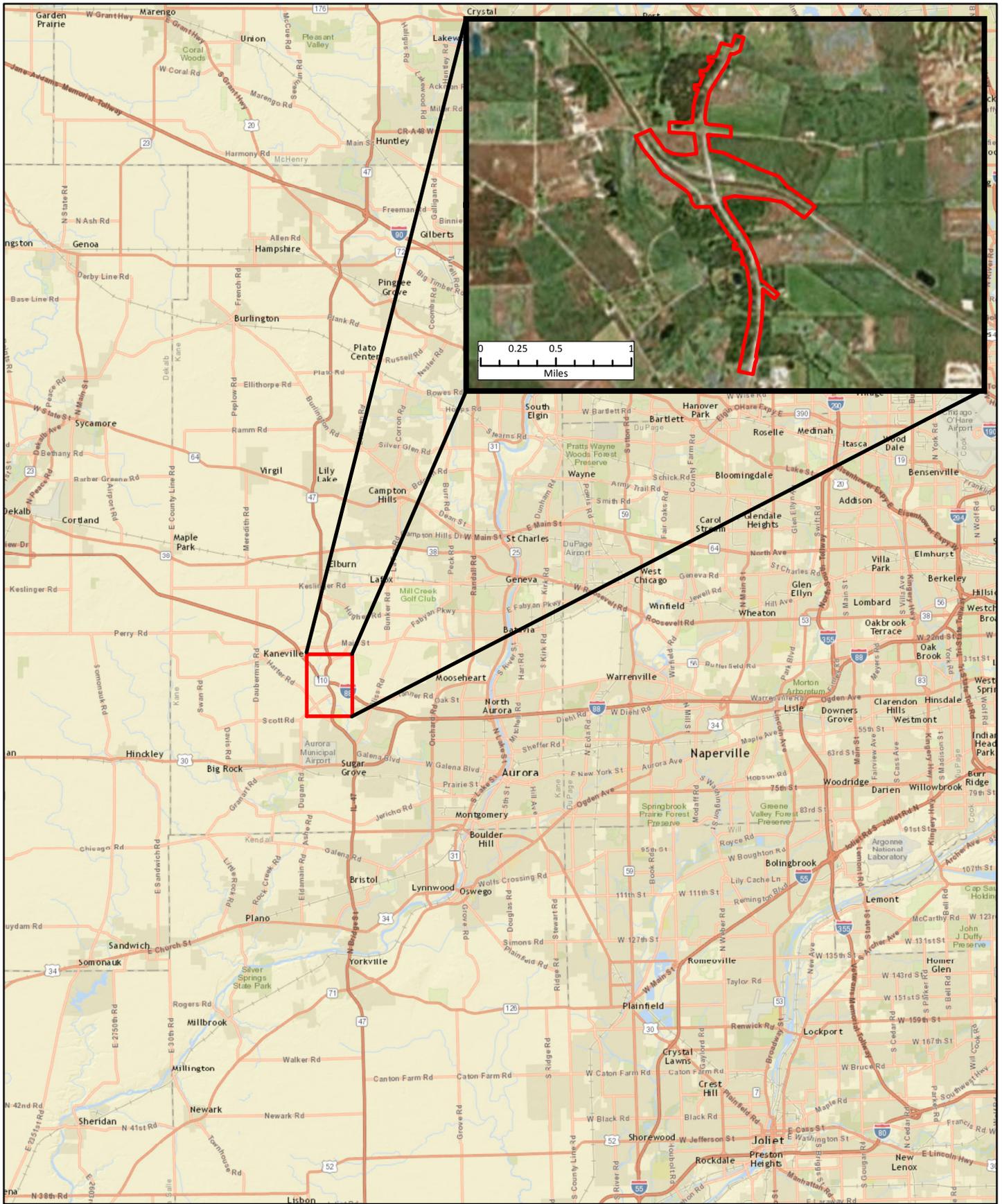
FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request			
Name of Project		Federal Agency Involved			
Proposed Land Use		County and State			
PART II (To be completed by NRCS)		Date Request Received By NRCS		Person Completing Form:	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>		YES <input type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount of Farmland As Defined in FPPA Acres: %			
Name of Land Evaluation System Used	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site					
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide Important or Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)					
PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)			
2. Perimeter In Non-urban Use		(10)			
3. Percent Of Site Being Farmed		(20)			
4. Protection Provided By State and Local Government		(20)			
5. Distance From Urban Built-up Area		(15)			
6. Distance To Urban Support Services		(15)			
7. Size Of Present Farm Unit Compared To Average		(10)			
8. Creation Of Non-farmable Farmland		(10)			
9. Availability Of Farm Support Services		(5)			
10. On-Farm Investments		(20)			
11. Effects Of Conversion On Farm Support Services		(10)			
12. Compatibility With Existing Agricultural Use		(10)			
TOTAL SITE ASSESSMENT POINTS		160			
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100			
Total Site Assessment (From Part VI above or local site assessment)		160			
TOTAL POINTS (Total of above 2 lines)		260			
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>			
Reason For Selection:					
Name of Federal agency representative completing this form:					Date:

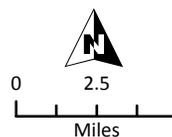
(See Instructions on reverse side)

Table 1	
Corridor Factors	
Item	Outside of CMAP Urbanized Area*
Amount of Agricultural Land Required	11.00
Location of Proposed Alignment**	See Farmland Conversion Impacts map for location of Proposed ROW and impacts.
Acres of off-site agricultural land required for borrow materials.	Unknown
Acres of prime and important farmland required for mitigation	11.00
Number and type of severed farm parcels	0
Number and location of uneconomical remnants	0
Number and location of landlocked parcels	0
Need for Adverse travel	None
Relocations of rural residences and farm buildings	0
Use of minimum design standards to reduce agricultural impacts***	Yes
* No farmland within urbanized areas is proposed to be impacted as a part of this project. Therefore, it was not included in this table.	
**Roadway realigned to minimize impacts to nearby wetlands and buildings.	
***An environmental assessment is being prepared for the project, which explains alternatives investigated and the analysis.	

Table 2	
Additional Corridor Information	
Item	
Project Length	2.3 Miles
Total proposed right-of-way (ROW) and temporary easements (TE) required (both farmland and non-farmland)	Proposed ROW: 16.1 acres Proposed TE: Unknown
Number of farm parcels affected	20 parcels, 8 different property owners
Farmland impacts per project mile	4.8 acres/mile



 Project Location



Project Location Map

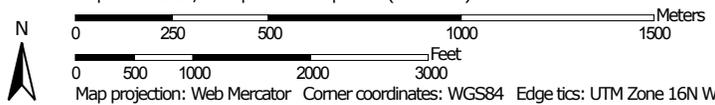
Sugar Grove Parkway
 Interchange at I-88 and IL 47
 FAP Route 326 Illinois Route 47
 at Reagan Memorial Tollway (I-88)
 Appendix E
 P-91-015-14

Service Layer Credits:
 Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Custom Soil Resource Report Soil Map



Map Scale: 1:19,500 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kane County, Illinois
 Survey Area Data: Version 11, Oct 1, 2017

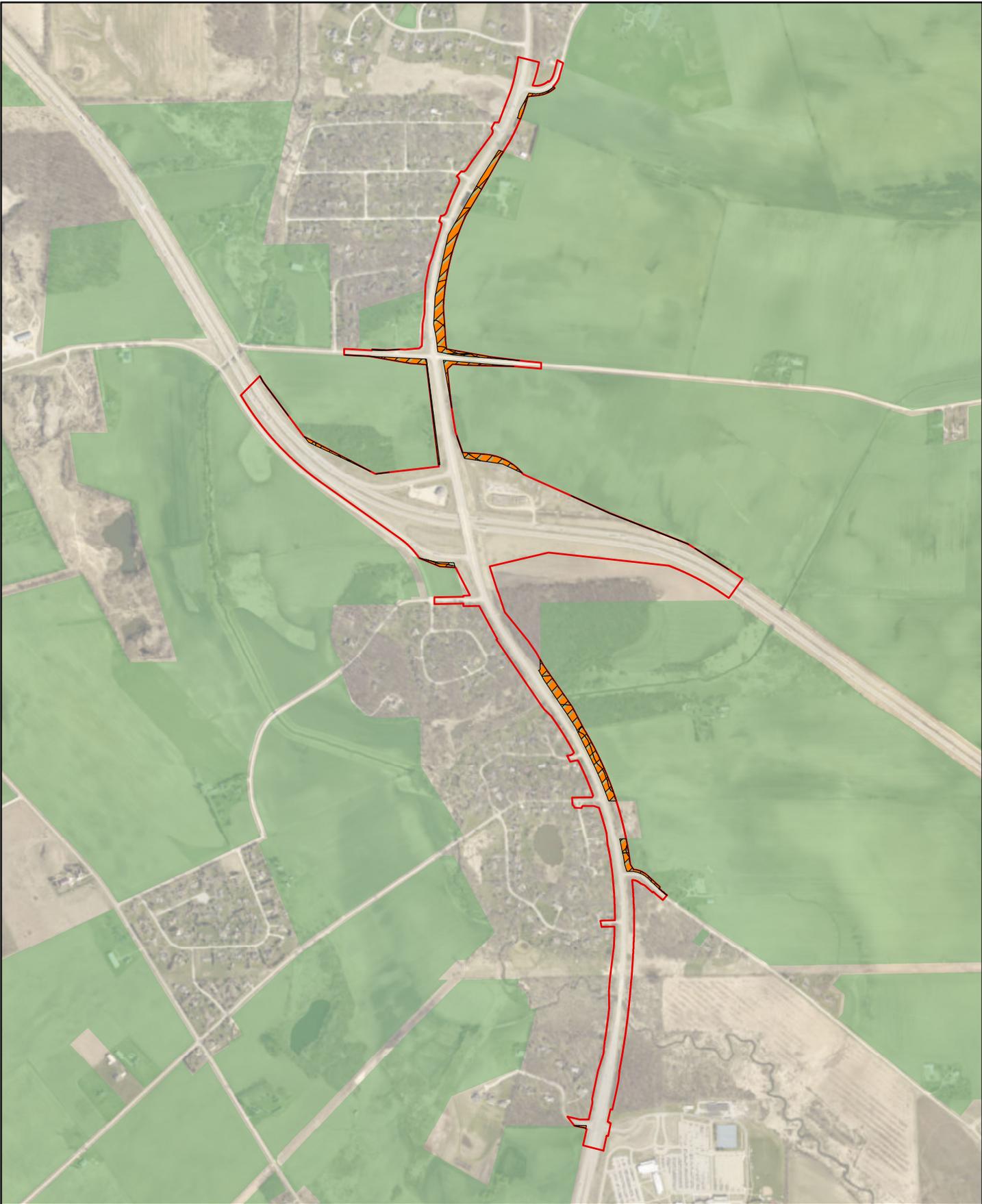
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 10, 2016—Oct 8, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
59B	Lisbon silt loam, 2 to 4 percent slopes	0.7	6.1%
134C2	Camden silt loam, 5 to 10 percent slopes, eroded	0.0	0.4%
149A	Brenton silt loam, 0 to 2 percent slopes	0.0	0.4%
152A	Drummer silty clay loam, 0 to 2 percent slopes	2.2	20.0%
193B	Mayville silt loam, 2 to 5 percent slopes	0.3	3.1%
198A	Elburn silt loam, 0 to 2 percent slopes	0.1	0.8%
219A	Millbrook silt loam, 0 to 2 percent slopes	0.0	0.0%
344C2	Harvard silt loam, 5 to 10 percent slopes, eroded	0.1	0.5%
348B	Wingate silt loam, cool mesic, 2 to 5 percent slopes	1.4	12.7%
348C2	Wingate silt loam, 5 to 10 percent slopes, eroded	0.0	0.0%
512B	Danabrook silt loam, 2 to 5 percent slopes	0.9	8.6%
512C2	Danabrook silt loam, 5 to 10 percent slopes, eroded	0.9	8.4%
618E	Senachwine silt loam, 12 to 20 percent slopes	0.2	1.9%
656C2	Octagon silt loam, 4 to 6 percent slopes, eroded	0.0	0.0%
656D2	Octagon silt loam, 6 to 12 percent slopes, eroded	1.1	9.7%
662B	Barony silt loam, 2 to 5 percent slopes	0.5	4.5%
668B	Somonauk silt loam, 2 to 5 percent slopes	1.5	14.0%
802B	Orthents, loamy, undulating	0.4	3.9%
969E2	Casco-Rodman complex, 12 to 20 percent slopes, eroded	0.5	4.9%
Totals for Area of Interest		11.0	100.0%



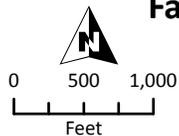
SUGAR GROVE PARKWAY

Interchange at I-88

IL 47

SUGAR GROVE Illinois 47th Illinois Department of Transportation

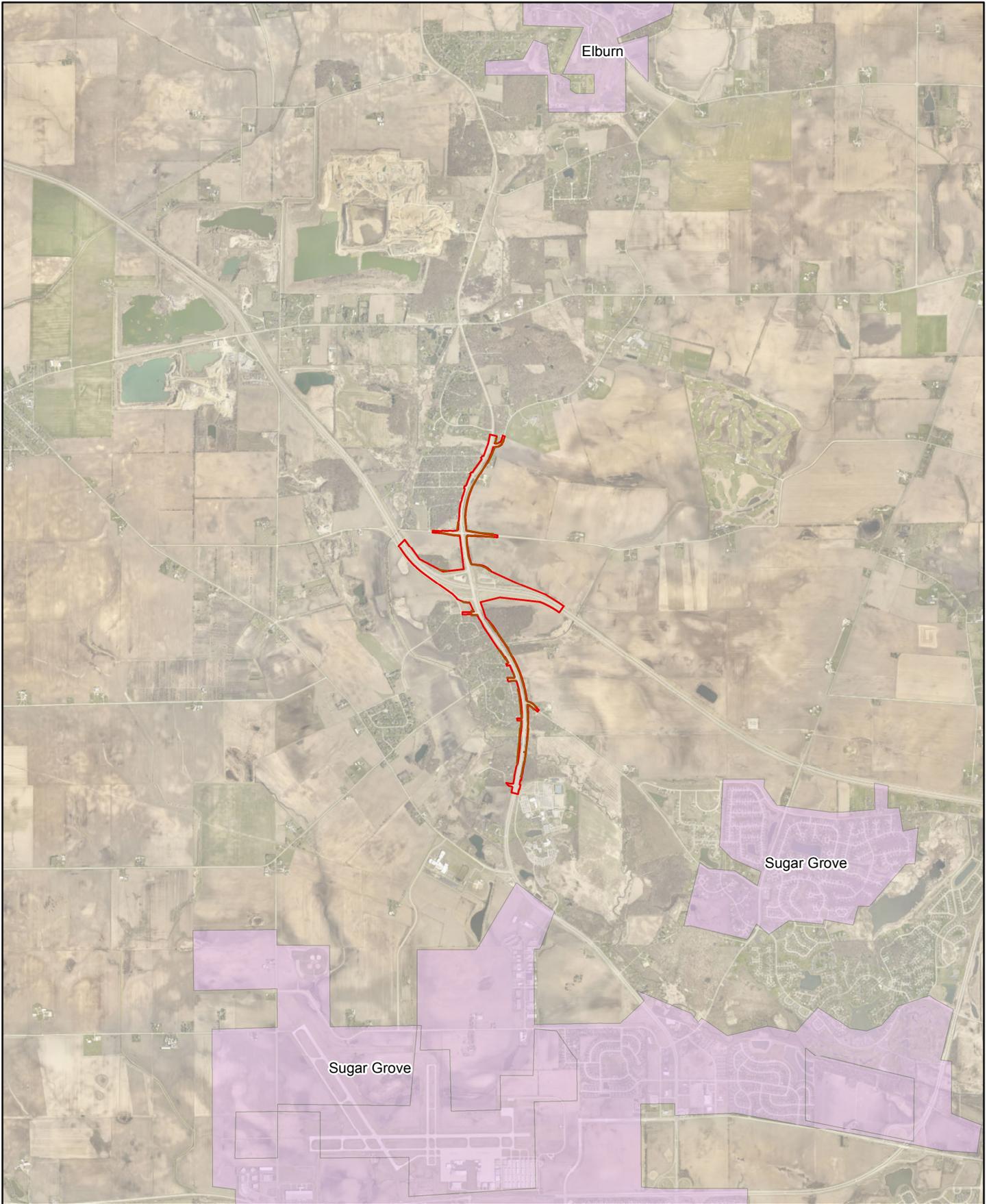
-  Impacted Ag Lands
-  CMAP Agricultural Land
-  Proposed ROW



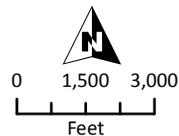
Farmland Conversion Impacts

Sugar Grove Parkway
Interchange at I-88 and IL 47
FAP Route 326 Illinois Route 47
at Reagan Memorial Tollway (I-88)
Appendix E
P-91-015-13

Data Provided by: Chicago Metropolitan Agency for Planning's 2013 Land Use Inventory for Northeastern Illinois, Version 1.0. Published: December 2016
Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



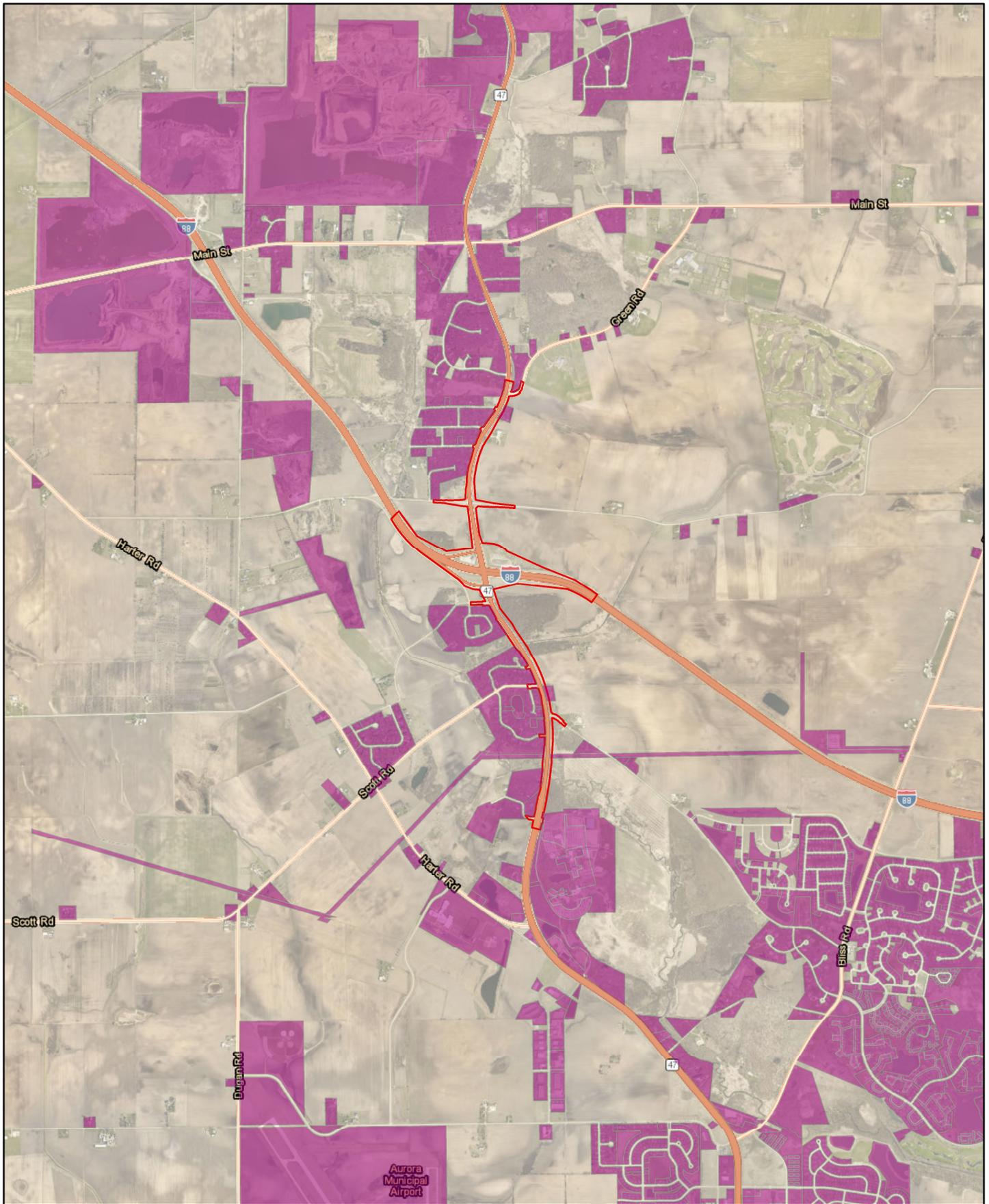
- Incorporated Areas
- Proposed ROW



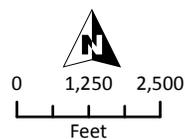
Incorporated Areas

Sugar Grove Parkway
 Interchange at I-88 and IL 47
 FAP Route 326 Illinois Route 47
 at Reagan Memorial Tollway (I-88)
 Appendix F
 P-91-015-13

Data Provided by: US Census; Originator: Illinois State Geological Survey, Publication_Date: 20060425. Title: Municipal Boundaries in Illinois: Incorporated Places - 2000: Edition: 20060425
 Service Layer Credits:
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



- CMAP Urbanized Areas
- Proposed ROW

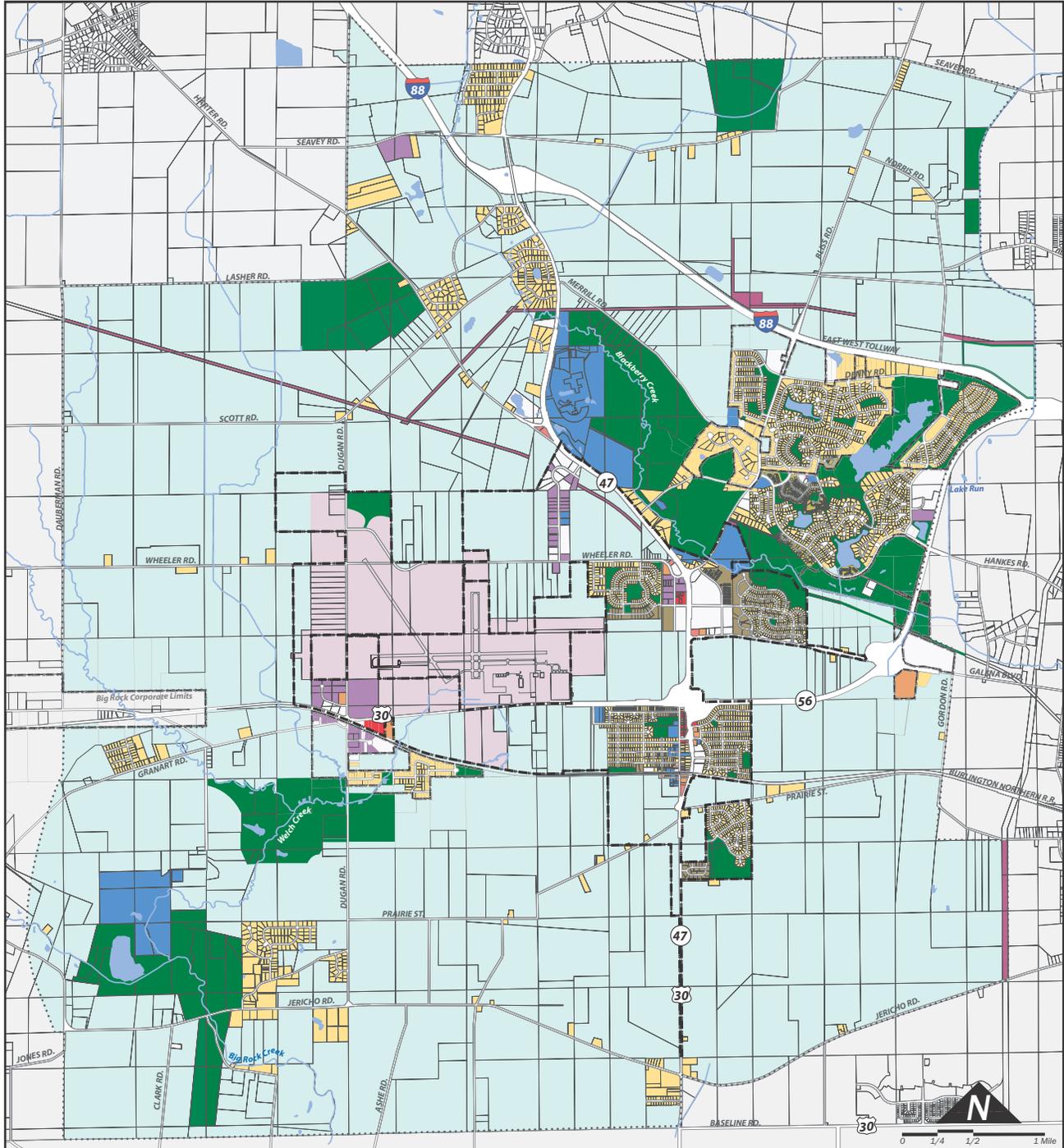


Urbanized Areas
 Sugar Grove Parkway
 Interchange at I-88 and IL 47
 FAP Route 326 Illinois Route 47
 at Reagan Memorial Tollway (I-88)
 Appendix F
P-91-015-13

Data Provided by: Chicago Metropolitan Agency for Planning's 2013 Land Use Inventory for Northeastern Illinois, Version 1.0. Published: December 2016
 Service Layer Credits:
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
 Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

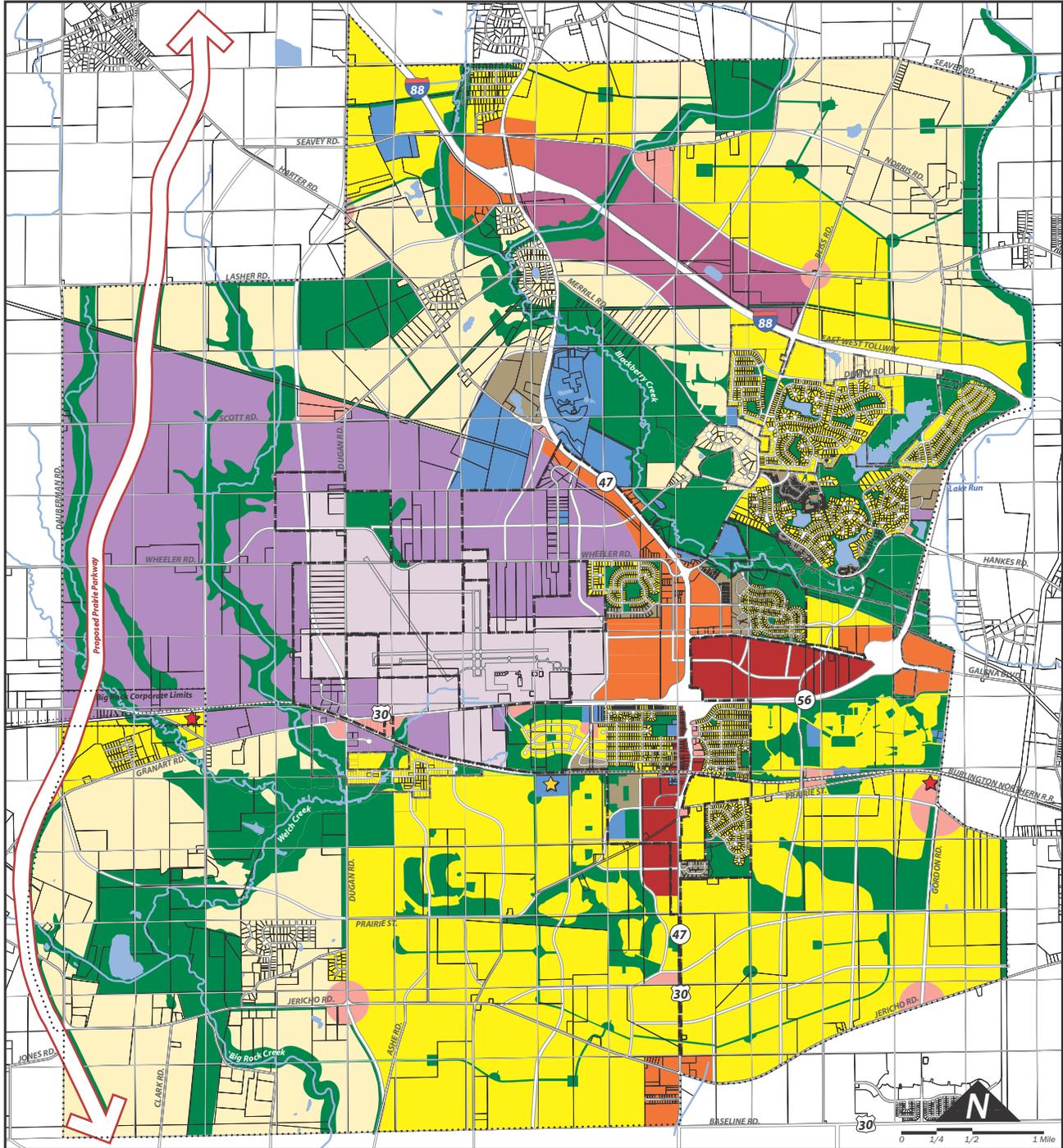
- | | | |
|------------------------------------|---|---|
| Detached Single Family Residential | Industrial | Agricultural Land |
| Attached Single-Family Residential | Aurora Municipal Airport | Village of Sugar Grove Corporate Limits |
| Multi-Family Residential | Public/Semi Public & Institutional Property | Planning Boundary |
| Commercial Retail | Parks/Recreation/Open Space | Stream/Watercourse |
| Commercial Service | Utility | |
| Mixed Commercial | Vacant Land | |

Existing Land Use



- Estate Residential
- Single Family Residential
- Multi-Family Residential
- Neighborhood Commercial
- Town Center Commercial
- Corridor Commercial
- Corporate Campus
- Business Park
- Open Space
- Public/Semi-Public
- Airport
- Stream/Watercourse
- Village of Sugar Grove Planning Area
- Existing Corporate Limits
- Metra Station
- Alternate Metra Stations

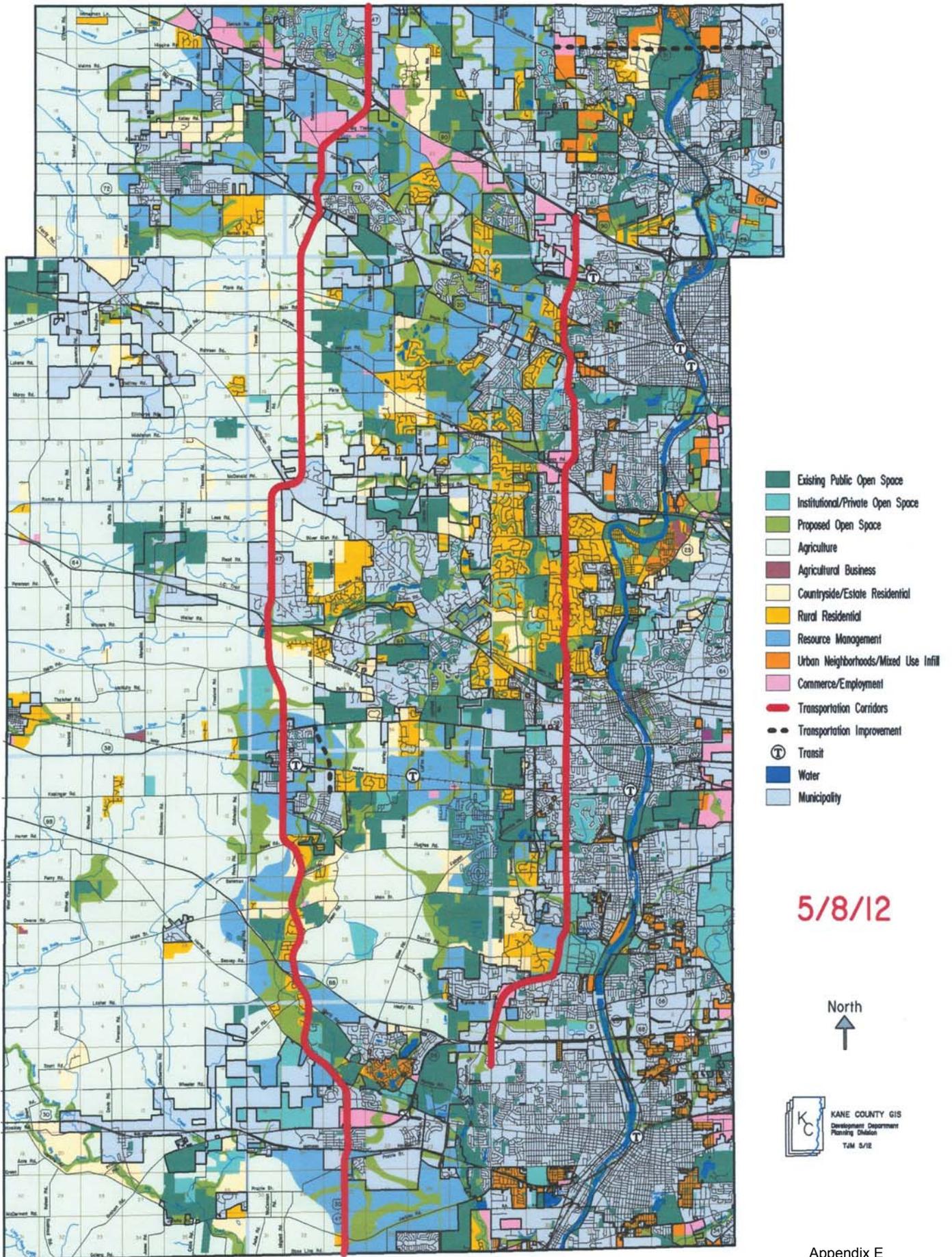
Land Use Plan



Village of Sugar Grove Comprehensive Plan

Prepared By: URS • TPAP

2040 LAND USE



Appendix F

Illinois State Historic Preservation Officer Concurrence



Illinois Department of Transportation

Memorandum

To: John Fortmann Attn: Pete Harnet
From: Maureen Addis By: Brad Koldehoff
Subject: Cultural Resource Concurrence
Date: November 4, 2016

Kane County
FAP 326/FAI 88, IL 47 – Sugar Grove
Job No. P-91-015-14
Seq. # 19435

The attached letter documents the concurrence of the State Historic Preservation Officer in the following determination by IDOT's professional cultural resources staff: "No Historic Properties Affected." This concurrence completes the necessary cultural resource coordination for the above referenced project.

A handwritten signature in black ink, appearing to read "Brad Koldehoff".

Attachment

BK:km



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

RECEIVED
OCT 21 2016

005-102116
Preservation Services

Kane County
FAP 326, FAI 88, IL 47
Sugar Grove
Interchange Improvements
IDOT Sequence #19435
ISAS Log #15144

October 21, 2016

IHPA REVIEW

H/A _____
AC Conc P-10/25/16
AR _____
File _____

FEDERAL - Section 106 Project

NO HISTORIC PROPERTIES AFFECTED

*2 copies
+ CD reval.*

Dr. Rachel Leibowitz
Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701

Dear Dr. Leibowitz:

Enclosed are copies of the Phase I Survey Report completed by Illinois State Archaeological Survey personnel concerning archaeological and historical resources potentially impacted by the above referenced project. Survey of the 291-acre project area, or Area of Potential Effect (APE), resulted in the identification of two archaeological sites (11K965 and 11K1404), which lack integrity and information potential and do not warrant National Register consideration or preservation in place. No architectural resources eligible for National Register consideration were identified by IDOT's Cultural Resources staff.

In coordination with the Federal Highway Administration (FHWA) and in accordance with the **Programmatic Agreement for Minor Projects of the Federal Aid Highway Program in Illinois**, we requests the concurrence of the State Historic Preservation Officer in our determination that no historic properties subject to protection under Section 106 of the National Historic Preservation Act of 1966 will be affected by the project. If SHPO does not object to the "no historic properties affected" finding within 30 days, FHWA's responsibilities under section 106 are fulfilled (36 CFR 800.4(d)(1)(i)).

Sincerely,

Brad H. Koldehoff
Cultural Resources Unit
Bureau of Design & Environment

CONCUR

By: Rachel Leibowitz
Deputy State Historic Preservation Officer

Date: 11-2-16

Appendix G

4(d) Consultation Form for Northern Long-eared Bat

Applicant: Illinois Department of Transportation-Central Office *IDNR Project Number:* 1608713
Contact: Janel Veile *Date:* 03/18/2016
Address: 2300 S. Dirksen Parkway *Alternate Number:* 19435
Room 330
Springfield, IL 62764

Project: FAP 326/FAI 88 (IL Rt. 47)
Address: N/A, N/A

Description: Phase I study to add full access to the IL 47 @ I-88 interchange. Modifications will be made to both IL 47 and I-88 to accommodate the interchange improvements. Unknown amount of new ROW. Unknown amount of tree removal. In stream work in Blackberry Creek and Trib to Blackberry Creek

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

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

- Blackberry Maples Marsh INAI Site
- Bliss Woods INAI Site
- Bliss Woods Marsh INAI Site
- Bliss Woods Nature Preserve
- Blanding's Turtle (*Emydoidea blandingii*)
- Blanding's Turtle (*Emydoidea blandingii*)
- Northern Long-Eared Myotis (*Myotis septentrionalis*)
- Slippershell (*Alasmidonta viridis*)
- Wilson's Phalarope (*Phalaropus tricolor*)

An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

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

County: Kane

Township, Range, Section:

- 38N, 7E, 4
- 38N, 7E, 5
- 38N, 7E, 9
- 39N, 7E, 29
- 39N, 7E, 31
- 39N, 7E, 32
- 39N, 7E, 33



IL Department of Natural Resources
Contact
Sheldon Fairfield
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
IL Department of Transportation
Janel Veile
2300 South Dirksen Parkway
Room 330
Springfield, Illinois 62764

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.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.
2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.
3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

April Holmes

From: April Holmes
Sent: Tuesday, November 07, 2017 11:54 AM
To: April Holmes
Subject: FW: IDNR EcoCAT# 1608713 FAP 326/FAI 88 - IL Rt. 47 (Seq# 19435)
Attachments: EcoCAT_1608713.pdf

From: Fairfield, Sheldon
Sent: Wednesday, March 30, 2016 11:18 AM
To: Veile, Janel M
Subject: IDNR EcoCAT# 1608713 FAP 326/FAI 88 - IL Rt. 47 (Seq# 19435)

Good morning, Janel. After reviewing the information you sent regarding this project, the Department makes the following recommendations for commitments regarding this project:

This project is in the vicinity of a record for the State-listed threatened Northern Long-Eared Bat (*Myotis septentrionalis*). This species is also a Federally-listed threatened species. It is possible that migrating individual bats may pass through the project area, forage along the river, and be present in trees that are within the project's footprint. Therefore, the Department recommends the following:

Recommendation: Trees ≥ 5 inches diameter breast height (dbh) to be cut within the project area shall be clearly flagged and/or marked and shall not be cut between the dates of April 1 - October 14.

Additionally, strict adherence to best management practices for erosion and sedimentation control should be used to minimize the possibility of any adverse impacts to the aquatic species in the river and wetlands in the vicinity of this project action.

Consultation will remain open until the NRR is received and reviewed for concurrence.

Thank you,
Sheldon

Sheldon R. Fairfield
Impact Assessment Section
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
(217) 782-0031
sheldon.fairfield@illinois.gov

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service’s (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

Information to Determine 4(d) Rule Compliance:

	YES	NO
1. Does the project occur wholly outside of the WNS Zone ¹ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency ² to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant³ (Name, Email, Phone No.): Felecia Hurley; felecia.hurley@illinois.gov; 217-785-2130

Project Name: IL 47 at 88 EA; Seq. no. 19435

Project Location (include coordinates if known): Sugar Grove, IL

Basic Project Description (provide narrative below or attach additional information):

The IL 47 and I-88 partial interchange will be redesigned to a full interchange with a partial cloverleaf and loop ramp in northeast quadrant of the interchange. IL 47 will be widened from one lane in each direction to two 12 foot lanes in each direction, a 30 foot raised median through the majority of the corridor but reduced through the Hannaford Woods/Nickels Farm Forest Preserve, and alignment shifts to the east, north of Thornapple Tree Road. A five foot sidewalk on the west side of IL 47 and a 10 foot

¹ <http://www.fws.gov/midwest/angered/mammals/nleb/pdf/WNSZone.pdf>

² See <http://www.fws.gov/midwest/angered/mammals/nleb/nhisites.html>

³ If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

multi use path on the east side of IL 47. No tree clearing shall occur between April 1 and October 14 of any year.

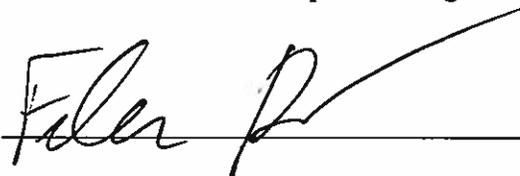
General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion ⁴ ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	5.7 acres of scrub/shrub and forest	
If known, estimated acres ⁵ of forest conversion from April 1 to October 31	unknown	
If known, estimated acres of forest conversion from June 1 to July 31 ⁶	none	
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: 

Date Submitted: 9/15/2017

⁴ Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).

⁵ If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

⁶ If the activity includes tree clearing in June and July, also include those acreage in April to October.

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Appendix H

Public Involvement Meeting Minutes and Comment Forms



CAG Meeting #1

Summary

Community Advisory Group Meeting #1 Summary

The first Community Advisory Group (CAG) meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study was held on Wednesday, September 1, 2015 from 10:00 A.M. to 12:30 P.M. at the Academic and Professional Center, Event Room, Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, IL 60554.

The meeting included a power point presentation that provided an introduction of the project team and CAG members, an overview of the project, a description of the Context Sensitive Solutions (CSS) element, an overview of the stakeholder involvement plan (SIP), and the CSS ground rules. Meeting attendees asked questions related to these topics, and were given the opportunity to work in small groups to document issues and concerns as part of a Community Context exercise. Based on the results of this exercise, CAG members crafted a draft Problem Statement through a facilitated discussion.

Project Team Attendance

- Tony Speciale – Village of Sugar Grove
- Steve Schilke – IDOT
- John Baldauf – IDOT
- Kyle Bochte – IDOT
- Aimee Lee – Illinois Tollway
- Niki Nutter – Illinois Tollway/Omega
- Jennifer Becker - KDOT
- Peter Johnston – Graef
- Ryan Sikes – Graef
- Charles “Tice” Cole – CMT
- Kris Salvatera - CMT

CAG Member Attendance

The meeting was attended by 21 of the 30 CAG members.

- Jerry Culp – Kane County Forest Preserve
- Walter Magdziarz – Village of Sugar Grove
- Wayne Parson – Sugar Grove Fire Protection District
- Candice Jacobs- Kane DuPage Soil and Water Conservation District
- Tom Rowe – Sugar Grove Township
- Fred Dornback – Blackberry Township



CAG Meeting #1

Summary

- Greg Huggins – Sugar Grove Township
- Jennifer Becker – Kane Kendall Council of Mayors
- Erin Willrett – Village of Elburn
- Dan Larsen – Waubensee Community College
- Pete Addams – Waubensee Community College
- Dean W. Kelley – Abbott Land & Investment Corp.
- Dan Olsem – Crown Community Development
- Jennifer Cowan – Crown Community Development
- David Livengood – Resident
- Bill Suhayda – Resident
- Brenda Suhayda - Resident
- Tyrone Tipitino – Resident
- Theresa Woodward – Resident
- Leroy Karp – Property Owner
- Christopher Kruse – Resident

Other Attendees

None

Comments

During the facilitated exercise portion of the meeting, CAG members were able to provide their input on the most prominent issues and concerns related to the project. The following is a list of those issues and concerns by topic area:

Drainage/Environmental Impacts

- Environmental Impacts – noise, wetlands, etc.
- Drainage – storm water runoff
- Quality of Life – sound, light, overall property impacts
- Minimize Right-of-Way Impacts to adjacent property owners
- Water – floodplain, wetlands protection/restoration

Accessibility

- Accessibility to and from Rt. 47 and I-88
- Accessibility for local residents
- Connectivity within the region
- Emergency Response time due to limited access to I-88 and request for additional median turnaround



CAG Meeting #1

Summary

Safety

- Intersection Safety
- Safety for access points
- Safe speeds and turn movements
- Impact to Property Owners (noise, improvements too close to homes)

Capacity

- Traffic impacts/management
- Rt. 47 widening for existing and future traffic
- Accuracy of existing traffic data

Other Infrastructure

- Bike lanes
- Existing and proposed utilities
- Others.

Funding

- Funding resources
- Schedule

Draft Problem Statement

A draft problem statement was crafted based on the results of this issues and concerns exercise. The draft problem statement is as follows:

“To address safety, capacity and accessibility issues while taking into consideration environmental impacts, existing roadway conditions, funding resources while sustaining the quality of life of local and future residents.”

General Understanding of Agreement

A general understanding of agreement was achieved by the CAG attendees on the draft problem statement.

Next Steps

Upon completion of the meeting exercises, the definition of Purpose and Need for IDOT projects was briefly discussed. The Purpose and Need Statement for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) project will be determined by a combination of the Problem



CAG Meeting #1

Summary

Statement and the technical analysis being undertaken by the Project Study Group. It will be presented at the next CAG meeting.

After drafting the Purpose and Need Statement for the project during the next month, it was announced that the second CAG meeting will be held in the November timeframe to finalize the Problem Statement, and present the draft Purpose and Need Statement. The meeting was adjourned at 12:30 pm.



CAG Meeting #2

Summary

Community Advisory Group Meeting #2 Summary

The second Community Advisory Group (CAG) meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study was held on Wednesday, November 18, 2015 from 10:00 A.M. to 12:15 P.M. at the Academic and Professional Center, Event Room, Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, IL 60554.

The meeting included a power point presentation that reviewed the previous meeting and the results of the community context audit, facilitated discussion on the problem statement, presented technical data, presented the draft purpose and need, and facilitated discussion of potential evaluation criteria. The goal of this meeting was to obtain an approved problem statement, obtain input from the CAG on the draft purpose & need, and to identify potential evaluation criteria.

Project Team Attendance

- Tony Speciale – Village of Sugar Grove
- Steve Schilke – IDOT
- John Baldauf – IDOT
- Kyle Bochte – IDOT
- Niki Nutter – Illinois Tollway/Omega
- Jennifer Becker - KDOT
- Peter Johnston – Graef
- Ryan Sikes – Graef
- Charles “Tice” Cole – CMT

CAG Member Attendance

The meeting was attended by 19 of the 30 CAG members.

1. Walter Magdziarz – Village of Sugar Grove
2. Wayne Parson – Sugar Grove Fire Protection District
3. Tom Rowe – Sugar Grove Township
4. Fred Dornback – Blackberry Township
5. Rod Feece – Blackberry Township
6. Jennifer Becker – Kane Kendall Council of Mayors
7. Erin Willrett – Village of Elburn
8. Dan Olsem – Crown Community Development
9. Jennifer Cowan – Crown Community Development
10. Dan Lobbes – The Conservation Foundation
11. David Livengood – Resident



CAG Meeting #2

Summary

12. Bill Suhayda – Resident
13. Brenda Suhayda - Resident
14. Tyrone Tipitino – Resident
15. Leroy Karp – Property Owner
16. Christopher Kruse – Resident
17. Brenda Ross – Resident
18. Dorothy Carlson – Resident
19. Carol Roncoli - Resident

Other Attendees

None

Refined Problem Statement

A refined problem statement was crafted before the meeting by the Project Study Group (PSG) based on the draft problem statement and the issues and concerns raised at the previous meeting. The refined problem statement with a general understanding from the CAG is:

Illinois Route 47 (IL 47) is a regional north-south arterial. The IL 47 at Interstate 88 (I-88) interchange study area has the following uses: agricultural, residential, forest preserve, and institutional. The existing partial access of IL 47 at I-88, to and from the west, restricts the regional connectivity to the east needed for the economic viability of the proposed land uses. The partial access inhibits the responsiveness of emergency service providers to emergencies on I-88 and increases travel time. The lack of channelization on IL 47 limits the accessibility and safety of the route. Solutions should consider the quality of life as well as minimize impacts to the environment. The incorporation of bicycle and pedestrian facilities should also be considered where possible.

Technical Information

Technical Information regarding Land Use Plans, Emergency Vehicle Response and Transport, Safety, Existing Capacity (intersection and segment levels of service), and Bike Plans was presented in order to address issues and concerns raised in the previous meeting and also as background to the draft purpose and need of the project.

Draft Purpose and Need

An overview of the draft purpose and need for the project was presented. The draft purpose of the project is to enhance system linkage and accessibility and to support existing and future economic development. The needs backing up the enhanced system linkage and accessibility focused on the



CAG Meeting #2

Summary

limited access to I-88, IL 47 being a regional Class II truck route, IL 47 being a strategic regional arterial, why this cross street on the 20 mile stretch of I-88 instead of others, mobility (longer trips and travel times due to circuitous travel), and emergency vehicle response and transport. The needs backing up the statement to support existing and future economic development focused on the existing vs. planned land uses and population growth.

Comments

During the facilitated exercise portion of the meeting, CAG members were able to provide their input potential evaluation criteria. The following is a list of those potential evaluation criteria which have been grouped where applicable and duplicates removed:

- Land Use Impacts
- Property Impacts
 - ROW Property Takings/Impacts (2)
 - Property Values (3)
- Drainage
 - Drainage Effects on Subdivisions
 - Impact On Stormwater and Drainage
 - Avoidance/Mitigation of Additional Chlorides, Sediments, Pollutants From Getting Into Blackberry Creek
 - Provides No Net Increase of Stormwater Volume Getting to Blackberry Creek
- Impacts of Traffic on Existing Study Area Roads
- Increases of Vehicles Traveling on IL 47
- Impacts on Commercial/Industrial Traffic
- Capacity
- Accessibility and Connectivity
 - Ease of Access to I-88
 - Connectivity
 - Accessibility from subdivisions
 - Accessibility
- Economic Development
- Safety (2)
 - Emergency Vehicle Response Times
 - Safe Access to Rt 47 from Adjacent Properties (Minor Side Streets)
 - # of Accidents (Crashes)
- Environment
 - Environmental Impacts
 - Agricultural Conversion, Wetlands
- Quality of Life
 - Residential Quality of Life



CAG Meeting #2

Summary

- Human Environment – Reduce Air, Noise, Light Pollution
- Increased Crime After Interchange?
- Noise generated by Interchange Expansion
- Interchange Design Minimization
- Bike/Pedestrian
- Funding
- Schedule For Improvements
- Cost/Over Design of Interchange

General Understanding of Agreement

A general understanding of agreement was achieved by the CAG attendees on the refined problem statement.

Next Steps

Upon completion of the potential evaluation criteria exercise, the next steps were highlighted. The PSG will finalize the Purpose and Need in advance of the next NEPA/404 Merger Meeting.

The next CAG meeting is tentatively scheduled for the spring of 2016 following the next NEPA/404 Merger Meeting where the final purpose & need is planned to be presented. The CAG will next finalize and rank the evaluation criteria and begin developing project alternatives.

The second public meeting is tentatively scheduled for the spring of 2016 following the next CAG meeting. The final purpose & need is planned to be presented along with evaluation criteria and reasonable preliminary alternatives.

The meeting was adjourned at 12:15 pm.



CAG Meeting #3

Summary

General Information, Overview, Purpose, and Goals

The third Community Advisory Group (CAG) meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study was held on Thursday, March 10, 2016 from 9:30 A.M. to 11:30 A.M. at the Academic and Professional Center, Event Room, Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, IL 60554.

The meeting included a power point presentation that reviewed the previous meeting, reviewed and attained a general understanding of agreement on the purpose and need, presented a primer on interchanges and highway corridor tools, and facilitated an alternatives exercise to help develop the initial range of alternatives. The goal of this meeting was to attain a general understanding of agreement on the purpose and need and for the CAG to assist in developing an initial range of alternatives.

Project Team Attendance

- Tony Speciale – Village of Sugar Grove
- Steve Schilke – IDOT
- John Baldauf – IDOT
- Kyle Bochte – IDOT
- Niki Nutter – Illinois Tollway
- Jennifer Becker - KDOT
- Peter Johnston – Graef
- Ryan Sikes – Graef
- Charles “Tice” Cole – CMT
- Kris Salvatera – CMT

CAG Member Attendance

The meeting was attended by 15 of the 32 CAG members.

1. Jerry Culp – Kane County Forest Preserve
2. Walter Magdziarz – Village of Sugar Grove
3. Wayne Parson – Sugar Grove Fire Protection District
4. Patrick Knapp – Kane Kendall Council of Mayors
5. Tom Rowe – Sugar Grove Township
6. Erin Willrett – Village of Elburn
7. Pete Adams – Waubensee Community College
8. Dan Olsem – Crown Community Development



CAG Meeting #3

Summary

9. Jennifer Cowan – Crown Community Development
10. David Livengood – Resident
11. Brenda Suhayda - Resident
12. Tyrone Tipitino – Resident
13. Christopher Kruse – Resident
14. Brenda Ross – Resident
15. Dorothy Carlson – Resident

Other Attendees

None

Review Final Purpose and Need

The final purpose and need statement was reviewed:

The purpose of the proposed project is to improve system linkage and accommodate land use and economic development within the IL 47 and I-88 project study area.

The purpose and need statement was summarized into different need points that supported the “system linkage” purpose and the “economic development” purpose. For system linkage, the needs include: improving the currently limited access to I-88, improving the connectivity of truck routes, supporting the expressway system with the SRA system, improving mobility with shorter trips and travel times, and improving emergency vehicle response and transport. For economic development, the needs were defined as serving existing and future land uses and increased population.

Alternative Evaluation and Screening Process

An overview of the evaluation and screening process was given. Evaluation Criteria is the yardstick against which an alternate is measured to determine pros and cons and to compare with other alternatives. The facilitator presented a process graphic to demonstrate how the Alternatives Evaluation and Screening Process narrows a range of alternatives down to the recommended preferred alternative. The facilitator pointed out how stakeholder input would be used in the various levels of screening to help get to a preferred alternative.

Primer - Interchange

The facilitator explained what service type interchanges are and gave an overview of common interchange types including:



CAG Meeting #3

Summary

1. Conventional Diamond
2. Partial Cloverleaf
3. Full Cloverleaf
4. Single Point Urban
5. Diverging Diamond
6. Indirect

The overview included pros and cons of each interchange type (capacity, safety, cost, and footprint), typical scenario applications, how well they integrate bicycle and pedestrian facilities, and also gave real-world examples in the Chicago Metropolitan area. For a better understanding of a new and not-widely-known interchange type, a simulation was shown for a diverging diamond interchange.

Primer – Corridor Tools

An overview of highway corridor tools was presented including:

1. Alignments
2. Typical section elements
3. Access management
4. Intersection Improvements

Alternatives Exercise

Using the alternatives information that was presented, CAG members were given the opportunity to develop their own design alternatives for the proposed interchange and potential corridor improvements. Members were given a corridor schematic map and interchange aerial to sketch their designs. Resources for their use included the problem statement, existing conditions and deficiencies, purpose and need, planning documents, primer on interchange types, primer on corridor tools. Members of the project study team were available to answer questions during the exercise. The design sketches were collected at the end of the meeting for the design team to analyze and review.

Next Steps

Upon completion of the design alternatives exercise, the next steps were highlighted. The second public meeting is scheduled for Tuesday, May 3rd from 4pm-7pm. The final purpose & need is planned to be presented along with evaluation criteria and reasonable preliminary alternatives. The next CAG meeting is tentatively scheduled for the fall of 2016. The CAG will next review the full range of alternatives and review the alternative screening.

The meeting was adjourned at 11:30 am.



CAG Meeting #4

Summary

General Information, Overview, Purpose, and Goals

The fourth Community Advisory Group (CAG) meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study was held on Tuesday, November 15, 2016 from 9:30 A.M. to 11:30 A.M. at the Academic and Professional Center, Event Room, Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, IL 60554.

The meeting included a power point presentation that reviewed the previous CAG #3 meeting, Public Information #2 meeting, range of IL 47 alignment alternatives and IL 47 and I-88 interchange alternatives, and the screening process for the range of alternatives. The goal of this meeting was to present a range of alternatives considered, explain the Alternative Screening Process, and describe and seek input on the range of alternatives to be carried forward for the project.

Project Team Attendance

- Tony Speciale – Village of Sugar Grove
- Steve Schilke – IDOT
- Kyle Bochte – IDOT
- Niki Nutter – Illinois Tollway
- Peter Johnston – GRAEF
- Peter Ross – CMT
- Kris Salvatera – CMT
- Jennifer Becker – Kane County Division of Transportation

CAG Member Attendance

The meeting was attended by 10 of the 32 CAG members.

1. Walter Magdziarz – Village of Sugar Grove
2. Patrick Knapp – Kane Kendall Council of Mayors
3. Tom Rowe – Sugar Grove Township
4. Pete Adams – Waubensee Community College
5. Marv Bailey – Crown Community Development
6. Dan Olsem – Crown Community Development
7. David Livengood – Resident
8. Tyrone Tipitino – Resident
9. Leroy Karp - Resident
10. Christopher Kruse – Resident



CAG Meeting #4

Summary

Other Attendees

None

Range of Alternatives

An overview of the range of IL 47 Alignment Alternatives and IL 47 Interchange Alternatives was provided. It included a visual map of the alignment alternatives, typical section exhibits of alignment combinations, the proposed access management along IL 47, and maps of the various service interchange types. Further description of the range of alternatives follows:

IL 47 Alternatives

Eight total IL 47 alternatives were presented to the CAG. Each alternative has two parts: its alignment and its typical section. The reviewed IL 47 alignments included the following:

- M-1. Existing Alignment with Symmetrical Widening
- M-2. Existing Alignment with Asymmetrical Widening to the East
- M-3. New Alignment to the East
- M-4. New Alignment to the West

The M-4 alignment was recently created to avoid Section 4(f) impacts, per NEPA guidance. Its presentation at this meeting introduced the CAG to this alternative.

Typical sections varied based on the width of the median, as follows:

- A. Rural Typical SRA Section with 50-foot Ditch Median
- B. Suburban Typical SRA Section with 30-foot Raised Median
- C. Modified Typical SRA Section with 6-foot Raised Median

This resulted in the following IL 47 alternatives presented to the CAG:

Alt.	Alignment	Typical Section
M-1A	Existing Alignment with Symmetrical Widening	30-foot median
M-1B	Existing Alignment with Symmetrical Widening	50-foot median
M-1C	Existing Alignment with Symmetrical Widening	30-foot median/6-foot in FP
M-2A	Existing Alignment with Asymmetrical Widening to East	30-foot median
M-2B	Existing Alignment with Asymmetrical Widening to East	50-foot median
M-2C	Existing Alignment with Asymmetrical Widening to East	30-foot median/6-foot in FP
M-3	New Alignment East	50-foot median
M-4	New Alignment West	30-foot median

FP = Section 4(f) Forest Preserve Areas



CAG Meeting #4

Summary

Interchange Alternatives

The I-88 service type interchanges reviewed included the following:

Alternative	Description
I-1	Conventional Diamond
I-2	Conventional Diamond with Roundabouts
I-3	Diverging Diamond
I-4	Partial Cloverleaf NE Quadrant
I-5	Partial Cloverleaf NE and SW Quadrant
I-6	Partial Cloverleaf SW Quadrant
I-7	Partial Cloverleaf – Loop Ramp terminating at Finley Road

Alternative Evaluation and Screening Process

An overview of the evaluation and screening process was given. Evaluation criteria is the yardstick against which an alternate is measured to determine pros and cons and to compare with other alternatives. The facilitator explained how the Alternatives Evaluation and Screening Process will be used to narrow the range of alternatives down to the eventual recommended preferred alternative. The facilitator pointed out that stakeholder input would continue to be used at the various levels of screening, and that the preferred alternative may ultimately reflect either one of the alternatives carried forward, or more likely, a blend from multiple alternatives carried forward.

IL 47 Alignment Screening Process

The Alternative Evaluation of the IL 47 alignments was presented showing the impacts to different criteria in the screening process. The alternatives with the most significant impact to each evaluation criteria were eliminated. The screening of IL 47 alternatives was broken into Round 1 and Round 2.

Round 1

In Round 1 screening, the criteria that were evaluated by impacts for each alignment alternative included the following:

1. Residential Displacements
2. ROW (acres)
3. NWI Wetlands (acres)
4. Floodplains (acres)
5. Forest (acres)
6. Farmland (acres)
7. Forest Preserve 4(f) (acres)



CAG Meeting #4

Summary

Two alternatives stood out for having more pronounced impacts than the others. Alternatives M-3 (new alignment to the east) and M-4 (new alignment to the west) resulted in the greatest right-of-way, farmland, forest, and floodplain impacts. This led to a conclusion that these two alternatives should not be carried forward into Round 2. All other alternatives were moved forward for Round 2 consideration.

Round 2

In Round 2 screening, the criteria that were evaluated by impacts for each alignment alternative carried forward from the Round 1 screening included the following:

1. Potential Residential Displacements
2. Conceptual Cost (\$millions)
3. ROW (acres)
4. INHS Wetlands (acres)
5. Floodplains (acres)
6. Farm-land(acres)
7. Forest Preserve (acres)

Round 2 screening revealed that the symmetrical and asymmetrical widening alternatives with a 50-foot wide median (M-1B and M-2B) resulted in greatest impacts in terms of right-of-way, wetland, and floodplain impact. Alternative M-2A, asymmetrical widening with a 30-foot median, resulted in greater right-of-way, wetland, floodplain, farmland and forest preserve impacts than the remaining alternatives. Therefore, Alternatives M-1B, M-2A and M-2B were all dropped from further consideration. This resulted in the following three alternatives to be carried forward:

Alt.	Alignment	Typical Section
M-1A	Existing Alignment with Symmetrical Widening	30-foot median
M-1C	Existing Alignment with Symmetrical Widening	30-foot median/6-foot in FP
M-2C	Existing Alignment with Asymmetrical Widening to East	30-foot median/6-foot in FP

FP = Section 4(f) Forest Preserve Areas

During the meeting, the facilitator emphasized that the preferred alternative may be one of these remaining alternatives or a blend of multiple alternatives, all based on further study.

I-88 Interchange Screening Process

The Alternative Evaluation of the I-88 Interchange was presented showing the impacts to the different criteria in the Interchange Screening Process. The alternatives with the most significant impact to each evaluation criteria were eliminated. In the Interchange Screening process, the criteria that were evaluated for each interchange alternative included:



CAG Meeting #4

Summary

1. ROW (acres)
2. Conceptual Cost (\$millions)
3. Bridge Impacts (square feet)
4. Wetlands (acres)
5. Waters of the US (lineal feet)
6. Floodplains (acres)
7. Forest (acres)
8. Farmland (acres)

After consideration of the evaluation criteria, Alternatives I-5 (partial cloverleaf in NE and SW quadrants), I-6 (partial cloverleaf in the SW quadrant), and I-7 (partial cloverleaf to Finley Road) all resulted in greater overall impact than the other alternatives. Alternatives I-5 and I-6 resulted in the highest impacts in terms of conceptual costs, bridge impacts and wetland impacts. Alternative I-7 also scored among the highest impacts in conceptual cost and bridge impacts, as well as in waters of the U.S., forest and farmland impacts. Therefore, Alternatives I-5, I-6, and I-7 were not carried forward. The remaining alternatives that were carried forward include the following:

Alternative	Description
I-1	Conventional Diamond
I-2	Conventional Diamond with Roundabouts
I-3	Diverging Diamond
I-4	Partial Cloverleaf NE Quadrant

The facilitator noted that any of the IL 47 alternatives could be paired with any of the interchange alternatives. Thus, selection of the preferred alternatives for each can be an independent process.

Access Management

The presentation included a description of potential access management along IL 47. The desired signal/full access spacing would be ¼-mile. Right-in/right-out (RIRO) and ¾-accesses (RIRO plus left-in) would supplement full access points.

For this IL 47 project corridor, the full access points would be located at College Drive, Merrill Road, Scott Road, Seavy Road and Green Road. Merrill Road and Scott Road are located within ¼-mile of one another, but are T-intersections that serve regional roadways. All other intersections would be served by partial accesses (RIRO or ¾-access). A special U-turn area would be provided south of Finley Road to increase mobility, unless a roundabout is provided as part of the interchange preferred alternative.



CAG Meeting #4

Summary

Discussion

This meeting sought feedback from the CAG on the IL 47 and interchange Alternatives to be Carried Forward, and the screening process used to determine those alternatives. The CAG expressed agreement with the process and did not propose other means to select Alternatives to be Carried Forward. Following the presentation of the screening process and results, the CAG group discussed the alternatives and results individually at their tables and with the project study group. Following the table discussions, CAG members were given an opportunity to express any opinions or ask questions to the CAG. The following comments made by CAG members include the following:

- A request for a $\frac{3}{4}$ turn at the Finley Rd. intersection was made, particularly if the roundabout alternative is not selected.
- Suggestion was made to re-align Merrill Rd. such that it would intersect with Scott Rd. at Route 47. A signal at this new intersection was also recommended.
- Request was made for channelization (right turn lanes) at local roads to permit traffic to slow before turning.
- Request was made for traffic signal at the Green Rd. intersection. The WB to SB movement was said to be problematic.
- A concern was expressed that only one of the interchange alternatives aligned opposite of Finley Road (Alternative I-7).
- Suggestion was made that PSG also consider residential development that may occur on the east side of Route 47 when considering the shared use path location.
- The representative from Waubensee Community College flagged localized flooding adjacent to IL 47 just south of Tributary C.
- Comments expressed in regards to sidewalk and shared-use path placement: The location of Waubensee Community College and the existing terminus of the Gilman Trail makes a case for placing the shared-use path on the east side of IL 47. The residential land uses and proposed extension of the Gilman Trail on the west side makes a case for locating the shared-use path there.

These comments will be considered by the project study team as alternatives are further refined.



CAG Meeting #4

Summary

Next Steps

Upon completion of the design alternatives exercise, the next steps were highlighted. The third public meeting is tentatively scheduled for spring of 2017. The alternatives screening results, the alternatives carried forward and the alternative evaluation will be presented.

The next CAG meeting is tentatively scheduled for the spring of 2017; at this meeting the CAG will evaluate the Alternatives Carried Forward (which may include refinements), along with any hybrid alternatives developed before that time, to identify their preferred alternative.

The meeting was adjourned at 11:00 am.



CAG Meeting #5

Summary

General Information, Overview, Purpose, and Goals

The fifth Community Advisory Group (CAG) meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study was held on Wednesday, May 31, 2017 from 9:30 A.M. to 12:30 P.M. at the Academic and Professional Center, Event Room, Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, IL 60554.

The meeting included a PowerPoint presentation that reviewed the previous public involvement activities and feedback (CAG #4 and Public Meeting #3), presented the potential evaluation criteria suggested by the CAG (from CAG #2) in relation to the alternatives to be carried forward for the interchange at I-88 and the IL 47 corridor, presented the alternatives evaluation, and presented the decision-making process for selection of the preferred alternative. The goal of this meeting was to address issues and concerns, identify the preferred alternative, and obtain input on the preferred alternative for further study, design refinement, and impact identification.

Project Team Attendance

- Tony Speciale – Village of Sugar Grove
- Steve Schilke – IDOT
- Kyle Bochte – IDOT
- Niki Nutter – Illinois Tollway
- Peter Johnston – GRAEF
- Tice Cole – CMT
- Jennifer Becker – Kane County Division of Transportation

CAG Member and Stakeholder Attendance

The meeting was attended by 25 stakeholders including 15 of the original 32 CAG members along with 10 additional stakeholders.

1. Walter Magdziarz – Village of Sugar Grove
2. Wayne Parsons – Sugar Grove Fire Protection District
3. Jackie Forbes – Kane Kendall Council of Mayors
4. Tom Rowe – Sugar Grove Township
5. Fred Dornback – Blackberry Township
6. Dan Olsem – Crown Community Development
7. Pete Adams – Waubensee Community College
8. David Livengood – Resident
9. Tyrone Tipitino – Resident
10. Leroy Karp – Resident
11. Christopher Kruse – Resident
12. Brenda Ross – Resident
13. Dorothy Carlson – Resident
14. Lisa Essling – Resident
15. Christopher Stepnoski – Resident



CAG Meeting #5

Summary

Additional Stakeholders in Attendance (All Residents)

1. Christiana Gambill - Resident
2. Alex Kazenko - Resident
3. Melissa Kazenko - Resident
4. Armand Prestidge - Resident
5. Greg Giel – Resident
6. Jim Claypool - Resident
7. Andre Claypool - Resident
8. Kathryn Kruse - Resident
9. Barb Uhlich - Resident
10. Sue Petit - Resident

Alternatives To Be Carried Forward

The IL 47 Corridor Alternatives and I-88 Interchange Alternatives to be Carried Forward was recapped. An 11x17 alternatives overview exhibit was provided to summarize all the alternatives discussed during the meeting. After reviewing the alternatives, the summarized feedback from public meeting #3 was presented.

Interchange Alternatives

The five I-88 interchange alternatives are shown in Table 1.

Table 1.

Alternative	Description
NB	No Build – Existing Half Diamond with Access To/From West
I-1	Conventional Diamond with Traditional Stop/Signal Intersections
I-2	Conventional Diamond with Roundabout Intersections
I-3	Diverging Diamond Interchange (DDI)
I-4	Partial Cloverleaf with Loop Ramp in the Northeast Quadrant

IL 47 Alternatives

The four IL 47 alternatives are shown in Table 2.



CAG Meeting #5

Summary

Table 2.

Alt.	Alignment
NB	No Build Existing Rural Two-Lane Section with no median (4-lane section with median at interchange)
M-1A	Proposed Rural Four-Lane Section, 30' Wide Median, with Widening on Both Sides of the Road
M-1C	Proposed Rural Four-Lane Section, 30' Wide Median, with Widening on Both Sides of the Road Narrower Median at Forest Preserve to minimize Forest Preserve Impacts
M-2C	Proposed Rural Four-Lane Section, 30' Wide Median, with Widening Towards the East Side of the Road to minimize residential impacts Widening on Both Sides of the Road with Narrower Median at Forest Preserve to minimize Forest Preserve Impacts

Potential Evaluation Criteria

Potential Evaluation Criteria that included previously identified CAG issues and concerns were reviewed. Some of the potential evaluation criteria could be measured and some could not for purposes of comparing alternatives. For those that couldn't be measured a qualitative description was provided. In some cases, the potential evaluation criteria would be addressed later in the project study by IDOT policy.

Both the interchange and IL 47 issues and concerns were discussed. They were summarized in separate 11X17 tables for quick reference by the CAG members.

1. Access
 - a. Ease of Access to I-88
 - b. Connectivity of the Roadway System
 - c. Access to IL 47 Adjacent to Interchange
 - d. Accessibility To/From IL 47 From Adjacent Land Uses
2. Economic Development, Land Use, and Property Impacts
 - a. Accommodate the Proposed Land Use Plan
 - b. Farmland Impacts (acres)
 - c. ROW Impacts (acres)
 - d. Residential Displacements
3. Traffic
 - a. Interchange Capacity and Operations
 - b. IL 47 Capacity – Segment Level of Service
 - c. Traffic Volumes on IL 47



CAG Meeting #5

Summary

- d. Truck Volumes on IL 47
- e. Impacts of Traffic on Local Roads
- f. Bicycle and Pedestrian Accommodations
- 4. Safety
 - a. Vehicular Conflict Points
 - b. Median and Left Turn Channelization
 - c. Emergency Vehicle Response and Transport
- 5. Drainage – Storm water, Volume and Pollutants – Best Management Practices (BMPs)
- 6. Environment
 - a. Air Quality
 - b. Noise Impacts
 - c. Lighting Impacts
 - d. Forest Impacts
 - e. Forest Preserve Impacts
 - f. Floodplain Impacts
 - g. Waters of the US Impacts
 - h. Wetland Impacts
- 7. Cost, Funding and Schedule
 - a. Funding
 - b. Schedule
 - c. Bridge Widening
 - d. Estimated Cost

Alternative Evaluation

The list of Potential Evaluation Criteria was screened to what differentiated the build alternatives. Evaluation Criteria was separated into what applied to the interchange and what applied to the IL 47 corridor. A summary sheet was provided with grading of three colors: Green- performed well in comparison to the other alternatives, Yellow – performed moderately in comparison to the other alternatives, Red – performed poorly in comparison to the other alternatives.

Interchange

Alternative I-1 – Conventional Diamond

This alternative graded well in three of the eleven categories, moderately in seven categories, and poorly in one category.

Alternative I-2 – Conventional Diamond with Roundabouts

This alternative graded well in five of the eleven categories, moderately in four categories, and poorly in two categories.



CAG Meeting #5

Summary

Alternative I-3 – Diverging Diamond Interchange

This alternative graded well in two categories, moderately in two categories, and poorly in seven categories.

Alternative I-4 – Partial Cloverleaf Interchange

This alternative graded well on four of the eleven categories and moderately in the remaining seven categories. It did not grade poorly in any category.

IL 47 Corridor

Alternative M-1A

This alternative graded moderately in three of the eight categories and poorly in five of the eight categories.

Alternative M-1C

This category graded moderately in seven of the eight categories and poorly in one category (residential displacements).

Alternative M-2C

This category graded well in two categories, moderately in three of the categories, and poorly in three of the categories (farmland, right-of-way impacts, and construction costs).

Preferred Alternative

The decision-making process leading to selection of the preferred alternative was discussed and the preferred alternatives were identified. Strip Maps showing the preferred alternatives combined were presented and input was sought.

Interchange

Alternative I-3 was taken off the table because it performed poorly in seven categories. Alternative I-2 was eliminated because it performed poorly in two categories and the Project Study Group has concerns about the potential operational issues with the ramp queues backing up onto I-88. That left Alternative I-1 and I-4 remaining. Alternative I-1 and I-4 were design related in that Alternative I-1 would allow future upgrade to Alternative I-4 by adding a ramp and not impacting any newly constructed ramps. The alternative that is preferred by the Project Study Group was Alternative I-4, the Partial Cloverleaf, because (1) it wouldn't result in potential operational issues with back to back left turn lanes resulting in queues spilling into IL 47 thru lanes, and (2) wouldn't necessitate a future project.



CAG Meeting #5

Summary

IL 47 Corridor

Alternative M-1A graded poorly in the most categories and was eliminated. Between Alternatives M-1C and M-2C was tradeoff between potential residential displacements (M-1C) and higher farmland impacts, right-of-way impacts, and construction cost (M-2C). More weight was given to the potential residential displacements; therefore, M-2C was recommended as the preferred alternative.

Discussion

This meeting sought feedback from the CAG regarding their issues and concerns, the evaluation process, the selection of the preferred alternative, and refinements to the preferred alternative moving forward. The CAG did not have any questions on the decision-making process that was presented for selection of the preferred alternative. Questions, requests and comments made by CAG members include the following:

1. Access Management – A comment was made by Blackberry Township that the Oakleaf Drive pavement couldn't sufficiently handle the amount of local traffic that would be rerouted to it within Nottingham Woods subdivision because of converting two of the three full access subdivision entrances to right-in/right-out access. IDOT will analyze the pavement structure and look further into the issue.
2. Residential Impacts – A comment was made by a resident on the east side of IL 47 that Alternative M-2C would have more impacts to their property than alternatives M-1A and M-1C. IDOT stated that the proximity of the house would not result in the categorization of a potential residential displacement. A potential residential displacement is shown only when the proposed ROW line goes through the main residence.
3. Traffic Volumes and Projections – Multiple CAG members questioned the accuracy of the traffic projections developed by the Chicago Metropolitan Agency for Planning (CMAP) and requested further clarification on what the numbers reflect and when the numbers were developed. Their primary points of note were the population trends of the recent recession and the population shifts to different geographic areas. IDOT explained where the numbers came from, when they were developed, and the design horizon that must be considered by law.
4. Roundabout Interchange – There were questions as to why roundabout interchanges work other places and not here. The Project Study Group stated that the operational issues identified and of concern were a result of the distribution of traffic movements. The CAG members requested information be provided showing the capacity and operational performance of the roundabout interchange alternative. The Project Study Group stated they would look further into the situation.



CAG Meeting #5

Summary

5. Air Quality Analysis – A question was raised as to why each alternative did not have a separate emissions analysis. IDOT stated that it is their policy to not evaluate air quality for every alternative to be carried forward. An air quality analysis would be performed with the preferred alternative. The project is included with the Transportation Improvement Program (TIP) developed by the Chicago Metropolitan Agency for Planning (CMAP). The TIP was found to meet all transportation conformity provisions of the Clean Air Act and its amendments and is consistent with the Go To 2040 regional transportation plan.
6. Noise Analysis – Many questions requested clarification on the noise analysis process, the status, and the completion date. IDOT answered questions regarding receptors, decibel reductions, and voting for barrier walls if feasible and reasonable. IDOT stated that the results of the analysis should be available in two to three months.
7. Traffic Signals - Some residents questioned where traffic signals would be located. The traffic signal warrant analysis completed with existing traffic levels indicate that no traffic signals would immediately be warranted. Average Daily Traffic (ADT) is counted every two years on State Routes. IDOT monitors their routes on an annual basis and will review individual intersections as requests for analysis are received.
8. IL 47 Speed Limit – Requests were made to lower the 55 miles per hour (mph) speed limit. IDOT stated that speed limits are posted in accordance with a speed study by state law. The speed study is primarily based upon the existing free flow speed of the roadway. The existing 55 mph speed must be maintained based upon the current conditions. IDOT will monitor their routes and will conduct speed studies as requests for analysis are received.

These comments will be considered by the project study team as alternatives are further refined.

Next Steps

There are no more CAG meetings anticipated unless the necessity arises. The Environmental Assessment Document will be made available for review before a public hearing which is tentatively scheduled for the end of 2017.

The meeting was adjourned at 12:30 P.M.

Appendix E
Public Involvement Comments

Public Meeting #1
July 29, 2015



Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study

Public Information Meeting #1
Short Summary

General Information

The first public information meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) was held on Wednesday, July 29, 2015 at the Academic and Professional Center (APC) Event Room at Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, IL 60554, from 4:00 PM to 7:00 PM, and the meeting was conducted in an open house format.

There were two rooms, one which contained a continuous audio-visual presentation that described the project, outlined the study process, provided a background and history, provided some information regarding the existing conditions, and described the opportunities for stakeholder involvement. The second room contained information, comment forms, and project study representatives. Information in the second room included boards and strip maps. The boards included information regarding the existing access along I-88, the limits of the project study, land use plans, existing and projected no-build traffic volumes, crash locations and statistics, and the project study timeline. Attendees were provided an opportunity to speak with representatives from the Village of Sugar Grove, IDOT, and the Illinois Tollway. The meeting was attended by one hundred and three (103) people. Seventeen (17) comment forms were received. Four (4) Community Advisory Group applications were received.

Attendees

Public Officials

The following public officials were in attendance:

- Beth Goncher on behalf of U.S. Congressman Hultgren (14th District)
- Jim Oberweis, Illinois State Senate (25th District)
- Sean Michels, President, Village of Sugar Grove
- Dave Anderson, President, Village of Elburn
- Tom Rowe, Sugar Grove Township Supervisor
- Fred Dornback, Blackberry Township Supervisor
- Rod Feece, Blackberry Township Highway Commissioner

CAG Members

The following representatives from the initial stakeholder meetings were in attendance (all have applied to be on CAG):

- Tom Rowe, Sugar Grove Township Supervisor
- Fred Dornback, Blackberry Township Supervisor
- Rod Feece, Blackberry Township Highway Commissioner
- Dan Larsen, Waubensee Community College

Businesses

No businesses were represented. The area is generally agriculture and residential. Jennifer Cowan attended on behalf of Crown Community Development (CCD).

Other Agencies/Organizations

Additional agencies/organizations represented included:

- Chief Pat Rollins, Sugar Grove Police Department
- Assistant Chief Wayne Parson, Sugar Grove Fire Protection District
- Craig Hanson, Elburn Fire Department
- Michelle Piotrowski, EEI (EEI is Village Engineer)
- Julie Ann Fuchs, Kaneland CUSD 302
- Dan Larsen, Waubensee Community College
- Walter Magdziarz, Development Director, Village of Sugar Grove

Comments

Seventeen (17) comment forms were received and fifteen (15) comments were posted on strip maps at the areas of concern. The topics include the following:

General

- Concerns about stormwater runoff from the roadways and protecting the water quality of the watershed.
- Consider Prairie plantings to eliminate or minimize mowing maintenance.
- Consider including a representative from Kane DuPage Soil and Water Conservation District on the CAG
- Concerns about Village land use plan for commercial on their property (agricultural with homestead)
- Do not zone southwest quadrant of interchange for commercial. Don't want a gas station there.
- Can commercial be limited to very light industry at Northwest quadrant of interchange. Limit warehouses with multiple truck bays.
- People were helpful and informative

Interchange/I-88

- Interchange needed for Community Development
- Investigate cloverleaf interchange type
- Opposed to eastbound access
- Existing emergency turnaround located one mile west of IL 47. Consider an emergency turnaround near Bliss Road for emergency services (half way between IL 47 and IL 56).

Illinois Route 47

- Concerns about Traffic (safety/capacity) at the intersection of IL 47 and Finley Road in relationship to proximity of interchange
- Don't remove Finley Road access to IL 47
- Need Safer access to residential areas
- Concern about finding gaps in traffic to enter IL 47 (side-street LOS)
- Consider channelization of intersections
- Consider traffic signals at intersections
- Consider moving IL 47 to the east away from the residential land uses
- Consider straightening of horizontal curve of IL 47 to improve safety
- Concern about noise impacts, Consider noise abatement for existing surrounding residential areas
- Consider replacement narrow aggregate shoulders with wider paved shoulders
- Safety concerns with vehicles potentially leaving roadway and entering yards and houses
- Sight Distance (safety) concerns at intersection of Scott Road and IL 47
- Need widened from 2-lane to 4-lane highway

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Chad Schide
3S540 Finley Road
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. Schide,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the re-alignment of Finley Road. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. The access to and from IL 47 will be evaluated during the alternatives development phase of the project.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: CHAD Schiele Organization/Group: homeowner
Street Address: 35540 Finley Rd. City, State & Zip: Sugar Grove IL 60088
Email: Chad.Schiele@yahoo.com Phone: 630-461-8227
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Traffic at 47 & Finley with addition of East bound lanes
too close & confusing. Re Route by Power lines on South
of subdivision? Possible.

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Tom & Susan Martin
43W432 Old Oaks Road
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. & Mrs. Martin,

Thank you for your comments concerning the Preliminary Engineering and Environmental (Phase I) Study for the IL 47 at I-88 Interchange. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Thank you for your comment and general support.

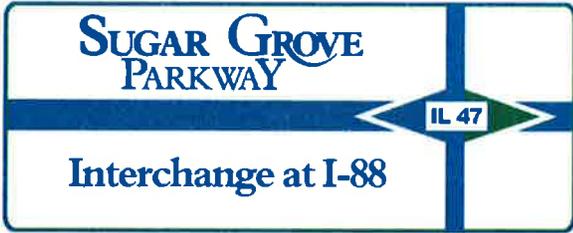
We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: *John & Susan Martin* Organization/Group:
Street Address: *4310432 Old Oaks Rd* City, State & Zip: *Sugar Grove, IL 60554*
Email: Phone: *630-222-9635*
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

People were helpful & informative

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

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VILLAGE CLERK

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VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Donald McGreer
609 Willow Street
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. McGreer,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding providing safe access to residential developments along the IL 47 corridor. Several alignment alternatives will be developed and evaluated during the alternatives development phase of the project. An analysis for each alternative would evaluate the clear zone adjacent to the roadway to ensure the roadside is clear of obstructions or other hazardous conditions. If providing the clear zone is not practical in certain locations, then the use of barriers will be evaluated. The horizontal and vertical geometry of the proposed roadway will be designed in accordance with current Department and Federal Highway Administration policy and criteria to provide safe sight distances. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections.

Your preference for the full interchange at I-88 has been noted and will be taken into consideration in the development of the preferred alternative.

In regard to traffic noise, the Department acknowledges highway traffic noise is a concern along virtually all major highways and expressways in the Chicago metropolitan area, as well as a number of other locations around the state. When evaluating traffic noise, traffic noise impacts and traffic noise abatement, the process the Department follows conforms to the Federal Highway Administration (FHWA) regulations, policies and procedures. Information about the IDOT noise policy, procedures and abatement consideration for traffic noise impact along with traffic noise facts and other information are located at <http://www.dot.il.gov/desenv/noise.html>.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in cursive script that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Donald McGreer Organization/Group: _____
Street Address: 609 Willow St. City, State & Zip: Sugar Grove, IL 60554
Email: d.mcgreer@outlook.com Phone: 331-223-8582
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

To provide safer access to the residential areas served by Scott Rd, Finley Rd, and Merrill Rd, please consider moving Rte 47 to the east of the current road. Starting from Merrill Rd and continuing to Seavey Rd. will straighten out the hazardous curve and allow use of "undeveloped" land on the east side of 47.

OVER →

Left Turn lanes for north bound traffic should be planned at Scott Rd. and Finley Rd.

A full interchange at I 88 is a necessity for community development. However, noise abatement for surrounding residential areas will have to be provided.

Thank you for your participation in the IL 47 at I-88 Interchange Project.

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

John Heneghan
8S809 John Street
Big Rock, IL 60511

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. Heneghan,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubonsee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding geometric factors along IL 47 and at the I-88 interchange. A number of interchange types will be evaluated as part of the alternatives development phase of the project and consequently different alternatives will also be evaluated regarding the existing IL 47 structure over I-88. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections. Analysis of traffic volumes will be performed in order to accommodate acceptable level of operating service for both the existing and projected traffic volumes. These analyses will be an essential tool in developing the project alternatives along IL 47 and at the I-88 Interchange.

Your comments also expressed concern regarding drainage throughout the corridor. A comprehensive drainage study will be performed as part of this study and will include the evaluation of storm water runoff flow rates and routes. Maintaining existing storm water routing is an important element for consideration in the design of a proposed drainage system. The drainage study also includes evaluation and recommendation of potential temporary (during construction) and permanent Best Management Practices (BMPs) relative to water quality. BMPs are measures that are implemented to control water pollution resulting from storm water runoff from impervious areas, such as pavements and sidewalks.

Your preference for maintenance free landscaping and the use of prairie plants has been noted and will be taken into consideration in the development of the preferred alternative.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style with a large initial "P" and a long, sweeping underline.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: John Heneghan Organization/Group: Self / None
Street Address: 88809 John St. City, State & Zip: Big Rock, IL 60511
Email: johnhens@shcglobal.net Phone: 630-884-4000
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I would hope a cloverleaf interchange is going to be used. I think this would help with managing traffic. I assume the bridge would be widened. A study should be done showing turns onto Rt 47 off Scott and Finley and Green. I am guessing the addition of access to 47 will lead to greater traffic. I assume 47 will become

OVER →

4 lanes at least through the impacted area. I think 4 lanes would be desirable northbound from 88 through at least Main St.

I would also expect wide? solid/paved shoulders that are full lane access instead of gravel shoulders. Perhaps left turn lane for 47 and Green (Southbound traffic) and left turn lanes for Scott and Finley for Northbound Rt 47 or eliminate left turns.

Will drainage for the roads incorporate a facility to hold runoff so as not to pollute the local watershed?

I would encourage maintenance free landscaping to eliminate or minimize having to mow. Use the green areas for prairie plants.

Thank you for your participation in the IL 47 at I-88 Interchange Project.

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Kathye Bollman
2S580 Derussey Lane
Elburn, IL 60119

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Ms. Bollman,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubonsee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the safety and capacity along the corridor specifically at the Nottingham Woods subdivision. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Kathye Bollman

Organization/Group: Resident

Street Address: 2 S 580 DeRussey La City, State & Zip: Elburn IL 60119

Email: kwbollman@aol.com

Phone:

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF

Attn: Peter Johnston, P.E.

8501 W. Higgins Road

Suite 280

Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Concern: As a resident ~~in~~ in a subdivision (Nottingham Woods) that has direct access to 47, getting onto 47 can be difficult due to speed limit + current traffic volume. Also exiting 47 to my subdivision is difficult + dangerous trying to turn left (west) watching the rear view mirror and trucks coming up fast. A left turn lane would absolutely be necessary due to increased traffic.

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Bill & Brenda Suhayda
43W445 Thornapple Tree Road
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. & Mrs. Suhayda,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubonsee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the safety along the corridor relating to geometric factors of IL 47. Several alignment alternatives will be developed and evaluated during the alternatives development phase of the project. An analysis for each alternative would evaluate the clear zone adjacent to the roadway to ensure the roadside is clear of obstructions or other hazardous conditions. If providing the clear zone is not practical in certain locations, then the use of barriers will be evaluated.

In regard to traffic noise, the Department acknowledges highway traffic noise is a concern along virtually all major highways and expressways in the Chicago metropolitan area, as well as a number of other locations around the state. When evaluating traffic noise, traffic noise impacts and traffic noise abatement, the process the Department follows conforms to the Federal Highway Administration (FHWA) regulations, policies and procedures. Information about the IDOT noise policy, procedures and abatement consideration for traffic noise impact along with traffic noise facts and other information are located at <http://www.dot.il.gov/desenv/noise.html>.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style with a large initial "P" and a long, sweeping underline.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Bill & Brenda Suhayda Organization/Group: self
Street Address: 43 W 445 Thornapple Tree Rd City, State & Zip: Sugar Grove IL 60554
Email: bsuhayda@yahoo.com Phone: 630-409-5153
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Our concerns involve our quality of life in terms of safety from vehicles coming off the highway into our yard & perhaps in to our house! Especially if the vehicles are those large gravel trucks or semis. Noise will also be an issue as the traffic will be even closer to our house. Also, the resale ^{value} of our property is a concern. Suggestions: Either a wall or beam for safety. Could expansion all go to the ~~West~~ East of Rt 47? all property homeowners are ~~at~~ on the West of 47.

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Dorothy Carlson
43W760 Old Midlothian Road
Elburn, IL 60119

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Ms. Carlson,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubonsee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the safety and capacity along the corridor specifically at the Nottingham Woods subdivision. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections. Analysis of traffic volumes will be performed in order to accommodate acceptable level of operating service for both the existing and projected traffic volumes. These analyses will be an essential tool in developing the project alternatives along IL 47 and at the I-88 Interchange. Traffic signal warrants will be analyzed at all intersections throughout the corridor in order to determine if and where traffic signals are necessary. As of right now the northern terminus for the project is at Green Road. If during the course of the project development a need to extend the project limits occurs, the extension will be considered at that time.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Dorothy Carlson Organization/Group: Self
Street Address: 4307160 Old Middlefield City, State & Zip: Elburn IL 60119
Email: dortylou12@gmail.com Phone: 630-557-2253
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

My concerns traffic & getting in & out of my subdivision (Nottingham Woods) safely. I feel its very important to have left & right turn lanes for the subdivisions along this corridor (especially Nottingham Woods) Green Rd needs to have a light & traffic should be routed with double lanes further than Green Rd because of so many students using that road to & from Waubesa. I'm so concerned about commercial development causing so much traffic. Thanks for offering the meeting w/ a chance to respond.

www.SugarGroveInterchange.org

Appendix H

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Kari & Bill Ayers
3S575 Marian Circle
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. & Mrs. Ayers,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the safety along the corridor relating to geometric factors of IL 47. Several alignment alternatives will be developed and evaluated during the alternatives development phase of the project. An analysis for each alternative would evaluate the clear zone adjacent to the roadway to ensure the roadside is clear of obstructions or other hazardous conditions. If providing the clear zone is not practical in certain locations, then the use of barriers will be evaluated. The access to and from IL 47 will be evaluated during the alternatives development phase of the project. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections. Traffic signal warrants will be analyzed at all intersections throughout the corridor in order to determine if and where traffic signals are necessary.

Your comments also expressed concern regarding the exhibits presented at the first public meeting. The exhibits shown at the meeting were indicating the existing conditions and the limits of the study. The type of improvement, construction limits, and impacts have not been determined yet. Alternatives will be developed that will indicate the limits of construction and anticipated impacts.

In regard to traffic noise, the Department acknowledges highway traffic noise is a concern along virtually all major highways and expressways in the Chicago metropolitan area, as well as a number of other locations around the state. When evaluating traffic noise, traffic noise impacts and traffic noise abatement, the process the Department follows conforms to the Federal Highway Administration (FHWA) regulations, policies and procedures. Information about the IDOT noise policy, procedures and abatement consideration for traffic noise impact along with traffic noise facts and other information are located at <http://www.dot.il.gov/desenv/noise.html>.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style with a large initial "P" and a long, sweeping underline.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Karli & Bill Ayers Organization/Group: _____
Street Address: 35575 Marian Circle City, State & Zip: Sugar Grove, IL 60554
Email: Karlihsimmons@yahoo.com Phone: 630-485-0091
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF

Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

or, turn lanes ↘
In regards to Finley Road, we will need a safe and easy way to enter and exit onto Rt. 47. Suggestion would be a light and/or re-route. Noise is also a huge concern, a privacy wall will be needed. Currently, trying to turn onto Finley Road is very dangerous with there only being one lane. With semi's doing 50+ mph, there are unsafe ways to safely turn onto Finley Rd. Looking at the

OVER →

map and project plans, the projected construction of roadway is currently literally going through our house and detached garage. Obviously, a huge issue. With that, property values decrease, our ^{septic} sewer field is hugging the property line, beautiful oak trees hug the line, and potential for flooding and overflow of snow.

Overall, the safety of our community is critical. As long as the safety needs are addressed and noise is handled, we can support and cooperate as good neighbors. With many young children in the neighborhood playing in the backyard is going to be unsafe. A suggestion would be to move the roadway Rd 47 ~~into~~ expand east not west to avoid disrupting homes and families on the west side of 47. All neighborhoods should have turn lanes to safely enter the side roads.

Respectfully,
Ayers Family

Thank you for your participation in the IL 47 at I-88 Interchange Project.

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Keith and Laura Gerling
3S544 Finley Road
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. & Mrs. Gerling,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your contact information has been added to our stakeholder database and you will receive updates about the project including invites to future public involvement activities. Stakeholder involvement will be an ongoing process. Various meetings will be held throughout the project development process to provide outreach opportunities to all stakeholders.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Keith & Laura Gerling

Organization/Group:

Street Address: 35.544 Finley Road

City, State & Zip: Sugar Grove IL 60554

Email: Keith.gerling@gmail.com

Phone: 630-915-0287

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF

Attn: Peter Johnston, P.E.

8501 W. Higgins Road

Suite 280

Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

please keep us informed!

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Dale and Lisa Essling
2S940 IL Rt. 47
Elburn, IL 60119

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. & Mrs. Essling,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubonsee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the potential widening of IL 47 and access to/from IL 47. Several alignment alternatives will be developed and evaluated during the alternatives development phase of the project. An analysis for each alternative would evaluate the clear zone adjacent to the roadway to ensure the roadside is clear of obstructions or other hazardous conditions. If providing the clear zone is not practical in certain locations, then the use of barriers will be evaluated. The access to and from IL 47 will be evaluated during the alternatives development phase of the project.

Your comments also expressed concern regarding zoning. A land use plan map, developed by the Village of Sugar Grove, is a planning document and guide for future development and is subject to change. If the property were to be annexed to the Village of Sugar Grove and proposed for development, then the Village would consider a commercial use for the development. If the property remains unincorporated and does not develop, then the existing agricultural/homestead use would remain unless the owner is proposing something different.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style with a large, looped initial "P".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Dale & Lisa Essling Organization/Group:
Street Address: 28940 IL Rt 47 City, State & Zip: Elburn, IL 60119
Email: elburnberryhill@gmail.com Phone: 680-557-0025
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Our property/home is the Sacre NW corner of Seavey Rd and Rt 47. We are concerned about road widening and in/out access. We are also curious as to why one of the maps shows our property to be zoned "commercial" in the future. It is currently agriculture zoning with one homestead.

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Lydia Gray
43W991 Oak Leaf Drive
Elburn, IL 60119

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Ms. Gray,

Thank you for your interest concerning the Preliminary Engineering and Environmental (Phase I) Study for the IL 47 at I-88 Interchange. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubonsee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Lydia Gray **Organization/Group:** _____
Street Address: 43991 Oakleaf Dr **City, State & Zip:** Elburn, IL 60119
Email: LYDIAGRAYDIM@gmail.com **Phone:** 630-557-0241
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Mary Ochenschlager
5S747 IL Route 47
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Ms. Ochenschlager,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubonsee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comment included a suggestion to add a representative from the Kane DuPage Soil and Water Conservation District (KDSWCD) to the Community Advisory Group (CAG). The Project Study Group (PSG) has extended an invitation to the KDSWCD to serve on the CAG and they have accepted. The KDSWCD attended the first CAG and provided input.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Mary Ochsen Chicago Organization/Group: _____
Street Address: 55747 Sugar Grove Parkway City, State & Zip: So. 60554
Email: maryoxi@stcglobal.net Phone: _____
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Consider including a representative from Kane County Soil & Water District on the Advisory Committee

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Brenda & Ron Ross
3S546 Finley Road
Sugar Grove, IL 60554

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting 12 Comments

Dear Mr. & Mrs. Ross,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the safety of the IL 47 and Finley Road intersection. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Traffic signal warrants will be analyzed at all intersections throughout the corridor in order to determine if and where traffic signals are necessary. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections. Analysis of traffic volumes will be performed in order to accommodate acceptable level of operating service for both the existing and projected traffic volumes. These analyses will be an essential tool in developing the project alternatives along IL 47 and at the I-88 Interchange.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in black ink that reads "P. Sean Michels". The signature is written in a cursive style.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: Brenda + Ron Ross Organization/Group: _____
Street Address: 35.546 Finley Rd City, State & Zip: 56. IL 60554
Email: bjune62@aol.com Phone: _____
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

My comment is in regard to Finley Rd + Rt. 47, the intersection needs a stoplight or some ^{improvement} ~~app~~.
Very difficult to turn out onto Rt 47 at many times during the day and with the Southbound 47 being 2 lanes and moving to 1 lane
Traffic is hazardous.

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

November 18, 2016

Dolf & Sue Schaschwary
43W756 Oak Leaf Drive
Elburn, IL 60119

SUBJECT: Sugar Grove (IL 47) Parkway at the Ronald Reagan Memorial Tollway (I-88)
Interchange Improvement Study
Public Meeting #1 Comments

Dear Mr. & Mrs. Schaschwary,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding the safety along the corridor specifically at the Nottingham Woods subdivision. As part of this Phase I Study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections. Traffic signal warrants will be analyzed at all intersections throughout the corridor in order to determine if and where traffic signals are necessary. Analysis of traffic volumes will be performed in order to accommodate acceptable level of operating service for both the existing and projected traffic volumes. These analyses will be an essential tool in developing the project alternatives along IL 47 and at the I-88 Interchange.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name: DOLF + SUE SCHASCHWARY Organization/Group:
Street Address: 43W756 OAKLEAF DR City, State & Zip: (NOTTINGHAM WOODS) EL BURN
Email: DOLFS88@YAHOO.COM Phone: 630-557-2426
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **August 12, 2015 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

GOING NORTH ON ROUTE 47, THERE IS
NO ~~RIGHT~~ ^{LEFT} TURN LANE FOR NOTTINGHAM
WOODS, THIS IS A CONCERN, SINCE TRAFFIC
WILL INCREASE. WE HAVE A PROBLEM
ALREADY DURING CERTAIN TIME OF
THE DAY. RIGHT - COMING OUT OF
NOTTINGHAM WOODS MAY ALSO BECOME
A PROBLEM.

OVER →

SCOTT RD
NORTH
CAN NOT SEE
TRAFFIC
GOING SOUTH ON 47

NEED XTRA LANE
ON SCOTT &
THORNAPPLE
SOUTH BOUND 47
TO WEST BOUND
SCOTT & THORNAPPLE



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name:

Organization/Group:

Street Address:

City, State & Zip:

Email:

Phone:

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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8501 W. Higgins Road

Suite 280

Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I think the project is unnecessary & should be put on hold. I am 100% against the addition of an eastbound interchange.

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM

Contact information

Name:

Organization/Group:

Street Address:

City, State & Zip:

Email:

Phone:

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8501 W. Higgins Road

Suite 280

Chicago, IL 60631-28014

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

The Finley Rd & 47 intersection needs
to be addressed immediately!
A Left turn lane northbound
& A Right turn lane southbound
very dangerous for those wanting
to turn.

OVER →

Public Meeting #2
May 3, 2016



Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study

Public Information Meeting #2 Short Summary

General Information

The second public information meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) was held on Tuesday, May 3, 2016 at the Academic and Professional Center (APC) Event Room at Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, IL 60554, from 4:00 PM to 7:00 PM. The meeting was conducted in an open house format.

There were two rooms, one which contained a continuous audio-visual presentation that described the project summary, provided the study process and schedule, reviewed the purpose and need, and described development of project alternatives. The second room contained information, comment forms, and the project study representatives. Information in the second room included boards, binders and strip maps. The boards included: information regarding the existing access along I-88, the limits of the project study, the purpose and need information, the public involvement process, environmental study overview, existing and projected no-build traffic volumes, existing level of service, crash locations and statistics, the community advisory group summary to date, and the project study timeline. The binders and strip maps included the project location, the CAG interchange alternative sketches, and the range of interchange alternatives. Attendees were provided an opportunity to speak with representatives from the Village of Sugar Grove, IDOT, Kane County, and the Illinois Tollway. The meeting was attended by fifty-eight (58) people. Eleven (11) comment forms were received.

Attendees

Public Officials

The following public officials were in attendance:

- Ben Marcum on behalf of Illinois State Representative Wheeler (50th District)
- Sean Michels, President, Village of Sugar Grove
- Rod Feece, Blackberry Township Highway Commissioner

Other Agencies/Organizations

Additional agencies/organizations represented included:

- Jim Michels, Blackberry Township
- Assistant Chief Wayne Parson, Sugar Grove Fire Protection District
- Michelle Piotrowski, EEI (EEI is Village Engineer)
- Dan Lobbes, The Conservation Foundation
- Daniel Olsem, Crown Community Development

Businesses

No businesses were represented. The area is generally agriculture and residential.

Media

The following Media were represented:

- Doug Michaels, WSPYnews.com

CAG Members

The following CAG members were in attendance:

- Wayne Parson, Sugar Grove Fire Protection District
- Rod Feece, Blackberry Township
- Dan Lobbes, The Conservation Foundation
- Daniel Olsem, Crown Community Development
- Dorothy Carlson, Resident
- Leroy Karp, Resident
- David Livengood, Resident
- Christopher Kruse, Resident

Comments

Eleven (11) comment forms and one (1) email comment were received. Twenty-one (21) comments were posted on strip maps at the areas of concern. The topics include the following:

General

- Request to build soon as possible for economic development.
- Concern about ending the study at Green Road and preferably should be to Main Street.

Interchange Alternatives

- Indirect interchange access alternatives not preferred.
- Prefer new interchange moved east and existing IL-47 to remain.
- Consider option to keep existing interchange and widening to a diamond configuration with added ramps.
- Diverging Diamond Interchange preferred and works.
- Conventional Diamond Interchange seems simple and clean.
- Single Point Urban Interchange seems reasonable but question of cost effectiveness.
- Roundabout option not preferred and seems complicated.

Illinois Route 47 Alignment Alternatives

- Moving new interchange east and keeping existing IL-47 to remain is the most preferred option among all re-alignment alternatives.
- Prefer keeping existing IL-47 and existing bridge for local access.
- Like the idea of a frontage road with the re-alignment.
- Concern over the need for a noise barrier wall if IL-47 is to be widened.
- Keep Finley Road access to both north and south to IL-47.
- Prefer to have a turning and by-pass lane for IL-47.

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Cathy Doyle
43W420 Old Oaks Rd.
Sugar Grove, IL 60554

Dear Mrs. Doyle,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments indicated a preference for no noise wall near Old Oaks Road as a mitigation measure for potential noise impacts associated with any improvements. When evaluating traffic noise, traffic noise impacts and traffic noise abatement, the process the Department follows conforms to the Federal Highway Administration (FHWA) regulations, policies and procedures. Information about the IDOT noise policy, procedures and abatement consideration for traffic noise impact along with traffic noise facts and other information are located at <http://www.idot.illinois.gov/assets/uploads/files/doing-business/manuals-guides-&-handbooks/highways/design-and-environment/htnmanual.pdf>. The noise analysis will be completed toward the end of this study after a preferred alternative is identified.

Your comments also indicated your preference for a conventional diamond. Your preference has been noted and will be taken into consideration in the screening of alternatives.

Your comments expressing preference for no road widening on IL 47 has been noted and will be taken into consideration as we evaluate the traffic projections and capacity needs on IL 47.

Your comments indicated that you would not prefer roundabouts. Information on roundabouts can be found on the U.S. Department of Transportation Federal Highway Administration website at <http://safety.fhwa.dot.gov/intersection/innovative/roundabouts/>. Your preference has been noted and will be taken into consideration in the screening of alternatives.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels". The signature is written in a cursive, flowing style.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: CATHY DOYLE **Organization/Group:**

Street Address: 43W420 Old Oaks Rd **City, State & Zip:** Sugar Grove IL 60554

Email: doyles@mchsi.com **Phone:** 630-730-0506

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **May 17, 2016 deadline** via:

Mail:
 GRAEF
 Attn: Peter Johnston, P.E.
 8501 W. Higgins Road
 Suite 280
 Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Please no wall barrier on Rte 47 and Old Oaks Road
 I like the conventional Diamond.
 I prefer no road widening on Rte 47.
No roundabouts

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Chris Kruse
3S560 Marian Cir. E
Sugar Grove, IL 60554

Dear Mr. Kruse,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments indicated the frontage road would be a desirable alternative. Your preference has been noted and will be taken into consideration in the screening of alternatives. If a frontage road alternative is refined for further study, then the pros and cons of keeping the existing bridge for local access will be evaluated.

Your comments expressed concern regarding Finley Road access. All access control will be evaluated in allowance with the Illinois Highway Code, the Illinois Department of Transportation Bureau of Design and Environment Manual, and the Illinois Tollway, Interchange and Roadway Cost Sharing Policy. Your preference to maintain access to Finley Road will be noted and be taken into consideration in the screening of alternatives.

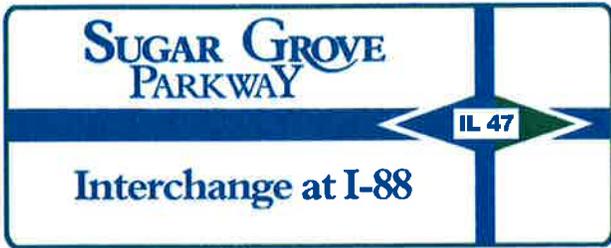
We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: CHRIS KRUSE Organization/Group: _____
Street Address: 35560 MARIATI CIRE City, State & Zip: SUGAR GROVE IL
Email: ckruse@mac.com Phone: 60554
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **May 17, 2016 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I LIKE THE SOLUTIONS THAT REALIGN
47 TO THE EAST. IF IS ABSOLUTELY NECESSARY,
PLEASE MAINTAIN LOCAL ACCESS OVER EXISTING BRIDGE.
FINLEY ROAD ~~WAS~~ MUST BE ABLE TO
TURN LEFT + RIGHT ON 47!

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Dorothy Carlson
43W760 Old Midlothian
Elburn, IL 60119

Dear Mrs. Carlson,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern for ending the study limits at Green Road. Green Road is the northern logical termini of the project and will be evaluated for capacity and safety.

Your comments also indicated the frontage road would be a desirable alternative because it moves traffic away from the residential neighborhood. Your preference has been noted and will be taken into consideration in the screening of alternatives.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: *Dorothy Carlson* Organization/Group: *Resident*
Street Address: *43 W 760 Old Meadellan* City, State & Zip: *Edgewood IL 60119*
Email: *dortylo412@gmail.com* Phone: *630-557-2253*
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I am very concerned about ending the study at Green Rd. Green Rd produces a lot of traffic on Rt 47 & the flow should move past Green Rd - preferably to Main St. Rd w/a stop light there. I prefer the realignment of 47 & 47 remains. It makes sense to have a frontage rd. for the subdivisions involved, especially for Nottingham Woods. This configuration seems most feasible

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Doug S. Michaels
PO Box 252
Plano, IL 60545

Dear Mr. Michaels,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments indicated that you would like another way to access I-88 from IL-47. You also noted that the area has grown and is overloading U.S. 30. Your preference for more access to I-88 at IL-47 has been noted and will be taken into consideration in the screening of alternatives.

Your comments indicated that you would not prefer a roundabout interchange alternative because of concerns regarding speed and safety. Information on roundabouts can be found on the U.S. Department of Transportation Federal Highway Administration website at <http://safety.fhwa.dot.gov/intersection/innovative/roundabouts/>. Your preference has been noted and will be taken into consideration in the screening of alternatives.

Your comments also expressed that a relocation of IL-47 would be costly and therefore, undesirable. Your preference has been noted and will be taken into consideration in the screening of alternatives.

Your comments also indicated that you would prefer a completion of the existing partial diamond to a full diamond with bridge improvements to accommodate this interchange type. Your preference has been noted and will be taken into consideration in the screening of alternatives.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,



P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: Douglas S. Michaels Organization/Group: WSPY 107.1 FM
Street Address: PO Box 252 City, State & Zip: Plano IL 60545
Email: Mdcleaningkit@gmail.com Phone: 630-777-2950
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **May 17, 2016 deadline** via:

Mail: GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I have traveled 47 N & S For over 2 year going to East durdee. I believe this inter charge is needed for two reasons. 1. I Live in plano, IL and I would like to be able to take an Entrance to 88 from RT 47 instead of RT 30/56. 2. I think this area has grown more than what RT 30 can handle from traffic coming North bound on 47. I hope that makes

OVER →

Sense, I don't think the roundabout option will work, because traffic along this RT 47 is traveling at 55 + 0 65 Mph. Although it would slow it down, it may cause more accidents. I also do not think the idea of moving 47 is a good option because it would be too costly. I think maybe widening the RT 47 bridge, and a simple Diamond Config. is the best solution & keep the existing EB Exit & WB Entrance. And maybe adding EB Entrance & a WB Exit.

Thank you for your participation in the IL 47 at I-88 Interchange Project.

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Joanna Livengood
43W507 Old Oaks Rd.
Sugar Grove, IL 60554

Dear Mrs. Livengood,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed desire to consider a full cloverleaf interchange at IL 47 and I-88 to keep all traffic moving. A full cloverleaf was presented at the Community Advisory Group (CAG) as a type of interchange in the toolbox. The full clover leaf interchange will be added to the alternatives and evaluated during the screening process. Your preference has been noted and will be taken into consideration in the screening of alternatives.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: Joanna Livengood **Organization/Group:**

Street Address: 43W507 Old Oaks Rd **City, State & Zip:** Sugar Grove, IL 60554

Email: livey11197@aol.com **Phone:** 630-466-7967

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Consider building a full cloverleaf at I-47 & I-88 to keep all traffic moving. This alternative may be more affordable than building a whole new road & bridge, which are considered alternatives.

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Joel Eaves
750 Tudor Ct.
Sugar Grove, IL 60554

Dear Mr. Eaves,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding building the project as soon as possible for further economic development. Once we have completed the Phase 1 study, we will know more about the potential scope of improvements and associated costs. Project costs will be developed as part of this study. This improvement is partially funded in the Departments FY 2017-2022 Proposed Highway Improvement Program and requires additional local cost participation to advance beyond Phase I.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443.

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: JOEL EAVES Organization/Group: _____

Street Address: 750 TUDOR CI. City, State & Zip: SUGAR GROVE

Email: _____ Phone: 630/514-9286

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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 8501 W. Higgins Road
 Suite 280
 Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Please build this as soon as possible. Our area needs economic development. If this takes too long we could miss out on our opportunity to attract business.

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Kathryn Kruse
3S560 Marian Cir. E
Sugar Grove, IL 60554

Dear Mrs. Kruse,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments indicated the frontage road would be a desirable alternative because it moves heavy traffic and trucks away from the residential neighborhood. If a frontage road alternative is refined for further study, then the pros and cons of keeping the existing bridge for local access will be evaluated.

Your preference has been noted and will be taken into consideration in the screening of alternatives.

Your comments expressed concern regarding Finley Road access. All access control will be evaluated in allowance with the Illinois Highway Code, the Illinois Department of Transportation Bureau of Design and Environment Manual, and the Illinois Tollway, Interchange and Roadway Cost Sharing Policy. Your preference to maintain access to Finley Road will be noted and be taken into consideration in the development of alternatives.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: Kathryn Kruse **Organization/Group:** _____
Street Address: _____ **City, State & Zip:** Sugar Grove
Email: _____ **Phone:** _____

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **May 17, 2016 deadline** via:

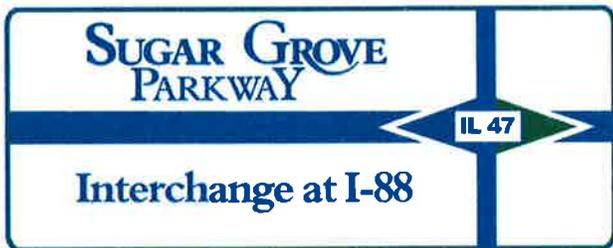
Mail:
GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Consider alternatives pushing 47 further East, for majority of traffic, but keeping current 47 open to local traffic for access North + South to join new 47.

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: Kathryn Kruse **Organization/Group:** _____
Street Address: 35500 Maman Cir. **City, State & Zip:** Sugar Grove IL
Email: jchalehla24@yahoo.com **Phone:** _____
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **May 17, 2016 deadline** via:

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8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Do not want heavy traffic
on 47 in this area -
want trucks moved east,
47 open to local traffic.

- ★ Need to protect the ability to turn left (North) from Finley onto 47.
- ★ Want new interchange moved East, and existing Rt. 47 rd. to remain. Want continued access to 47 in both directions (North & South) from Finley, and would prefer traffic volume reduction on 47 - moved east to new re-aligned alternatives.
Please maintain local access over existing bridge

OVER →

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,



P. Sean Michels
President

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Kathye Bollman
2S580 DeRussey Lane
Elburn, IL 60119

Dear Mrs. Bollman,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments indicated the frontage road would be a desirable alternative because it moves traffic away from the residential neighborhood. Your preference has been noted and will be taken into consideration in the screening of alternatives.

Your comments also expressed concern for ending the study limits at Green Road. Green Road is the northern logical termini of the project and will be evaluated for capacity and safety.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: Kathye Bollman Organization/Group: Resident
Street Address: 2 S 580 DeRussey La City, State & Zip: Elburn IL 60119
Email: Rwbollman@AOL.com Phone: 630-358-6006
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **May 17, 2016 deadline** via:

Mail:
GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

- ① My favorite option is: Re-alignment of 47 where 47 remains.
I like the idea of ~~erase~~ a frontage road. I live in Nottingham Woods which is in the NE area of the "Study Area." ~~But~~ North-bound access now can be difficult and I think taking all that tollway traffic ~~off~~ away from my neighborhood is terrific.
- ② I also think the Study area needs to include the intersection of 47 and Green Rd due to the amount of traffic on

OVER →

2 (cont) Green Rd that wants to go south.

Thank you for your participation in the IL 47 at I-88 Interchange Project.

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Stan & Sally Floyd
43W666 Marian Cir S
Sugar Grove, IL 60554

Dear Mr. and Mrs. Floyd,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments expressed concern regarding Finley Road access. All access control will be evaluated in allowance with the Illinois Highway Code, the Illinois Department of Transportation Bureau of Design and Environment Manual, and the Illinois Tollway, Interchange and Roadway Cost Sharing Policy. Your preference to maintain access to Finley Road will be noted and be taken into consideration in the development of alternatives.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels".

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: STAN & Sally Floyd Organization/Group: —
Street Address: 430666 MARIAN CIR. S City, State & Zip: SUGAR GROVE, IL 60554
Email: floydsands@mchsi.com Phone: 630/557-2493
How would you like to stay informed? Email Mail Do not send study updates to me.

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8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

We are concerned about Finley Road access—
turning in and exiting

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

Steve Szczepanik
43W350 Thornapple Tree Rd.
Sugar Grove, IL 60554

Dear Mr. Szczepanik,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments indicated a concern regarding the alignment and widening of IL 47 in the proximity to your house. The widening of IL 47 will be taken into consideration as we evaluate the traffic projections and capacity needs in the corridor. The frontage road alternative and asymmetrical widening alternatives have the potential to avoid or minimize residential impacts on the west side of IL-47. Your preference has been noted and will be taken into consideration in the screening of alternatives.

In regard to traffic noise, the Department acknowledges highway traffic noise is a concern along virtually all major highways and expressways in the Chicago metropolitan area, as well as a number of other locations around the state. When evaluating traffic noise, traffic noise impacts and traffic noise abatement, the process the Department follows conforms to the Federal Highway Administration (FHWA) regulations, policies and procedures. Information about the IDOT noise policy, procedures and abatement consideration for traffic noise impact along with traffic noise facts and other information are located at <http://www.idot.illinois.gov/assets/uploads/files/doing-business/manuals-guides-&-handbooks/highways/design-and-environment/htnamanual.pdf>. The noise analysis will be completed toward the end of this study after a preferred alternative is identified.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,

A handwritten signature in blue ink that reads "P. Sean Michels". The signature is written in a cursive style with a large initial "P" and a long, sweeping underline.

P. Sean Michels
President



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #2

Contact information

Name: STEVE SCARPAK

Organization/Group:

Street Address: 43W 350 THORNAPPLE TRAIL

City, State & Zip: SUGAR GROVE, IL 60554

Email: KELSEYKODI@AOL.COM

Phone: 630 608-8110

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **May 17, 2016 deadline** via:

Mail:

GRAEF

Attn: Peter Johnston, P.E.

8501 W. Higgins Road

Suite 280

Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

My concern is if they widen RTE. 47 to 4 LANES,
will they widen it more to the EAST side where
there is an vacant property, or to the WEST side
where my house is and I am already very close
to the road. IT would concern me as far as
if there would BE A noise barrier wall on
any kind in the Plans. THANK YOU

OVER →

VILLAGE PRESIDENT

P. Sean Michels

VILLAGE ADMINISTRATOR

Brent M. Eichelberger

VILLAGE CLERK

Cynthia Galbreath



VILLAGE TRUSTEES

Kevin Geary
Sean Herron
Mari Johnson
Ted A. Koch
Rick Montalto
David Paluch

January 25, 2017

John Whildin
43W874 Old Midlothian
Elburn, IL 60119

Dear Mr. Whildin,

Thank you for your comments concerning the IL 47 at I-88 Interchange preliminary engineering and environmental (Phase I) study. This is a joint project study including the Village of Sugar Grove, Kane County, Illinois Department of Transportation (Department) and the Illinois Tollway. The Village of Sugar Grove is leading this study and the engineering phases of the project. The study limits along IL 47 extend from Old Oaks Drive/Waubensee Drive to Green Road. The purpose of this project is to improve system linkage and accommodate economic development.

Your comments indicated that you would like to see turning and by-pass lanes for IL 47. As part of this Phase I study, a comprehensive evaluation of existing and future traffic demands will be performed throughout the entire project corridor. Access control and the need for channelization such as, turn lanes, will be evaluated at all intersections. Analysis of traffic volumes will be performed in order to accommodate acceptable level of operating service for both the existing and projected traffic volumes. These analyses will be an essential tool in developing the project alternatives along IL 47 and at the I-88 Interchange.

We appreciate your interest in the IL 47 at I-88 Interchange Study and look forward to your continued participation. For more project information and updates, please visit the website at www.sugargroveinterchange.org.

As a stakeholder, your comments and opinions are important. If you have any questions or need additional information, please contact Mr. Peter Johnston, P.E., Project Manager, at (773) 399-5443

Sincerely,

P. Sean Michels
President

From: [Johnston, Peter](#)
To: [Tice "Charles" Cole](#); [Kris Salvatera](#)
Subject: Rt. 47 @ I-88 comment to project e-mail address
Date: Wednesday, May 18, 2016 1:53:03 PM

We did receive the following to our project e-mail on Monday of this week. Is there some formal way we should document this?

-----Original Message-----

From: John Whildin [mailto:wordpress@sugargroveinterchange.org]
Sent: Monday, May 16, 2016 9:38 AM
To: Sugar Grove Interchange <SugarGroveInterchange@graef-usa.com>
Subject: Comment on proposed Rt 47/ I-88 interchange

From: John Whildin <jrwhildin@aol.com>
Subject: Comment on proposed Rt 47/ I-88 interchange

Message Body:

I would like to see turning and by-pass lanes for Rt 47.

--

This e-mail was sent from a contact form on Sugar Grove Parkway at Ronald Reagan Memorial Tollway (<http://www.sugargroveinterchange.org>)

Public Meeting #3
March 28, 2017



Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study

Public Information Meeting #3
Short Summary

Prepared 3/29/2017 revision 1

General Information

The third public meeting for the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) was held on Tuesday, March 28, 2017 at the Academic and Professional Center (APC) Event Room at Waubensee Community College, IL Route 47 at Waubensee Drive, Sugar Grove, IL 60554, from 4:00 PM to 7:00 PM. The meeting was conducted in an open house format.

Attendees signed in and a brochure unique to public meeting 3 was provided. There were two rooms for attendees to learn more about the project. One room contained a continuous audio-visual presentation that described the project summary, provided the study process and schedule, outlined the alternative screening process, and described the alternatives carried forward. The second room contained more detailed information, comment forms, and project study team representatives. Information in the second room included exhibit boards and roll plot maps.

The exhibit boards generally included: the limits of the project study; the purpose and need for the project; the public involvement process and schedule; an environmental study overview; traffic volumes and projections; capacity analysis results, crash locations and statistics; the alternatives evaluation, screening process and results; and the alternatives to be carried forward.

Roll plot maps included plan layouts of the IL 47 and I-88 alternatives carried forward which identified impacts.

Attendees were provided an opportunity to speak with representatives from the Village of Sugar Grove, The Illinois Department of Transportation (IDOT), Kane County, and the Illinois Tollway. The meeting was attended by ninety-nine (99) people. Sixteen (16) comment forms were received at the meeting.

Attendees

Public Officials

The following public officials were in attendance:

- Drew Frasz, Kane County Board District-18
- Fred Dornback, Blackberry Township Supervisor
- Tom Rowe, Sugar Grove Township Supervisor
- Rod Feece, Blackberry Township Highway Commissioner

Other Agencies/Organizations

Additional agencies/organizations attending included:

- Jim Michels, Blackberry Township
- Assistant Chief Wayne Parson, Sugar Grove Fire Protection District
- Sergeant Korey Wallace, Kane County Sheriff's Office
- Craig Hanson, Elburn Fire Department
- Tom Reynolds, Elburn Fire Department

- Mike Anderson, Elburn Fire Department
- Lisa Engberg, Elburn Fire Department
- Leroy Herra, Elburn Fire Department
- David Burroughs, EEI (EEI is Village Engineer)
- Matthew Stegeman, Pace Suburban Bus
- Marvin Bailey, Crown Community Development
- Randy Mapes, Waubensee Community College

Businesses

No businesses were represented. The area is generally agriculture and residential.

Media

No media were represented.

CAG Members

The following CAG members were in attendance:

- Walter Magdziarz, Village of Sugar Grove
- Wayne Parson, Sugar Grove Fire Protection District
- Patrick Knapp, Kane Kendall Council of Mayors
- Tom Rowe, Sugar Grove Township
- Fred Dornback, Blackberry Township
- Rod Feece, Blackberry Township
- Jennifer Becker, Kane County DOT/Kane Kendall Council of Mayors
- Marvin Bailey, Crown Community Development
- Leroy Karp, Resident
- Kathryn Kruse representing Christopher Kruse, Resident
- Brenda Ross, Resident
- Christopher Stepnoski, Resident
- John Stepnoski, Resident

Comments

Sixteen (16) comment forms were received at the meeting. Comments can continue to be submitted and included in the public meeting record until April 11, 2017. The topics include the following:

General

- Want a decision quickly and to build ASAP
- Concerns regarding a decrease in home value and to accommodate existing residents
- Prefer to do all the improvements at one time and don't come back with future improvements
- Would like to have seen a timeline for each build alternative.

Interchange

- Preference for the No-Build Alternative
- Preference for Alternative I-1 Conventional Diamond Interchange
- Preferences for and against Alternative I-2 Conventional Diamond Interchange with Roundabout Intersections
- Preferences for and against Alternative I-3 Diverging Diamond Interchange
- Preferences for Alternative I-4 Partial Cloverleaf Interchange

Illinois Route 47

- Preference for No-Build Alternative
- Preferences for Alternative M-2C
- Preferences for Alternative M-3 which was shown as eliminated
- Concerns regarding Finley Road restricted access and the conceptual U-turn mitigation proposed
- Concerns regarding traffic volumes, noise pollution, and impacts to residents and property
- Concerns regarding access consolidation impacts and safely accessing IL 47 from side street
- Concerns regarding septic field proximity to the ROW



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: BOB HARKINS Organization/Group: _____
Street Address: 20 WALNUT CIRCLE City, State & Zip: SUGAR GROVE, IL 60554
Email: ~~KF HARKINS~~ Phone: 815-508-3828
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the **April 11, 2017 deadline** via:

Mail:

GRAEF
Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

- ① How CAN YOU RELY ON A GPAC TRAFFIC STUDY, 40 MILES AWAY AND 40 YEARS HENCE
- ② YOU MUST TAKE INTO ACCOUNT DRIVERLESS VEHICLES WHEREIN SAFETY AND TRAFFIC FLOWS ARE INTEGRATED INTO THE GPS CONTROL
- ③ NEW JERSEY IS GETTING RID OF TRAFFIC CIRCLES

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: Szczepanik Organization/Group: Resident
Street Address: 43w350 Thornapple Tree City, State & Zip: Sugar Grove
Email: _____ Phone: _____
How would you like to stay informed? Email Mail Do not send study updates to me.

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Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Ideally, we would ~~would~~ want the least amount of impact to our property, as the project not only affects us currently but also resale value of our home. As we are ^{fast} approaching retirement it is vital to us a decision is made promptly. And if claiming our property for widening is unavoidable, we want a fair market value decision. We would've wanted the best east example however we have heard that is no longer an option.

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: TOM & DEANE SCOSAR Organization/Group: _____
Street Address: ~~WEST~~ NOTTINGHAM City, State & Zip: EBURN
Email: DIANESLOSAR@GMAIL.COM Phone: 630-777-8591
How would you like to stay informed? Email Mail Do not send study updates to me.

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Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

M2C - least impact to current homeowners & Forest Preserve
~~I4 - least budget impacts~~
I2 - least land impact & Cheapest alternative
It is ridiculous how long we have been waiting for this.
Should've outlined time to build for each alternative.

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: Keith Gerling **Organization/Group:**

Street Address: 3554 Finley **City, State & Zip:**

Email: KeithGerling@gmail.com **Phone:**

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

The current exhibit for 1-4 includes no U-tunn
for Finley Road traffic access north on 47.

I hope this was a mistake.

Please include a U-tunn!

Thank You

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: Julie Smith Organization/Group: Resident
Street Address: 4320 688 Willow Creek Dr. City, State & Zip: Elburn.
Email: mssjulie@aol.com Phone:
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Hurry Up & Get it done! In favor of
Conventional Diamond or Partial Clover leaf.
No Diverging Diamond! Was not worth it on 59/88.

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: DAN BOROWIAK **Organization/Group:**

Street Address: 35595 Finley Rd **City, State & Zip:** SUGAR GROVE IL. 60554

Email: | **Phone:** 630-327-7737

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Need To Widen 47 From WAUBENSEE to 88 When Down To
INTERCHANGE FOR INDIVIDUALS TURNING INTO THE
Streets West

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: Greg Winkler Organization/Group: _____

Street Address: 43W730 Oakleaf Dr City, State & Zip: Elburn IL 60114

Email: gkwink5@mchsi.com Phone: _____

How would you like to stay informed? Email Mail Do not send study updates to me.

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Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Preferred Interchange I4
Preferred widening of Rt 47 M2C

CONCERNS

Rt 47 impeding on my home, noise pollution
due to higher useage of Rt 47, Road Exiting Knottins
Ham Woods to the north, I

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: KAREN Winkler Organization/Group: _____
Street Address: 43W 730 Oakleaf Dr City, State & Zip: Elburn, IL 60119
Email: gkwink5@mchsi.com Phone: 630 391-3784
How would you like to stay informed? Email Mail Do not send study updates to me.

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8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Do not like the Round-a-bouts/see crazy people at them all day at Dugan.
Preferred interchange is I-4.
Preferred 47 Alternative is max.
Concerned with traffic closer to my house and traffic -
diverting down my street in order to go Northbound on 47.
~~Very~~ Concerned about noise, already have way too much now.
Our septic field goes to the property line.

OVER →



Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: Bob Walker Organization/Group:
Street Address: 441W 392 Main St Rd City, State & Zip: Elgin IL 60119
Email: Phone:
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Please share your comments and ideas about the IL 47 at I-88 Interchange project. Please place your comments in the comment box tonight or send them by the April 11, 2017 deadline via:

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Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I like diamond w/ roundabouts

would like to see existing residents accommodated

Build ASAP

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: CHRISTIANA GAMBILL Organization/Group: _____

Street Address: 43W663 MARIAN CIR S City, State & Zip: SUGAR GROVE, IL 60554

Email: _____ Phone: 630-803-2165

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8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

FOR FINLEY TRAFFIC
*U-TURN, IS DANGEROUS, REQUIRES 2-LANE CHANGE,
SPEED-UP TO SLOW DOWN, AND THEN MERGE WITH FAST
TRAFFIC NORTHBOUND ON 47. *NO INTERSECTION OPTION
IS SAFE*

*ALL OPTIONS NOT PRESENTED ~~FOR ROAD~~ ~~TO BE CONSIDERED~~.
*M-3 MIGHT STILL BE A GOOD OPTION + SHOULD BE
PRESENTED WITH ISSUES.

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: *SUSAN KISNER*

Organization/Group:

Street Address: *612 Hickory*

City, State & Zip: *Sugar Grove IL 60554*

Email:

Phone:

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GRAEF

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Suite 280

Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

*I think ^{the} I-3 + M-2C would be correct choice.
Do it once + be done.*

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: GLENN KISNER Organization/Group:
Street Address: 612 HICKORY City, State & Zip: SUGAR GROVE, IL 60554
Email: GLENNKISNER@GMAIL.COM Phone: 630-408-9833
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Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I PREFER THE M2-C ROADWAY W/ I-3 INTERCHANGE

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: Patti Kleckner Organization/Group: resident
Street Address: 25120 IL Route 47 City, State & Zip: Elburn 60119
Email: PJensen423@yahoo.com Phone: 630 688 5222
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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Attn: Peter Johnston, P.E.
8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

Please do not Build interchange! It will greatly decrease my property value - double traffic in front of my home. I understand Rt 47 is busy already but doubling the traffic would be horrendous. We moved to this area to get away from the hustle & bustle of the city and the improvements we have made to our home would be wasted with the decrease in value. Thank you
PLEASE DO NOT BUILD!!
www.SugarGroveInterchange.org

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: *Gary Baker* **Organization/Group:** *Ameef Foster Wheeler*
Street Address: **City, State & Zip:** *Environment & Infrastructure*
Email: *gary.baker@ameefw.com* **Phone:** _____
How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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 Attn: Peter Johnston, P.E.
 8501 W. Higgins Road
 Suite 280
 Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

I would like to compliment the Village and Study Team on a well presented event. The exhibits tell the story and the staff on hand are accommodating and well informed.

OVER →



Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: A Organization/Group: _____

Street Address: _____ City, State & Zip: _____

Email: _____ Phone: _____

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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8501 W. Higgins Road
Suite 280
Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

NO Build is only option

M3 is the best alternative if must add access to East I88

Must have both N. + S. bound Access from Finley Rd - not a U-turn turn around - Not ~~safe~~ Safe

OVER →



Sugar Grove Parkway (IL 47) Interchange
at the Reagan Memorial Tollway (I-88)
Improvement Study

COMMENT FORM
PUBLIC INFORMATION MEETING #3

Contact information

Name: Kathryn Kruse **Organization/Group:**

Street Address: Manam Cir **City, State & Zip:**

Email: kkruse@mac.com **Phone:**

How would you like to stay informed? Email Mail Do not send study updates to me.

Help shape the future of transportation surrounding the IL 47 at I-88 interchange

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Chicago, IL 60631

Email: SugarGroveInterchange@graef-usa.com

Website: www.SugarGroveInterchange.org

There MUST be access from Finley Rd
NORTH bound onto 47 as well as
access to turn onto Finley from 47
when going North.

A "U-Turn" solution south of Finley
on 47 for northbound access to 47
is NOT SAFE - Traffic moving ^{OVER} fast →

Southbound on 47 will be rear-ending cars as they try to slow down in left lane on 47 to try + U-turn.

Signage/Posters shown indicate that some options have been eliminated - but this is not in fact ~~that~~ true.

Preference for moving forward -

NO BUILD

Moving the Access to 88 from 47 so that the whole road moves East is the best option - no homes impacted, lower noise + pollution with higher traffic ~~at~~ numbers moved further East + away from all the neighborhoods that will be impacted - which are all on the West side of 47

Thank you for your participation in the IL 47 at I-88 Interchange Project.

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Appendix I

Wetland Impact Exhibits



WETLAND SITE 4
 1.75 ACRES (TOTAL AREA)
 0.25 ACRES (IMPACTED AREA)

WETLAND SITE 9
 0.16 ACRES (TOTAL AREA)
 0.00 ACRES (IMPACTED AREA)

WETLAND SITE 5
 0.08 ACRES (TOTAL AREA)
 0.02 ACRES (IMPACTED AREA)

WETLAND SITE 6
 1.03 ACRES (TOTAL AREA)
 0.17 ACRES (IMPACTED AREA)

WETLAND SITE 8
 0.66 ACRES (TOTAL AREA)
 0.17 ACRES (IMPACTED AREA)

WETLAND SITE 7
 0.49 ACRES (TOTAL AREA)
 0.03 ACRES (IMPACTED AREA)

LEGEND

- - - - - PROPOSED RIGHT-OF-WAY
- - - - - EXISTING RIGHT-OF-WAY
- SLOPE INTERCEPT
- WETLAND
- ▨ IMPACTED WETLAND
- WATER OF THE UNITED STATES



SCALE IN FEET Appendix I

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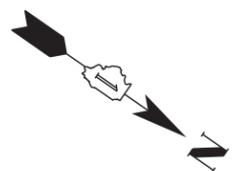


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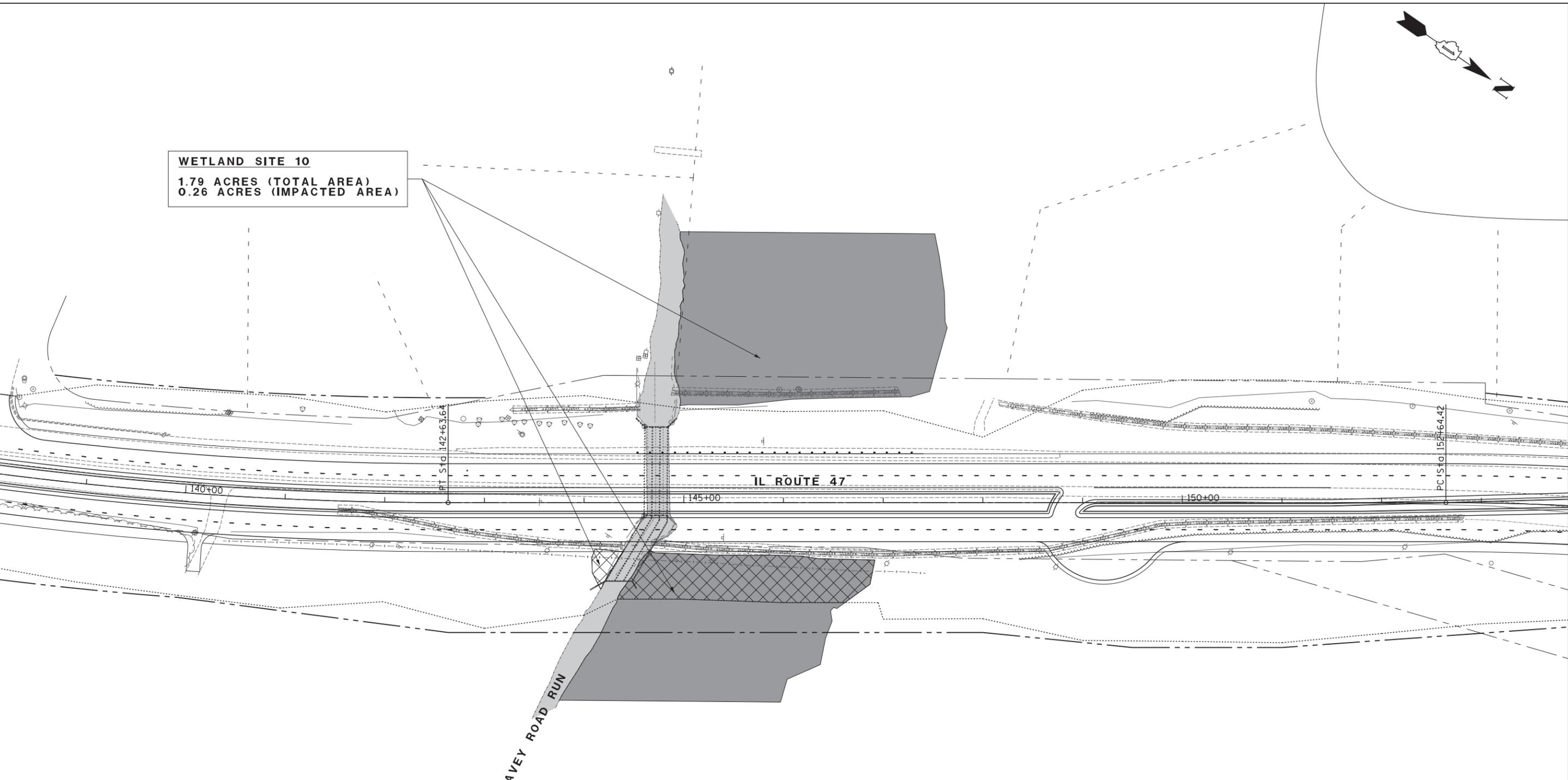
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 DEPARTMENT OF TRANSPORTATION**

IL ROUTE 47 AT I-88 INTERCHANGE			
WETLAND IMPACTS			
SCALE:	SHEET	OF SHEETS	STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	14-00028-00-CH	KANE		1
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



WETLAND SITE 10
1.79 ACRES (TOTAL AREA)
0.26 ACRES (IMPACTED AREA)



LEGEND	
	- PROPOSED RIGHT-OF-WAY
	- EXISTING RIGHT-OF-WAY
	- SLOPE INTERCEPT
	- WETLAND
	- IMPACTED WETLAND
	- WATER OF THE UNITED STATES



SCALE IN FEET Appendix I

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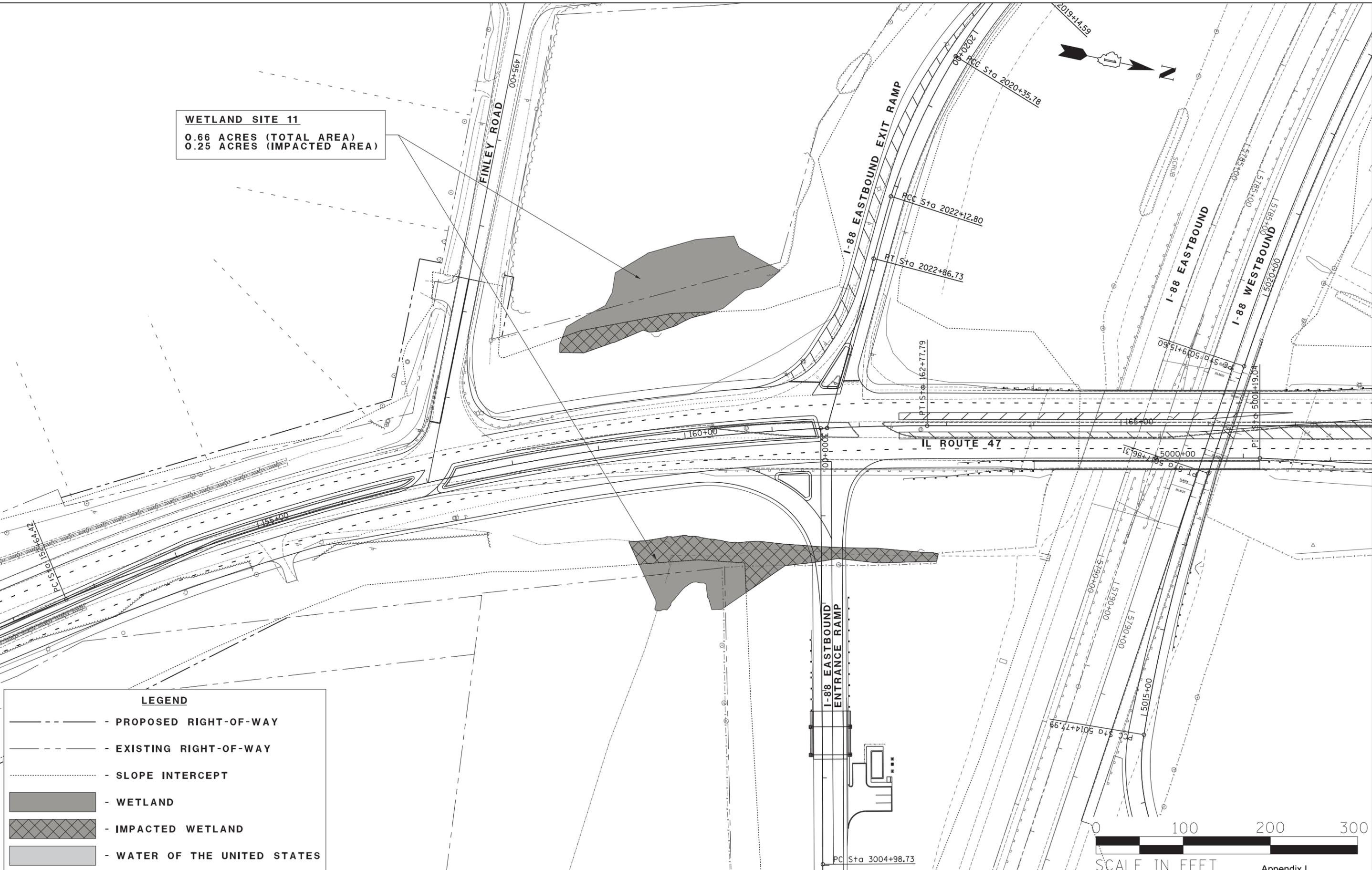
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WETLAND IMPACTS

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	14-00028-00-CH	KANE		2
				CONTRACT NO.

ILLINOIS FED. AID PROJECT

WETLAND SITE 11
0.66 ACRES (TOTAL AREA)
0.25 ACRES (IMPACTED AREA)



LEGEND	
	- PROPOSED RIGHT-OF-WAY
	- EXISTING RIGHT-OF-WAY
	- SLOPE INTERCEPT
	- WETLAND
	- IMPACTED WETLAND
	- WATER OF THE UNITED STATES



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IL ROUTE 47 AT I-88 INTERCHANGE	
WETLAND IMPACTS	
SCALE:	SHEET OF SHEETS STA. TO STA.

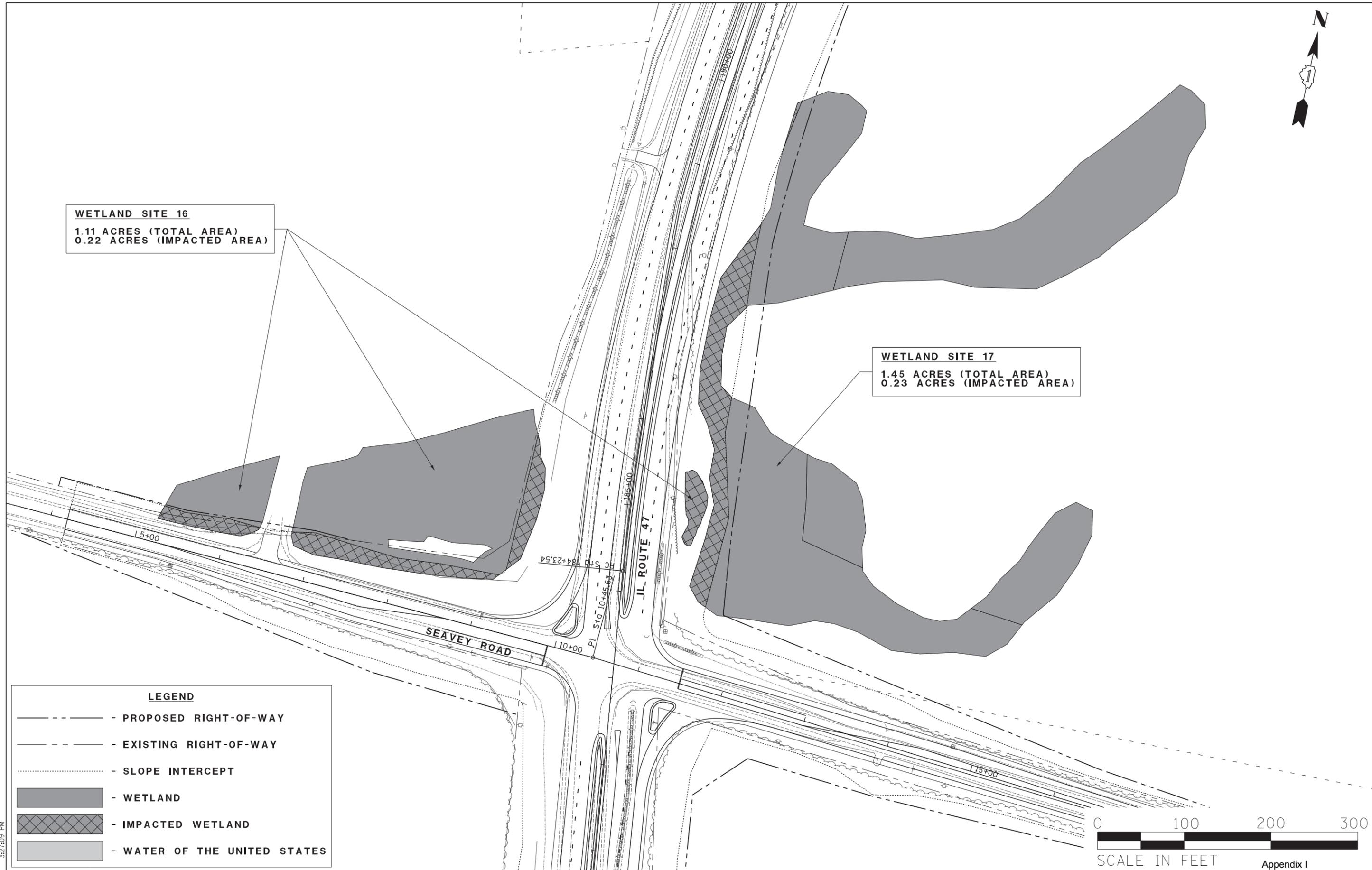
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326	14-00028-00-CH	KANE		3
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

Appendix I



WETLAND SITE 16
 1.11 ACRES (TOTAL AREA)
 0.22 ACRES (IMPACTED AREA)

WETLAND SITE 17
 1.45 ACRES (TOTAL AREA)
 0.23 ACRES (IMPACTED AREA)



LEGEND	
	- PROPOSED RIGHT-OF-WAY
	- EXISTING RIGHT-OF-WAY
	- SLOPE INTERCEPT
	- WETLAND
	- IMPACTED WETLAND
	- WATER OF THE UNITED STATES



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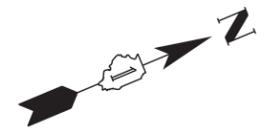
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 AT I-88 INTERCHANGE
 WETLAND IMPACTS**

SCALE:	SHEET	OF	SHEETS	STA.	TO	STA.
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	14-00028-00-CH	KANE		4
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

Appendix I



WETLAND SITE 18
 1.12 ACRES (TOTAL AREA)
 0.04 ACRES (IMPACTED AREA)

WETLAND SITE 19
 0.26 ACRES (TOTAL AREA)
 0.01 ACRES (IMPACTED AREA)

LEGEND	
	- PROPOSED RIGHT-OF-WAY
	- EXISTING RIGHT-OF-WAY
	- SLOPE INTERCEPT
	- WETLAND
	- IMPACTED WETLAND
	- WATER OF THE UNITED STATES



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 AT I-88 INTERCHANGE			
WETLAND IMPACTS			
SCALE:	SHEET	OF SHEETS	STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	14-00028-00-CH	KANE		5
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

Appendix I

NOISE ANALYSIS TECHNICAL REPORT
for
Illinois Route 47 at the
Reagan Memorial Tollway (I-88) Interchange
Kane County, Illinois

Prepared for:



Prepared by:

Volkert, Inc.

August 2017

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1. INTRODUCTION

This traffic noise study has been conducted to evaluate traffic noise for the proposed improvements to the Illinois Route 47 (IL-47) at Reagan Memorial Tollway (I-88) Interchange. The proposed project consists of widening the existing two-lane IL-47 to a four-lane road with a 30-foot raised median through the majority of the corridor from the north entrance of Waubonssee College to Green Road. The median would be reduced through the Hanaford Woods/Nickels Farm Forest Preserve. The proposed project also includes a 10-foot wide multi-use path along the east side of IL-47 and a five-foot wide sidewalk along the west side of IL-47. Other IL-47 mainline improvements include shifting the alignment to the east just north of Thornapple Tree Road. The shift is being proposed to reduce residential impact to the west.

The interchange improvements associated with the proposed project consist of a partial cloverleaf with a loop ramp in the northeast quadrant of the interchange. The proposed improvements will create a full access interchange by adding an entrance ramp from IL-47 to I-88 eastbound and an exit ramp from westbound I-88 to IL-47. Improvements will also include a loop ramp to improve the operations of travelers utilizing the entrance ramps of the interchange.

The noise study area, shown in **Figure 1**, is in Sugar Grove, Illinois. This noise study evaluates the existing 2015 and design year 2040 No-Build and Build Alternative traffic noise conditions, and if necessary, potential noise abatement measures. The existing land use adjacent to the road is a mixture of residential and agricultural land.

This report presents the traffic noise analysis conducted for the proposed IL-47 at I-88 Interchange Project. This report contains a summary of the federal and state noise regulations (Section 2), discussion of noise sensitive receptors (Section 3), field noise monitoring (Section 4), a description of the noise analysis methodology (Section 5), the analysis of the existing and future noise levels (Section 6), the noise abatement analysis (Section 7), construction noise (Section 8) and the noise analysis conclusion (Section 9).

Legend

— Proposed Alignment

End Project

Begin Project

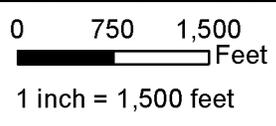
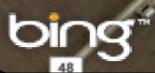
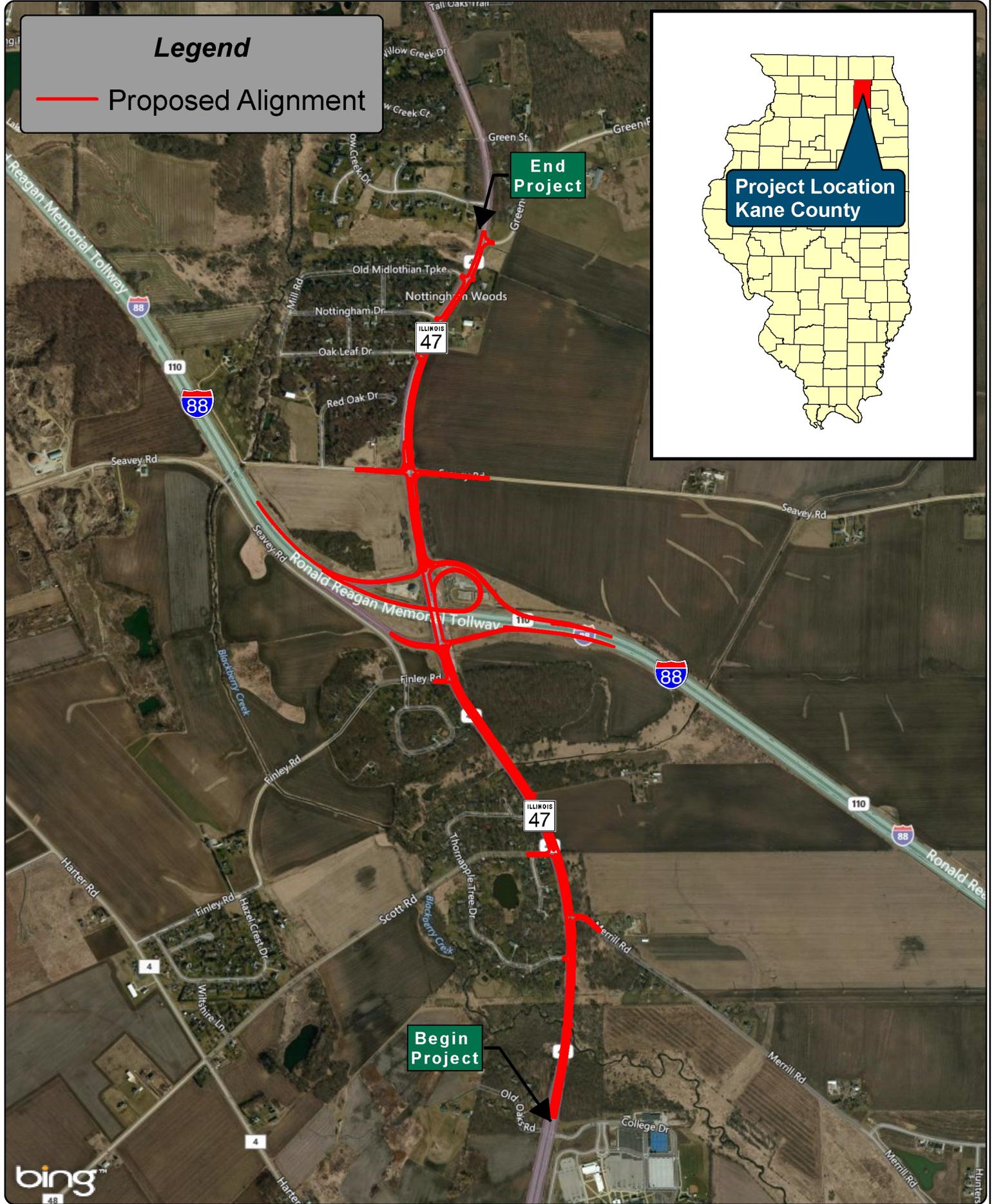


Figure 1
Project Location Map
Noise Analysis Report
IL-47 at I-88 Interchange Improvements
Kane County, Illinois

2. NOISE BACKGROUND AND REGULATIONS

2.1 Noise Background

Sound is caused by the vibration of air molecules, and is measured on a logarithmic scale using units of decibels (dB). Sound is composed of a wide range of frequencies; however, the human ear is not uniformly sensitive to all frequencies. Therefore, the "A" weighted scale was devised to correspond with the ear's sensitivity. The A-weighting generally weighs more heavily noise levels in the human audible range and screens out noise levels that cannot be heard but are still generated, such as a high frequency dog whistle. The A-weighted unit is used because:

- 1) It is easily measured,
- 2) It approximates the human ear's sensitivity to sounds of different frequencies,
- 3) It matches attitudinal surveys of noise annoyance better than other noise measurements, and
- 4) Has been adopted as the basic unit of environmental noise by many agencies around the world in dealing with community noise issues.

The equivalent sound level is the steady-state, A-weighted sound level, which contains the same amount of acoustic energy as the actual time-varying, A-weighted sound level over a specified period of time. If the time period is one (1) hour, the descriptor is the hourly equivalent sound level or $L_{eq}(h)$, which is widely used by state highway agencies as a descriptor of traffic noise. It is generally the equivalent level of sound (in decibels or dB(A)) that represents the level of sound, held constant over a specified period of time, which reflects the same amount of energy as the actual fluctuating noise over that time period. L_{eq} is based on the energy average, not a noise level average.

2.2 Federal Regulations

Traffic noise analyses are required for all projects considered a Type I project. The Federal Highway Administration (FHWA) regulations (23 CFR Part 772) define Type I projects as follows:

- The construction of a highway on new location; or,
- The physical alteration of an existing highway where there is either:
 - *Substantial Horizontal Alteration*. A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or,
 - *Substantial Vertical Alteration*. A project that removes shielding therefore, exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor; or,
- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a HOV lane, High-Occupancy Toll (HOT) lane, bus lane, or truck climbing lane; or,

- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or,
- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or,
- Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane; or,
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza.
- This proposed improvement is characterized as a Type I noise project as it involves the addition of through traffic lanes.

The FHWA established noise abatement criteria (NAC) to determine if noise abatement measures should be evaluated. Seven (7) separate NAC based upon land use are used by the FHWA to assess potential noise impacts. A traffic noise impact occurs when noise levels approach, meet or exceed the NAC listed in **Table 1**.¹ The NAC for residential noise receptors evaluated is 67 dB(A). The NAC for commercial land uses is 72 dB(A).

Table 1 – Noise Abatement Criteria – Hourly Weighted Sound Level

Activity Category	Leq(h)	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential.
C	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

¹ Based on 23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise. (adopted 2010).

2.3 IDOT Policy

The FHWA regulations allow State Highway Authorities to define what noise level constitutes an approach to the NAC. States are also allowed to define what constitutes substantial increase in noise. The Illinois Department of Transportation (IDOT) defines noise impacts as follows:

- Design-year traffic noise levels that approach, meet or exceed the NAC, with approach defined as 66 dB(A) for the residential property and 71 dB(A) for the commercial property.
- Design-year traffic noise levels that are equal to or greater than 14 dB(A) over the existing noise level.

3. NOISE RECEPTOR SELECTION

The land uses within the noise study area consist primarily of residential (Activity Category B) and agricultural uses (Activity Category F). The existing land uses are illustrated on **Figure 2**. Based on the existing land uses within the noise study area, receptor locations were selected to represent the land uses with established NAC. For this project, eight (8) receptors were selected to represent the residential land use (Activity Category B). The majority of remaining land use in the noise study area is agricultural. Agriculture lands are not considered a noise-sensitive land use; therefore, noise impacts to this land use were not evaluated.

Municipal and County government staff stated that there are no major developments within the IL-47 at I-88 Interchange Project noise study area. The Village of Sugar Grove did provide information about a proposed Crown Community Development project. The proposed project would be located on the east side of IL-47, south of the I-88 interchange. However, land use or development plans are not currently available. As a result, location and land use specific receptors were not placed at this site. However, noise contours are provided at this location as a consideration for future land uses (Section 7.8).

This traffic noise study evaluates the noise study area using common noise environments (CNEs). A CNE is a group of receptors in the same Activity Category that are exposed to similar noise sources and levels, traffic volumes, traffic mix, traffic speed, and topographic features. Within each of the CNEs, the closest receptor was selected to represent the CNE, thereby representing the worst-case traffic noise condition. The represented receptors within the CNEs will have similar traffic noise levels as the selected receptor.

As previously mentioned, eight (8) receptors have been selected to represent noise-sensitive land uses within the noise study area. Each representative receptor is associated with a CNE that it represents. **Table 2** lists the receptor number, the receptor type, the nearest roadway, the approximate distance to the nearest roadway edge-of-pavement, and the number of receptors represented. **Figure A-1** through **Figure A-5 in Appendix A** show the noise study area, CNEs and locations of representative noise receptors. Receptor locations are between 45 feet and 217 feet from the existing edge-of-pavement at the nearest roadway.

Table 2 – Noise Receptor Locations

Receptor / CNE	Receptor Type	Nearest Roadway	Dist. To Nearest Edge of Pavement (ft)	Represented Receptors
Res 1 / CNE 1	SFR	IL-47	140	4
Res 2 / CNE 2	SFR	IL-47	45	36
Res 3 / CNE 3	SFR	IL-47	74	12
Res 4 / CNE 4	SFR	Seavey Road	85	3
Res 5 / CNE 5	SFR	IL-47	56	26
Res 6 / CNE 6	SFR	IL-47	170	2
Res 7 / CNE 7	SFR	Green Road	217	6
Res 8 / CNE 8	SFR	IL-47	122	8

SFR = Single-Family Residence NOTE: Data estimated from aerial photography

Legend

- Proposed Alignment
- Activity Category B
- Activity Category C
- Activity Category E
- Activity Category F
- Activity Category G

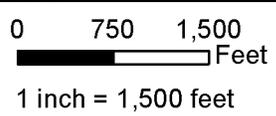
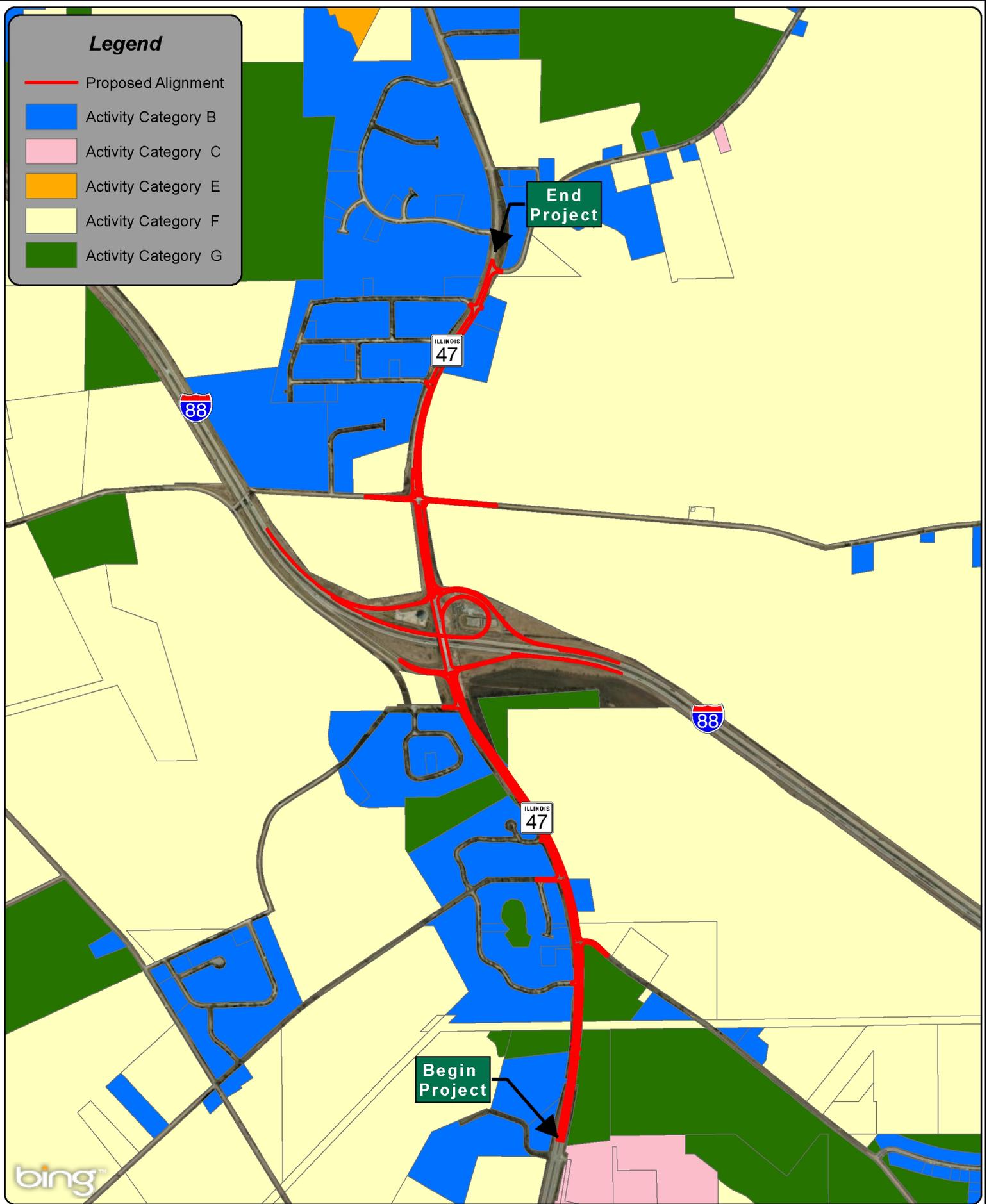


Figure 2
Land Use Map
Noise Analysis Report
IL-47 at I-88 Interchange Improvements
Kane County, Illinois

4. NOISE MONITORING

Traffic noise levels measured during monitoring events are representative of the traffic characteristics (volume, speed and composition) for the period of time measured. This may or may not be the peak-hour noise condition at the location being measured. In addition, the noise levels are also influenced by other noise sources in the area other than the traffic noise and the characteristics of the location, such as shielding afforded by existing berms or structures. Consequently, comparison of the noise levels between locations needs to also consider the variations in site characteristics in addition to varying traffic conditions.

Field measurements were collected at three (3) locations within the IL-47 at I-88 Interchange Project noise study area (See **Appendix C**). The measurements were collected in accordance with procedures outlined in IDOT's Highway Traffic Noise Assessment Manual and the FHWA's Measurement of Highway Related Noise document. Meteorological data, such as wind, temperature, and general weather conditions were recorded during each field sampling event at each measurement location. Winds were observed to be zero to ten miles per hour, and no precipitation occurred during the noise level monitoring periods. Three (3) 15-minute noise level measurements were made at each of the three (3) noise monitoring sites using a Rion NL-42 Integrated Sound Level Meter.

The sound meter was placed on a tripod five (5) feet above ground level at locations of varying distances from existing IL-47. A calibration check was performed using a Rion acoustical calibrator before and after noise level monitoring at each site. Both the noise meter and acoustical calibrators were factory calibrated and found to meet or exceed American National Standard Institute (ANSI) specifications. The meter was programmed to compute the hourly equivalent sound level (LAeq_{1h}). LAeq_{1h} is an expression of the constant sound level, which over a given period of time would produce an amount of acoustic energy equivalent to the variable sound levels produced over the same time period. After each sampling event, the noise data was downloaded from the meter to a laptop computer for analysis.

4.1 Traffic Volumes

Traffic volumes along IL-47 were counted during field monitoring at receptors V1, V2, and V3. The number of cars, medium trucks, and heavy trucks were recorded separately along with any other noise sources observed during monitoring. The traffic volumes counted were extrapolated to an hour (60 minutes) by multiplying the fifteen-minute volumes by four (4) to estimate the hourly traffic. The total traffic volume estimates from the noise monitoring sessions were compared to the design peak-hour traffic volume estimates that were provided to complete the study.

4.2 Time and Day for Measurements

Noise monitoring was conducted at all sites on April 11-12, 2017 between the hours of 8 a.m. and 6 p.m. Traffic was moving under free-flow conditions during the monitoring period.

4.3 Weather Conditions

Weather conditions can affect noise measurement readings. Noise measurements should not be taken if the wind speed exceeds 12 miles per hour (mph). A wind screen was used at all times during the monitoring to reduce wind noise. The conditions during the monitoring are summarized as follows:

Table 3 – Conditions during the April 11, 2017 PM Noise Monitoring

Condition	Required	Actual
Pavement	Dry	Dry
Humidity	Less than 90%	77%
Temperature	14 to 112 degrees F	52 degrees F
Wind Speed	Less than 12 mph	10 mph

Table 4 - Conditions during the April 12, 2017 AM Noise Monitoring

Condition	Required	Actual
Pavement	Dry	Dry
Humidity	Less than 90%	43%
Temperature	14 to 112 degrees F	63 degrees F
Wind Speed	Less than 12 mph	4 mph

Table 5 – Conditions during the April 12, 2017 PM Monitoring

Condition	Required	Actual
Pavement	Dry	Dry
Humidity	Less than 90%	40%
Temperature	14 to 112 degrees F	63 degrees F
Wind Speed	Less than 12 mph	6 mph

The weather conditions during the noise monitoring were within the recommended ranges for all parameters listed.

4.4 Instrumentation

A Rion NL-42 sound level meter was used for monitoring the actual noise level. The L_{eq} was recorded for the "A" weighted scale. The instrument was calibrated prior to use. The instrument

was set up approximately five (5) feet from the ground. Measurements were conducted in three (3) 15 minute intervals at each site. The noise meter was set in a location where human activity typically occurs or in a location representative of that location.

4.5 Field Noise Monitoring Results

Table 6 summarizes the noise monitoring results for the three (3) locations monitored in the field. Noise levels monitored ranged from 59 dB(A) to 64 dB(A).

Table 6 – Noise Monitoring Results, L_{eq}

Receptor	Distance to Nearest Roadway Centerline, ft	Noise Level Monitored, dB(A)	TNM Modeled Existing Noise Level, dB(A)*
V1	163	59	62
V2	80	64	66
V3	74	63	66

*Modeling methodology and results are presented in Section 5 and Section 6, respectively

Monitored noise levels are within 3 dB(A) of the modeled noise levels, which validates the Traffic Noise Model (TNM) model.

5. NOISE ANALYSIS METHODOLOGY

Modeling of the traffic noise levels at the eight (8) receptors located within the noise study area was conducted utilizing the FHWA approved TNM 2.5. Prediction of noise levels is one step in assessing potential noise impacts and abatement strategies. Traffic noise levels for the eight (8) receptor sites were predicted using existing (2015) and design year (2040) No-Build and Build Alternative condition traffic volumes.

Inputs into TNM include traffic volume, traffic mix (cars, medium trucks, and heavy trucks), receptor distance, elevation, and average speeds during free-flowing conditions. Information sources used in the analysis are briefly described in the following subsections.

5.1 Traffic Volumes

Traffic projections provided by IDOT were used to develop the traffic volume input. The traffic projections included AM and PM peak hour traffic volumes for the years 2015 and 2040 for the IL-47 at I-88 Interchange Project.

5.2 Traffic Composition

Three (3) types of vehicles, including cars, medium trucks, and heavy trucks, were input into TNM. Medium trucks are all vehicles having two axles and six wheels designed for the transportation of cargo. Heavy trucks are all vehicles having three or more axles and designed for the transportation of cargo. The percentage of automobiles is estimated to be 85 to 90 percent with medium trucks accounting for five (5) to six (6) percent and heavy trucks accounting for five (5) to nine (9) percent, for a total truck percentage of 10 to 15 percent.

5.3 Receptor Distance/Elevation

Table 2 includes the distances of the receptors from the IL-47, Seavey Road, and Green Road existing edge of pavement. The selected representative receptors include single-family residences. The distance and elevation of each receptor directly affects the predicted traffic noise level. These distances vary from 45 feet at Receptor Res 2 to 217 feet at Receptor Res 7. Elevations range from 722 feet at Receptor Res 1 and Receptor Res 2 to 755 feet at Receptor Res 5.

5.4 Speed Conditions

The existing posted speed limit in the project noise study area are 55 mph for IL-47. The proposed posted speed limits will remain the same.

6. TNM RESULTS

6.1 Existing, No-Build and Build Alternative Receptor Noise Evaluation

Existing (2015), No-Build (2040), and Build Alternative (2040) traffic noise levels were predicted for the eight (8) receptor sites utilizing TNM. **Table 7** presents the existing (2015) and projected (2040) noise levels for the eight (8) receptor sites.

6.2 Existing Noise Levels

The existing noise levels for each CNE were compared to the NAC. There are three (3) CNEs, representing 74 noise sensitive receptors, that are currently experiencing noise levels that approach, meet, or exceed the NAC. Existing noise levels are shown in **Table 7**.

6.3 Design Year Noise Levels

The Build Alternative 2040 TNM 2.5 noise model for each CNE were compared to the NAC. There are five (5) CNEs, representing 84 noise sensitive receptors, that are predicted to experience noise levels that approach, meet, or exceed the NAC in the 2040 Build Condition. These five (5) CNEs were determined to have traffic noise impacts from the proposed action. The Build Alternative results also indicate no substantial increases in noise (14 dBA or greater) over the existing noise levels will occur. Build Alternative 2040 noise levels are shown in **Table 7**. The input and output of the TNM runs can be found in **Appendix B**.

Table 7 – IL-47 at I-88 Interchange Project Noise Impact Summary with 2015 & 2040 DHV
(Refer to Table 2 for locations of noise sensitive receptors)

Common Noise Environment ID & Land Use		Activity Category	Number of Receptors Represented	2015 Existing		2040 No Build Alternative Noise Level (dBA)	2040 Build Alternative		
				Dist. To Nearest Edge of Pavement (ft)	Existing Noise Level (dBA)		Dist. To Selected Alternative (ft)	Noise Level (dBA)	Noise Impact
CNE 1	Res 1 (SFR)	B	4	140	60	62	148	65	No
CNE 2	Res 2 (SFR)	B	36	45	70	72	55	72	Yes
CNE 3	Res 3 (SFR)	B	12	74	68	70	74	72	Yes
CNE 4	Res 4 (SFR)	B	3	85	50	59	85	58	No
CNE 5	Res 5 (SFR)	B	26	56	69	72	56	71	Yes
CNE 6	Res 6 (SFR)	B	2	170	60	63	118	66	Yes
CNE 7	Res 7 (SFR)	B	6	217	59	62	161	63	No
CNE 8	Res 8 (SFR)	B	8	122	62	66	122	67	Yes

NOTE: Traffic noise impacts shown in bold font.
 NOTE: SFR = Single Family Residence.

7. ABATEMENT ANALYSIS

The noise abatement analysis was evaluated under FHWA regulations contained in CFR Title 23 Part 772 and the IDOT *Highway Traffic Noise Assessment Manual*. The IL-47 at I-88 Interchange Project is a Type 1 Project. Type 1 projects are proposed federal or federally-aided projects that entail the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through traffic lanes.

7.1 Evaluation of Abatement Measures

The proposed project would result in noise impacts at five (5) CNEs. As a result, the noise abatement measures considered at these sites include traffic management measures, alteration of horizontal and vertical alignments, construction of noise barriers, and the acquisition of undeveloped land for buffer zones. Whether a noise barrier proves to be effective depends on a number of factors, including the terrain, distance from the roadway and the receiver, and the height and length relative to any other surrounding structures. Noise barriers are effective at blocking the “line of sight” between a noise source and the impacted receptor.

The implementation of traffic management measures for the purpose of noise abatement is not deemed reasonable or likely for this project. Traffic management measures that limit motor vehicle types, travel speed, traffic volume, or time of operation are often used as noise abatement measures. A reduction in speed would affect the roadway's ability to accommodate anticipated traffic volumes, which would not fulfill the project's need to increase capacity. Furthermore, limiting truck volumes or their time of operation would be restrictive to the existing industrial and commercial businesses within the project area and impede the potential economic opportunities associated with the upgrade of the IL-47 at I-88 interchange.

The rural nature of the proposed project and intermittent spacing of potential noise receptors presents opportunities to alter horizontal and vertical alignments along the Build Alternative that will only serve to introduce new noise receptor impacts to the noise study area that weren't previously included. As such, alterations of the horizontal and vertical alignment are not likely to reduce traffic noise impacts. Alterations of horizontal and vertical alignments are not deemed reasonable or likely noise abatement measures for this project.

Buffer zones are undeveloped, open spaces that border a highway. Buffer zones occur when land or developments rights are purchased, in addition to the normal right-of-way to prohibit the construction on noise-sensitive land uses close to the highway. Currently, undeveloped land is not available to act as a buffer zone between IL-47 and the impacted noise receptors. As a result, the acquisition of real property to act as a buffer zone is not a feasible noise abatement measure for this project.

7.2 Noise Barrier Analysis

Noise barriers can reduce noise levels by blocking the sound propagation path between a roadway and a noise sensitive site. The IDOT *Highway Traffic Noise Assessment Manual* requires that the noise barriers be both feasible and reasonable. Feasibility deals with the practicality of building a barrier, with regard to specific site characteristics, safety and maintenance requirements, and the ability of the barrier to provide a noise reduction. In order to be considered feasible, a barrier must achieve at least a five (5) dB(A) reduction at two (2) impacted receptors. Potential noise barriers were considered at five (5) receptor locations under the predicted 2040 traffic Build Alternative condition (**Figure A-1** through **Figure A-5, Appendix A**). The noise barriers at CNE 6 and CNE 8 do not satisfy the 5 dB(A) noise reduction minimum at two (2) impacted receptors. There is only one impacted receptor per CNE for CNE 6 and CNE 8; therefore, the noise barriers are considered not feasible.

The reasonableness evaluation for noise barriers consists of three (3) parts: the noise reduction design goal, economic reasonableness, and the viewpoints of the benefitted receptors. The noise reduction goal requires that at least one (1) benefitted receptor behind the noise wall receive at least eight (8) dBA in traffic noise reduction. Since two (2) noise barriers (CNE 6 and CNE 8) were not considered feasible, three (3) barriers were evaluated for reasonableness (CNE 2, CNE 3, and CNE 5). The location, noise abatement characteristics, and analysis results of each noise barrier is presented in **Table 8**.

7.3 Noise Reduction Design Goal

At least one (1) benefited receptor must be experience an 8 dB(A) or greater difference in traffic noise reduction in order to meet the noise reduction design criterion for reasonableness. A benefited receptor is defined as any receptor that receives at least a 5 dB(A) noise reduction as a result of implementing noise abatement measures. Three (3) of the CNEs (CNE 2, CNE 3, CNE 5) will experience at least an 8 dB(A) noise reduction and meet the IDOT noise reduction design goal. TNM modeling results are summarized in **Table 8**. The results include benefitted receptors with and without noise barriers.

Table 8 – IL-47 at I-88 Interchange Project: Noise Reductions from Abatement Measures

Common Noise Environment ID & Land Use		Noise Barrier Number	Potential Barrier Height H Length L (ft.)	2040 Proposed (No Barrier) Leq(h) (dBA)	2040 Proposed (With Barrier) Leq(h) (dBA)	Noise Reduction Leq(h) (dBA)	Noise Reduction Conclusions
CNE 2	Res 2 (SFR)	1	6'-10' H 2,186' L	58-73	56-72	0-8	Meets IDOT Feasibility Criterion and Noise Reduction Design Goal
CNE 3	Res 3 (SFR)	2	9'-11' H 762 L	56-72	56-65	0-10	Meets IDOT Feasibility Criterion and Noise Reduction Design Goal
CNE 5	Res 5 (SFR)	3	10'-14' H 1,441' L	56-72	54-67	1-14	Meets IDOT Feasibility Criterion and Noise Reduction Design Goal
CNE 6	Res 6 (SFR)	4	25' H 1,134' L	66-67	64-66	1-2	Does not meet IDOT Feasibility Criterion
CNE 8	Res 8 (SFR)	5	12'H 1,639' L	53-68	55-63	2-5	Does not meet IDOT Feasibility Criterion

NOTE: SFR = Single Family Residence.

7.4 Economic Reasonableness

Economic reasonableness is the cost-effective evaluation of the noise barrier. This considers the overall cost of the noise barrier, the number of benefited receptors, and the cost per benefited receptor. According to the IDOT *Highway Traffic Noise Assessment Manual*, benefited properties are those properties that would receive at least a five (5) dBA reduction regardless of whether or not they are identified as impacted. The base value for the allowable cost is \$30,000 per benefitted receptor. Three (3) other reasonableness factors are considered to potentially adjust the allowable noise abatement value per benefitted receptor. These factors are illustrated in **Tables 9, 10, and 11**.

Table 9 – Absolute Noise Level Consideration

Predicted Build Noise Level before Noise Abatement	Dollars Added to Base Value Cost per Benefitted Receptor
Less than 70 dBA	\$0
70 to 74 dBA	\$1,000
75 to 79 dBA	\$2,500
80 dBA or greater	\$5,000

Table 10 – Increase in Noise Level Consideration

Incremental Increase in Noise Level Between the Existing Noise Level and the Predicted Noise Level Before Abatement	Dollars Added to Base Value Cost per Benefitted Receptor
Less than 5 DBA	\$0
5 to 9 dBA	\$1,000
10 to 14 dBA	\$2,500
15 dBA or greater	\$5,000

Table 11 – New Alignment/Date of Construction Consideration

Project is on new alignment OR the receptor existed before the original construction of the highway	Dollars Added to Base Value Cost per Benefitted Receptor
No for both	\$0
Yes for either	\$5,000

Only one (1) value from each of the three (3) factors may be used for each receptor, resulting in a maximum allowable cost of \$45,000 per benefitted receptor. The economic reasonableness evaluation is presented in **Tables 12 and 13**. These tables only include barriers that were determined to be feasible and able to achieve the noise reduction design goal.

Table 12 – Adjusted Allowable Cost per Benefitted Receptor

Common Noise Environment ID & Land Use		2040 Build Noise Level Leq(h) dB(A)	Average Increase in Noise, 2015 Existing to Build Leq(h) (dBA)	Receptors Built Before Roadway, Yes/No	Benefitted Receptors with Traffic Noise Factor	Benefitted Receptors with Noise Increase Factor	Benefitted Receptors Built Before Roadway Factor	Average Adjusted Allowable Cost per Receptor*
CNE 2	Res 2 (SFR)	58-73	5	No	7	5	0	\$31,000
CNE 3	Res 3 (SFR)	56-72	5	No	1	2	0	\$30,750
CNE 5	Res 5 (SFR)	58-72	4	No	2	2	0	\$30,500

* Allowable noise abatement base value is \$30,000 per benefitted receptor.
 NOTE: SFR = Single Family Residence.

Table 13 – Barrier Cost Reasonableness

Common Noise Environment ID & Land Use		Barrier Number	Wall Length (ft.)	Wall Height (ft.)	Total Wall Square Footage	Total Noise Wall Cost ⁽¹⁾	Total Benefitted Receptors ⁽²⁾	Noise Wall Cost per Benefitted Receptor ⁽³⁾	Adjusted Allowable Cost per Benefitted Receptor ⁽⁴⁾	Recommendation ⁽⁵⁾
CNE 2	Res 2 (SFR)	1	2,186	6-10	15,705	\$471,156	12	\$39,263	\$31,000	Not Cost Effective
CNE 3	Res 3 (SFR)	2	762	9-11	7,259	\$217,785	4	\$54,446	\$30,750	Not Cost Effective
CNE 5	Res 5 (SFR)	3	1,441	10-14	16,936	\$508,099	8	\$63,512	\$30,500	Not Cost Effective

NOTE: SFR = Single Family Residence.

- (1) Noise wall cost based on \$30 per square foot construction cost
- (2) A benefitted receptor is defined as receiving at least a 5 dB(A) traffic noise reduction
- (3) Total noise wall cost divided by total number of benefitted receptors
- (4) Total Adjusted Allowable Cost per Receptor from Table 12
- (5) Cost effectiveness is achieved if Noise Wall Cost per Benefitted Receptor is less than the Adjusted Allowable Cost per Benefitted Receptor

Cost averaging of noise abatement among CNEs also may be used when conducting the economic reasonableness evaluation. For a single noise abatement measure to be considered a part of a cost averaging evaluation, the estimated build cost of noise abatement per benefitted receptor may not exceed two times the adjusted allowable noise abatement cost per benefitted receptor. For cost averaging analyses, the noise abatement measures achieve the cost reasonableness criterion if the common CNE collective average estimated build cost of noise abatement per benefitted receptor is less than the collective average adjusted allowable cost per benefitted receptor. The cost averaging analysis is presented in **Table 14**.

Table 14 – Cost Averaging

Common Noise Environment ID & Land Use		Barrier Number	Total Benefitted Receptors ⁽¹⁾	Total Noise Wall Cost ⁽²⁾	Noise Wall Cost per Benefitted Receptor ⁽³⁾	Adjusted Allowable Cost per Benefitted Receptor ⁽⁴⁾	Ratio of Wall to Adjusted Allowable	Cumulative Estimated Build Cost per Benefitted Receptor	Cumulative Adjusted Allowable Cost per Benefitted Receptor	Result of Determination
CNE 2	Res 2 (SFR)	1	12	\$471,156	\$39,263	\$31,000	1.27	\$39,263	\$31,000	Not Cost-Effective
CNE 3	Res 3 (SFR)	2	4	\$217,785	\$54,446	\$30,750	1.77	\$43,059	\$30,938	Not Cost-Effective
CNE 5	Res 5 (SFR)	3	8	\$508,099	\$63,512	\$30,500	2.08	Not part of evaluation as estimated cost is more than 2 times the adjusted allowed cost		Not Cost-Effective

NOTE: SFR = Single Family Residence.

- (1) A benefitted receptor is defined as receiving at least a 5 dB(A) traffic noise reduction
- (2) Noise wall cost based on \$30 per square foot construction cost
- (3) Total noise wall cost divided by total number of benefitted receptors
- (4) Total Adjusted Allowable Cost per Receptor from Table 12

The three (3) noise barriers found to be feasible and meet the IDOT noise reduction design goal (CNEs 2, 3, and 5) were all found not to be cost effective, as the cost per benefitted receptor to build the noise barriers exceeded the IDOT adjusted allowable cost per benefitted receptor. The three (3) noise barriers also did not qualify as cost effective using cost averaging. The noise barrier for CNE 2 had a cost of \$39,263 per benefitted receptor and the adjusted allowable cost per benefitted receptor was \$31,000. The noise barrier for CNE 3 had a cost of \$54,446 per benefitted receptor and the adjusted allowable cost per benefitted receptor was \$30,750. The noise barrier for CNE 5 had a cost of \$63,512 per benefitted receptor and the adjusted allowable cost per benefitted receptor was \$30,500.

7.6 Viewpoint Solicitation and Tally of Benefitted Noise Receptors

The third component of reasonableness is obtaining the viewpoints of benefitted receptors. The viewpoints will be sought for noise abatement measures determined to be feasible, cost effective and achieving the noise reduction design goal. In order for a proposed noise abatement measure to be implemented, greater than 50 percent of the benefitted receptors responding must be in favor of the proposed abatement measures. Since the noise barriers evaluated failed meet the IDOT feasibility or reasonableness criteria, obtaining the viewpoints of benefitted receptors is not required.

7.7 Likelihood Statement

Based on the traffic noise analysis and noise abatement evaluation conducted, highway traffic noise abatement measures are not likely to be implemented based on preliminary design. The proposed project is anticipated to have traffic noise impacts, but the noise barriers studied do not meet the IDOT feasibility and reasonableness criteria. If it subsequently develops during final design that constraints not foreseen in the preliminary design or public input substantially change, the abatement measures may need to be modified or removed from the project plans. A final decision on the installation of abatement measures will be made upon the completion of the project’s final design and the public involvement process.

7.8 Coordination with Local Government Officials

The purpose of coordinating with local officials is to provide information and promote compatible land development and land use planning adjacent to proposed highway projects. Compatible land use is an important tool for preventing future noise impacts. The traffic noise study results will be presented to the local officials within the noise study area.

Noise contours were generated at several undeveloped locations (Activity Category G) for the 66 dB(A) and 71 dB(A) noise levels. The agriculture land uses (Activity Category F) adjacent to the proposed project were also assessed to determine their potential for future development into uses that have an established NAC. Locations of the undeveloped land analyses are shown on **Figure A-1** through **Figure A-4** in **Appendix A**. The results from the Undeveloped Land Analyses are included in **Table 15**. This information is included for local officials to be aware of anticipated highway noise so that future development can be compatible with traffic noise. For example, if a residence is planned with an NAC criterion of 66 dB(A), officials may choose to locate the development 135 feet or more from the proposed project.

Table 15 – Undeveloped Land Noise Contours

Site	<u>2040 Build Alternative</u>	
	66 dBA Contour Distance from Edge- of-Pavement (feet)	71 dBA Contour Distance from Edge-of- Pavement (feet)
UL 1	180	70
UL 2	160	50
UL 3	185	80
UL 4	175	50
UL 5	175	60
UL 6	185	75
UL 7	135	40
UL 8	170	65

8. CONSTRUCTION NOISE

Trucks and machinery used for construction produce noise that may affect some land uses and activities during the construction period. Residents along the project corridor will experience a level of perceptible construction noise at some point during implementation of the project. To minimize or eliminate the effect of construction noise on these receptors, mitigation measures have been incorporated into the IDOT’s *Standard Specifications for Road and Bridge Construction* as Article 107.35.

9. SUMMARY

This traffic noise study has been conducted to evaluate traffic noise for the proposed improvements to the IL-47 at I-88 Interchange. Traffic noise was evaluated at eight (8) receptor locations. The existing 2015 noise levels ranged from 50 dB(A) at Res 4 to 70 dB(A) at Res 2. The projected No-Build 2040 traffic noise levels range from 59 dB(A) at Res 4 to 72 dB(A) at Res 2 and Res 5.

The projected Build Alternative 2040 traffic noise levels ranged from 58 dB(A) at Res 4 to 72 dB(A) at Res 2 and Res 3. The projected Build Alternative 2040 noise levels increase between 2 dB(A) and 8 dB(A) from the existing condition at all receptors.

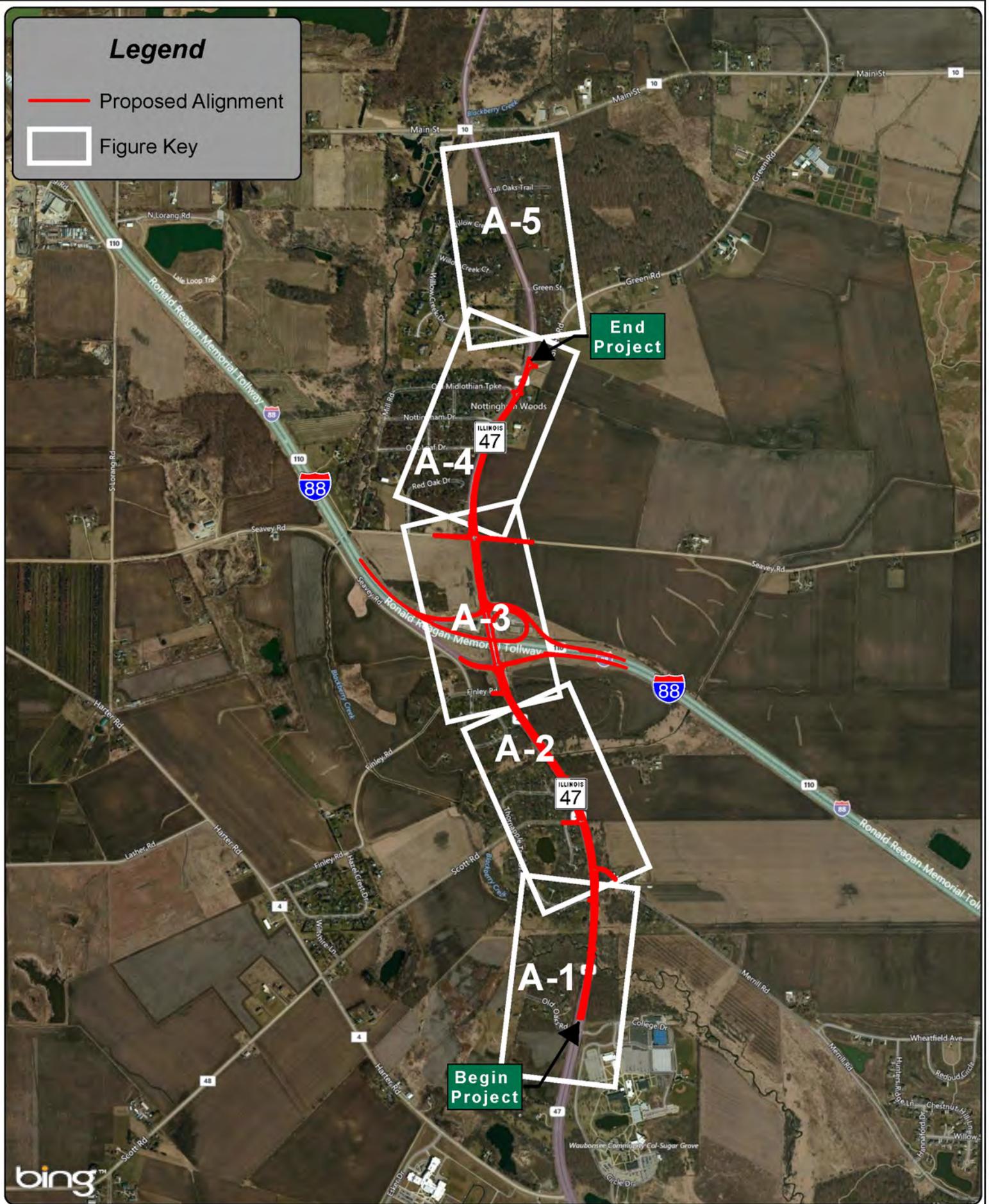
Projected Build Alternative 2040 noise levels approached, met, or exceeded the NAC at five (5) receptor locations, Res 2, Res 3, Res 5, Res 6, and Res 8, due to the increase in traffic volumes and wider roadway cross section. None of the receptors had noise level increases equal to or higher than 14 dB(A), which is considered a substantial increase in traffic noise levels. Since the receptors are impacted in the Build Alternative scenario, a noise barrier abatement analysis was performed. Five (5) noise barriers were evaluated and two (2) barriers were found to not meet the IDOT feasibility criteria. The remaining three (3) noise barriers meet the IDOT noise reduction design goal, but were determined to not be economically reasonable, as the actual cost per benefitted receptor would exceed the adjusted allowable barrier cost per benefitted receptor as specified in the IDOT *Highway Traffic Noise Assessment Manual*, May 2017. For this reason, noise abatement measures are not proposed for the IL-47 at I-88 Interchange Project.

Appendix A – CNE and Noise Receptor Location Figures

Legend

— Proposed Alignment

□ Figure Key



bing



0 1,000 2,000 Feet
1 inch = 2,000 feet



Figure Key Map
CNE and Noise Receptor Locations
Noise Analysis Report
IL-47 at I-88 Interchange Improvements
Kane County, Illinois

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Legend

- Noise Receptors and Noise Monitoring Sites
- Noise Barrier Studied: Not Feasible/Reasonable
- Proposed Right-of-Way
- - - Existing Right-of-Way
- Proposed Shoulder
- Proposed Edge-of-Pavement
- Common Noise Environment (CNE)

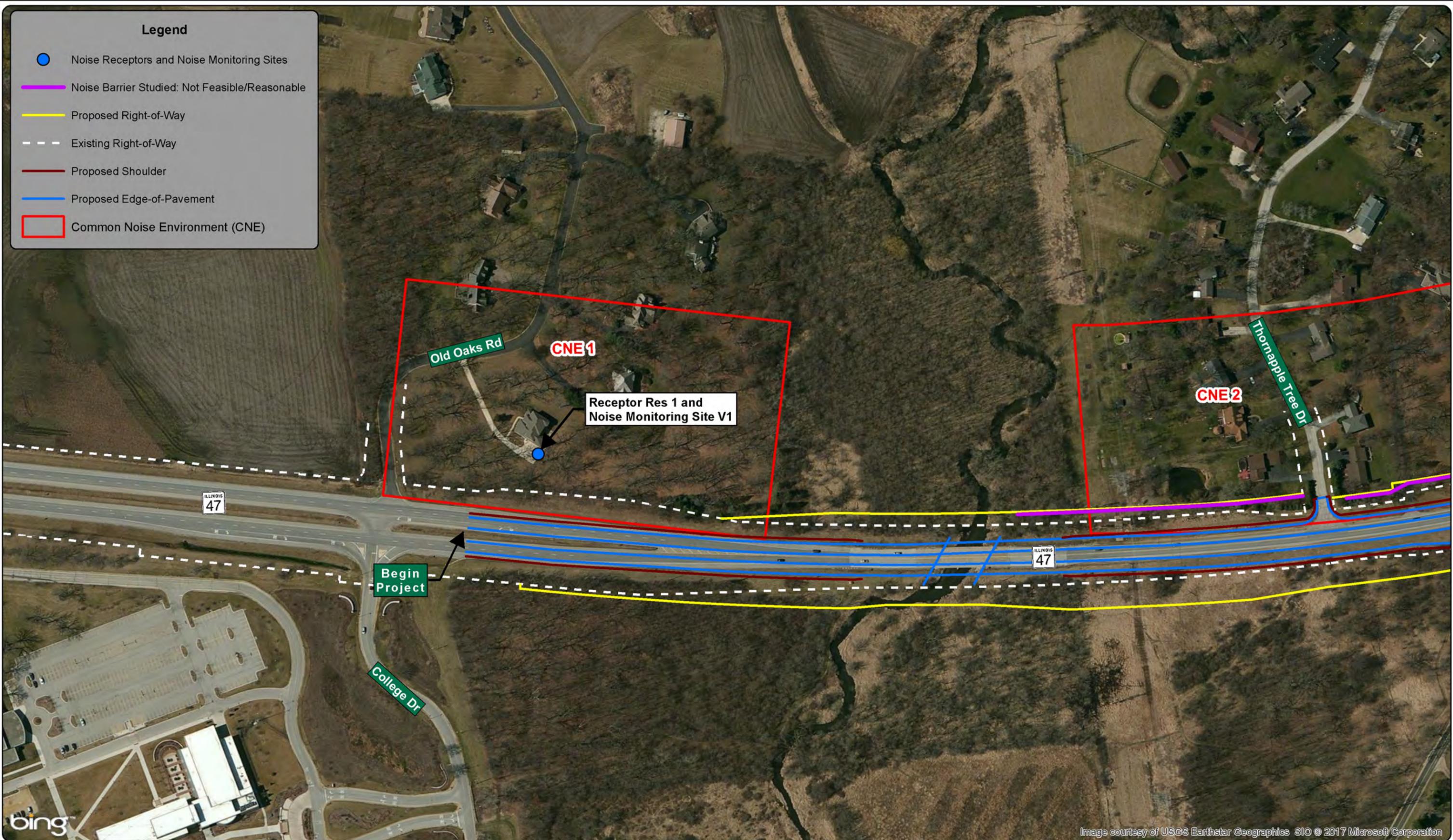


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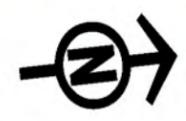
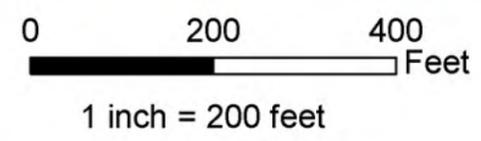
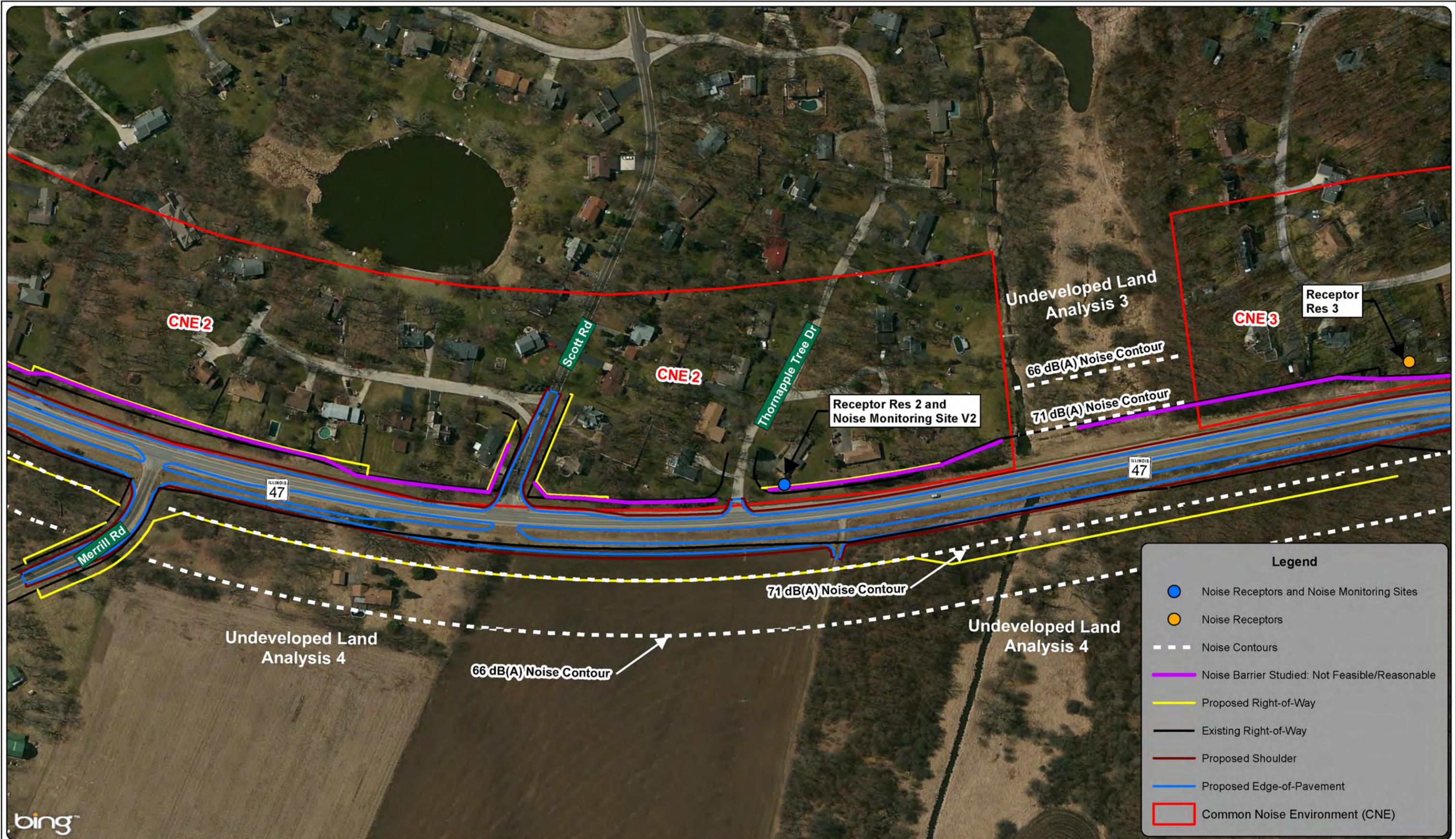
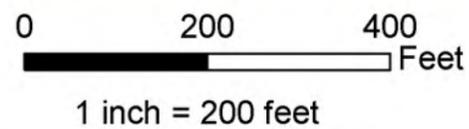


Figure A-1
CNE and Noise Receptor Locations
IL-47 at I-88 Interchange Improvements
Kane County, IL

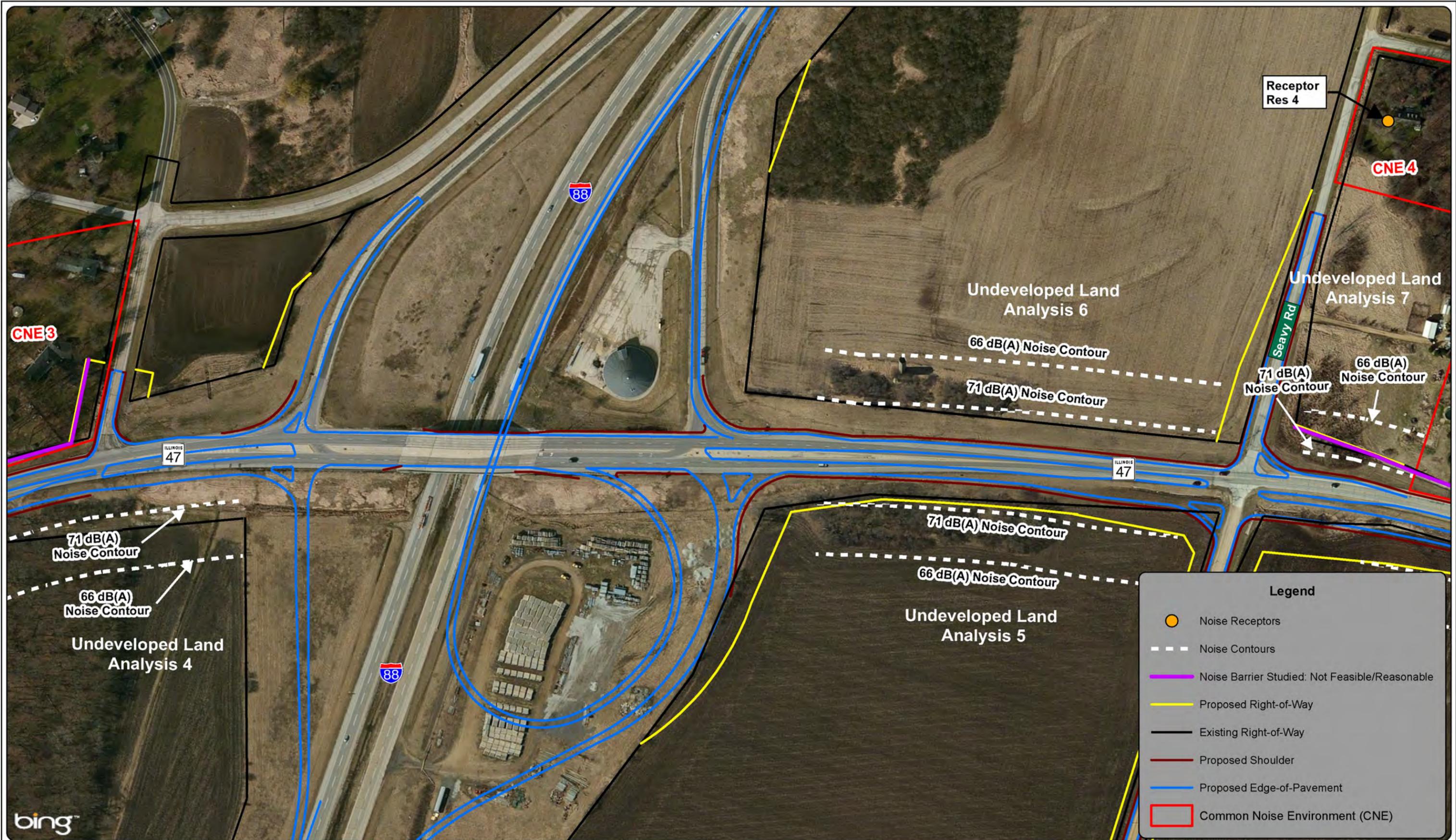


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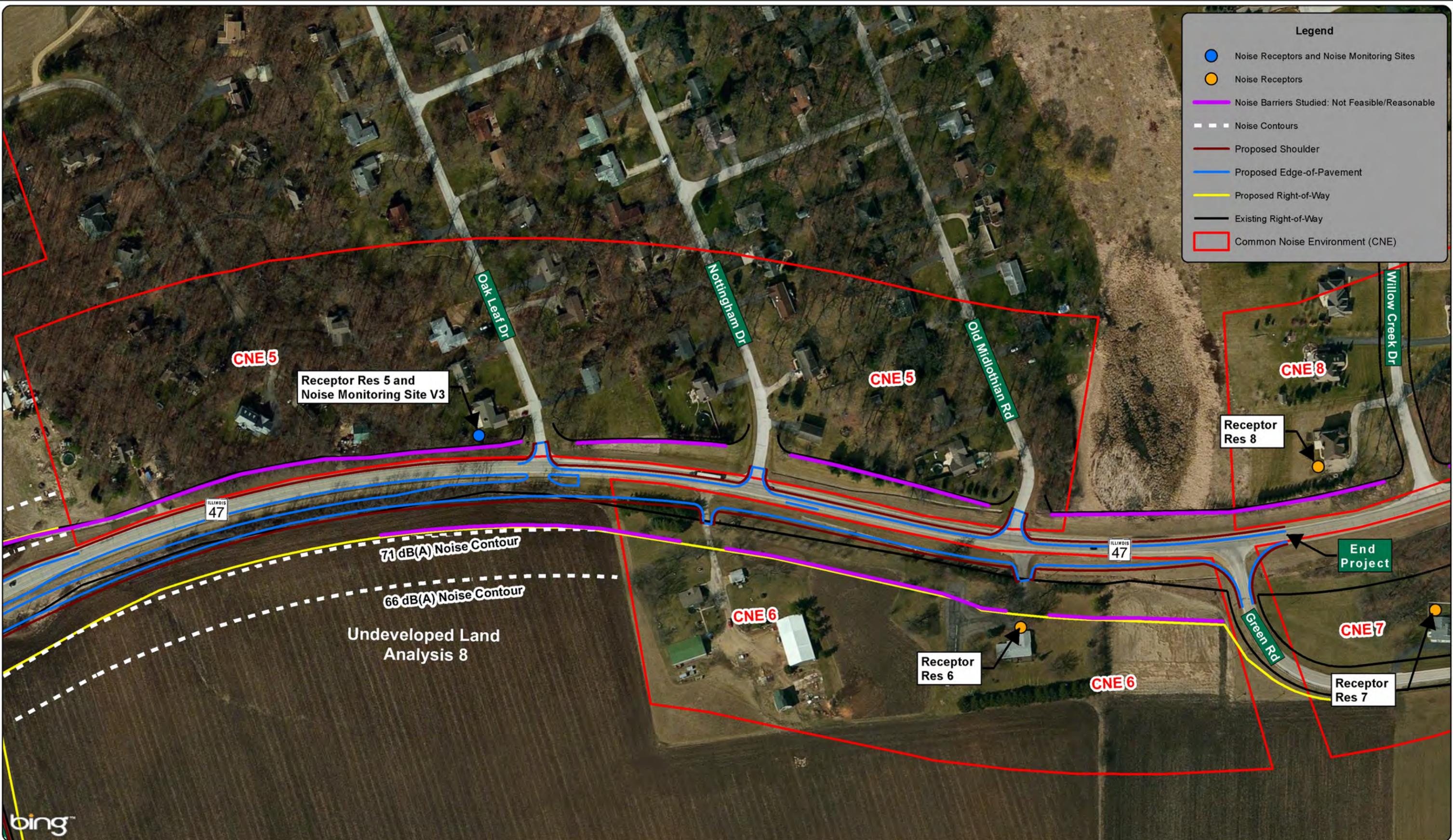
Figure A-2
CNE and Noise Receptor Locations
 IL-47 at I-88 Interchange Improvements
 Kane County, IL



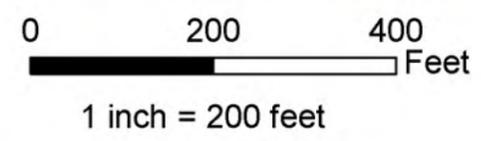
Note: This map is for presentation use only and not to be used for construction purposes.

Figure A-3
CNE and Noise Receptor Locations
IL-47 at I-88 Interchange Improvements
Kane County, IL



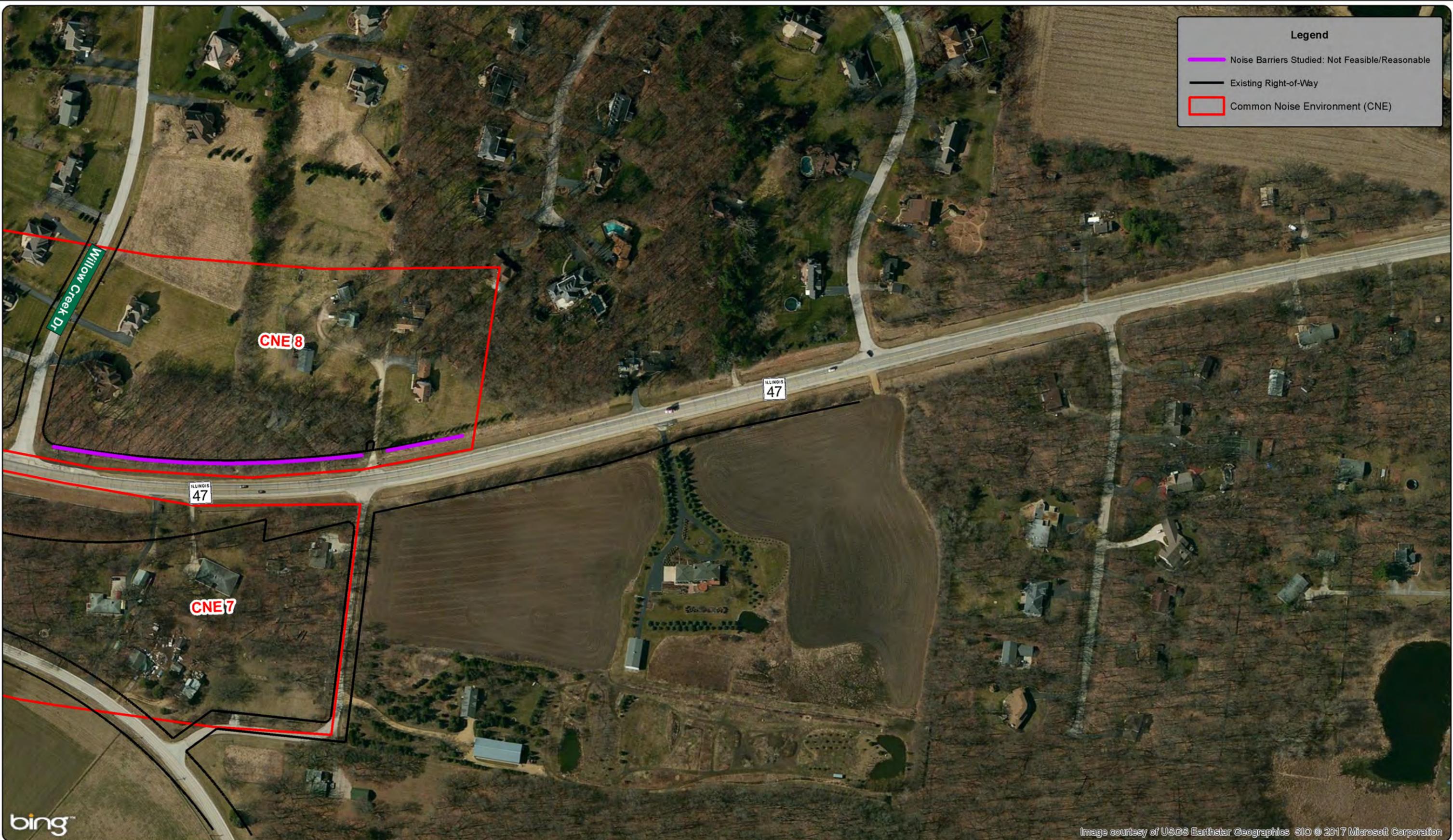


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Note: This map is for presentation use only and not to be used for construction purposes.

Figure A-4
CNE and Noise Receptor Locations
 IL-47 at I-88 Interchange Improvements
 Kane County, IL



Legend

- Noise Barriers Studied: Not Feasible/Reasonable
- Existing Right-of-Way
- Common Noise Environment (CNE)

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Note: This map is for presentation use only and not to be used for construction purposes.

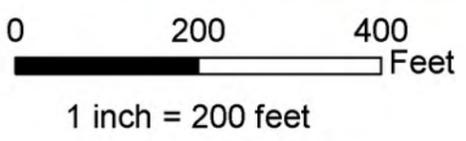


Figure A-5
CNE and Noise Receptor Locations
IL-47 at I-88 Interchange Improvements
Kane County, IL

Appendix B – TNM Input and Output

Existing 2015 TNM Input and Output

INPUT: ROADWAYS

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT:
RUN:

IL 47 at I 88 Interchange
AM Peak Existing IL47

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
IL 47 past Green Rd	24.0	point30	30	948,106.8	1,883,317.1	774.00				Average	
		point31	31	948,171.4	1,883,154.6	777.00				Average	
		point32	32	948,245.4	1,882,968.2	778.00				Average	
		point33	33	948,318.1	1,882,783.0	779.00				Average	
		point34	34	948,392.6	1,882,595.1	778.00				Average	
		point35	35	948,453.1	1,882,445.2	776.00				Average	
		point36	36	948,498.7	1,882,316.4	774.00				Average	
		point37	37	948,527.7	1,882,221.1	772.00				Average	
		point38	38	948,552.4	1,882,125.0	769.00				Average	
		point39	39	948,589.6	1,881,928.5	764.00				Average	
		point40	40	948,601.7	1,881,827.8	760.00				Average	
		point41	41	948,614.1	1,881,627.4	753.00				Average	
		point42	42	948,607.9	1,881,427.5	747.00				Average	
		point43	43	948,598.3	1,881,328.9	744.00				Average	
		point44	44	948,584.2	1,881,229.4	740.00				Average	
		point45	45	948,546.9	1,881,046.1	736.00				Average	
		I-88 EB Off Ramp	16.0	point245	245	948,527.4	1,880,978.9	734.00			
point164	164			948,034.1	1,876,059.1	749.00				Average	
point165	165			947,997.3	1,876,055.8	749.00				Average	
point166	166			947,847.8	1,876,066.9	745.00				Average	
point167	167			947,745.8	1,876,072.4	741.00				Average	
point168	168			947,676.7	1,876,084.0	739.00				Average	
point169	169			947,557.2	1,876,123.9	735.00				Average	
point170	170	947,515.6	1,876,141.0	734.00				Average			
		point171	171	947,407.9	1,876,209.4	732.00				Average	

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point172	172	947,319.6	1,876,270.9	731.00				Average
		point173	173	947,178.9	1,876,375.8	731.00				Average
		point174	174	946,772.4	1,876,673.5	729.00				Average
		point175	175	946,490.6	1,876,881.4	729.00				Average
		point176	176	946,367.2	1,876,984.1	729.00				
Scott Rd	24.0	point221	221	949,399.2	1,873,506.6	719.00				Average
		point222	222	949,199.1	1,873,503.8	718.00				Average
		point223	223	949,099.8	1,873,502.1	717.00				Average
		point224	224	948,999.1	1,873,499.9	717.00				Average
		point225	225	948,899.8	1,873,498.2	717.00				Average
		point226	226	948,809.0	1,873,497.6	716.00				Average
		point227	227	948,765.4	1,873,499.2	717.00				Average
		point228	228	948,650.4	1,873,499.9	716.00				Average
		point229	229	948,600.2	1,873,500.5	716.00				Average
		point230	230	948,564.2	1,873,499.2	713.00				Average
		point231	231	948,529.9	1,873,493.4	710.00				Average
		point232	232	948,490.1	1,873,481.4	708.00				Average
		point233	233	948,448.6	1,873,461.0	708.00				Average
		point234	234	948,259.4	1,873,341.2	706.00				
IL47 from Merrill Rd to Scott Rd	24.0	point240	240	949,399.2	1,873,506.6	719.00				Average
		point99	99	949,475.3	1,873,266.2	719.00				Average
		point100	100	949,523.1	1,873,071.5	716.00				Average
		point101	101	949,560.8	1,872,875.1	713.00				Average
		point236	236	949,579.9	1,872,735.1	712.00				
IL47 bt I-88 Ramps	24.0	point243	243	947,845.6	1,876,943.1	761.00				Average
		point76	76	947,902.5	1,876,679.0	759.00				Average
		point77	77	947,944.4	1,876,484.1	757.00				Average
		point158	158	947,954.8	1,876,426.6	755.00				Average
		point78	78	947,985.5	1,876,288.2	753.00				Average
		point79	79	948,026.9	1,876,092.4	749.00				Average
		point159	159	948,034.1	1,876,059.1	749.00				
IL47 from I-88 WB On Ramp to Seavy Rd	24.0	point244	244	947,627.2	1,878,166.2	747.00				Average
		point69	69	947,643.7	1,878,054.8	750.00				Average
		point70	70	947,675.8	1,877,856.6	755.00				Average
		point71	71	947,710.6	1,877,662.5	758.00				Average
		point72	72	947,745.5	1,877,464.9	760.00				Average
		point73	73	947,779.8	1,877,267.2	761.00				Average
		point74	74	947,818.6	1,877,069.6	762.00				Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point75	75	947,845.8	1,876,942.6	761.00				
IL47 from Seavy Rd to Green Rd	24.0	point246	246	948,527.4	1,880,978.9	734.00				Average
		point46	46	948,486.3	1,880,843.1	734.00				Average
		point47	47	948,412.1	1,880,657.4	734.00				Average
		point48	48	948,322.6	1,880,478.4	737.00				Average
		point49	49	948,218.5	1,880,308.9	743.00				Average
		point50	50	948,104.2	1,880,143.9	748.00				Average
		point119	119	947,994.3	1,879,976.9	751.00				Average
		point54	54	947,942.4	1,879,891.6	753.00				Average
		point55	55	947,849.1	1,879,713.9	754.00				Average
		point56	56	947,770.9	1,879,529.8	754.00				Average
		point57	57	947,736.2	1,879,435.6	754.00				Average
		point58	58	947,704.8	1,879,341.1	753.00				Average
		point59	59	947,655.2	1,879,147.5	751.00				Average
		point60	60	947,618.7	1,878,951.6	747.00				Average
		point63	63	947,600.4	1,878,751.1	744.00				Average
		point64	64	947,596.4	1,878,653.1	742.00				Average
		point65	65	947,595.3	1,878,553.0	742.00				Average
		point66	66	947,601.5	1,878,454.6	742.00				Average
		point67	67	947,605.4	1,878,353.6	743.00				Average
		point68	68	947,614.8	1,878,254.0	744.00				Average
		point157	157	947,627.2	1,878,166.2	747.00				
IL47 from College Rd to Merrill Rd NB	24.0	point1	1	949,208.0	1,869,312.1	707.00				Average
		point2	2	949,371.9	1,870,087.8	708.00				Average
		point3	3	949,414.4	1,870,287.5	708.00				Average
		point4	4	949,455.6	1,870,484.8	708.00				Average
		point5	5	949,481.1	1,870,685.6	708.00				Average
		point6	6	949,505.9	1,870,881.5	707.00				Average
		point7	7	949,516.6	1,870,983.0	707.00				Average
		point115	115	949,516.6	1,870,982.4	707.00				Average
		point116	116	949,524.8	1,871,033.4	707.00				
IL 47 from College Dr to Merrill Rd 2 Lane	24.0	point237	237	949,579.9	1,872,735.1	712.00				Average
		point102	102	949,588.4	1,872,677.5	711.00				Average
		point103	103	949,605.9	1,872,479.2	708.00				Average
		point104	104	949,612.6	1,872,279.4	708.00				Average
		point105	105	949,610.9	1,872,077.9	708.00				Average
		point106	106	949,604.8	1,871,878.0	707.00				Average
		point107	107	949,594.6	1,871,679.2	707.00				Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point108	108	949,578.2	1,871,478.9	707.00			Average
		point112	112	949,557.4	1,871,281.1	707.00			Average
		point113	113	949,532.1	1,871,083.1	707.00			Average
		point114	114	949,524.8	1,871,033.1	707.00			
IL47 from College Rd to Merrill Rd SB	24.0	point117	117	949,524.4	1,871,033.4	707.00			Average
		point15	15	949,511.4	1,870,985.1	707.00			Average
		point14	14	949,490.9	1,870,887.2	707.00			Average
		point13	13	949,445.6	1,870,693.9	708.00			Average
		point12	12	949,400.2	1,870,489.5	708.00			Average
		point11	11	949,358.4	1,870,302.4	708.00			Average
		point10	10	949,312.3	1,870,100.0	707.00			Average
		point9	9	949,160.5	1,869,424.2	707.00			
Finley Rd	24.0	point204	204	948,171.2	1,875,612.1	740.00			Average
		point205	205	948,071.8	1,875,611.0	740.00			Average
		point206	206	947,871.4	1,875,608.4	736.00			Average
		point207	207	947,672.1	1,875,605.6	737.00			Average
		point208	208	947,471.9	1,875,603.4	739.00			Average
		point209	209	947,394.9	1,875,601.8	739.00			Average
		point213	213	947,372.9	1,875,599.9	740.00			Average
		point214	214	947,346.9	1,875,595.5	740.00			Average
		point215	215	947,318.2	1,875,586.5	741.00			Average
		point216	216	947,290.1	1,875,575.2	741.00			Average
		point217	217	947,280.0	1,875,569.8	741.00			Average
		point218	218	947,254.9	1,875,551.8	741.00			Average
		point219	219	947,228.5	1,875,526.5	742.00			Average
		point220	220	947,176.9	1,875,468.6	742.00			
Seavy Rd	24.0	point197	197	945,662.2	1,878,267.2	713.00			Average
		point198	198	945,864.9	1,878,251.1	715.00			Average
		point199	199	946,098.2	1,878,236.8	717.00			Average
		point200	200	946,280.0	1,878,227.2	718.00			Average
		point201	201	946,441.8	1,878,219.6	719.00			Average
		point202	202	946,582.7	1,878,213.9	721.00			Average
		point121	121	946,582.2	1,878,214.0	721.00			Average
		point196	196	946,682.2	1,878,209.5	722.00			Average
		point122	122	946,782.3	1,878,205.4	723.00			Average
		point123	123	946,981.2	1,878,195.2	725.00			Average
		point124	124	947,181.6	1,878,186.2	731.00			Average
		point125	125	947,381.4	1,878,177.2	740.00			Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point126	126	947,581.4	1,878,167.5	747.00				Average
		point127	127	947,627.2	1,878,166.2	747.00				
Green Rd	24.0	point135	135	948,527.4	1,880,978.9	734.00				Average
		point136	136	948,671.2	1,880,956.5	734.00				Average
		point137	137	948,727.4	1,880,957.4	733.00				Average
		point138	138	948,770.6	1,880,965.4	731.00				Average
		point139	139	948,818.8	1,880,985.4	731.00				Average
		point140	140	948,862.1	1,881,015.1	731.00				Average
		point141	141	948,897.3	1,881,052.8	731.00				Average
		point142	142	948,935.0	1,881,135.4	733.00				Average
		point143	143	948,986.1	1,881,336.5	738.00				Average
		point144	144	948,996.1	1,881,371.5	740.00				Average
		point178	178	949,005.7	1,881,413.6	740.00				Average
		point179	179	949,029.0	1,881,518.5	747.00				Average
		point180	180	949,072.1	1,881,637.4	752.00				Average
		point181	181	949,131.9	1,881,754.5	755.00				Average
		point182	182	949,177.5	1,881,821.8	758.00				Average
		point183	183	949,246.4	1,881,898.8	762.00				Average
		point184	184	949,302.8	1,881,960.9	765.00				Average
		point185	185	949,387.6	1,882,027.6	766.00				Average
		point186	186	949,496.0	1,882,088.8	766.00				Average
		point187	187	949,593.6	1,882,137.0	768.00				Average
		point188	188	949,696.2	1,882,180.9	772.00				Average
		point189	189	949,806.9	1,882,228.6	773.00				
IL47 from Finley Rd to I-88 EB Off Ramp	12.0	point242	242	948,034.1	1,876,059.1	749.00				Average
		point80	80	948,073.0	1,875,897.0	745.00				Average
		point84	84	948,138.0	1,875,708.9	745.00				Average
		point85	85	948,171.2	1,875,612.1	740.00				
IL47 from Scott Rd to Finley Rd	24.0	point241	241	948,171.2	1,875,612.1	740.00				Average
		point86	86	948,257.8	1,875,434.2	736.00				Average
		point87	87	948,357.4	1,875,262.0	733.00				Average
		point88	88	948,471.1	1,875,095.2	729.00				Average
		point89	89	948,584.2	1,874,931.5	723.00				Average
		point90	90	948,696.2	1,874,765.5	717.00				Average
		point91	91	948,809.9	1,874,600.5	713.00				Average
		point92	92	948,924.1	1,874,436.6	713.00				Average
		point93	93	949,031.6	1,874,271.8	716.00				Average
		point94	94	949,135.7	1,874,097.2	717.00				Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point95	95	949,226.6	1,873,921.0	718.00				Average	
		point96	96	949,309.3	1,873,739.1	719.00				Average	
		point235	235	949,382.8	1,873,552.9	719.00				Average	
		point98	98	949,399.2	1,873,506.6	719.00					

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: IL 47 at I 88 Interchange
RUN: AM Peak Existing IL47

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
IL 47 past Green Rd	point30	30	585	55	40	55	47	55	0	0	0	0
	point31	31	585	55	40	55	47	55	0	0	0	0
	point32	32	585	55	40	55	47	55	0	0	0	0
	point33	33	585	55	40	55	47	55	0	0	0	0
	point34	34	585	55	40	55	47	55	0	0	0	0
	point35	35	585	55	40	55	47	55	0	0	0	0
	point36	36	585	55	40	55	47	55	0	0	0	0
	point37	37	585	55	40	55	47	55	0	0	0	0
	point38	38	585	55	40	55	47	55	0	0	0	0
	point39	39	585	55	40	55	47	55	0	0	0	0
	point40	40	585	55	40	55	47	55	0	0	0	0
	point41	41	585	55	40	55	47	55	0	0	0	0
	point42	42	585	55	40	55	47	55	0	0	0	0
	point43	43	585	55	40	55	47	55	0	0	0	0
	point44	44	585	55	40	55	47	55	0	0	0	0
	point45	45	585	55	40	55	47	55	0	0	0	0
	point245	245										
I-88 EB Off Ramp	point164	164	125	35	9	35	9	35	0	0	0	0
	point165	165	125	35	9	35	9	35	0	0	0	0
	point166	166	125	35	9	35	9	35	0	0	0	0
	point167	167	125	35	9	35	9	35	0	0	0	0
	point168	168	125	35	9	35	9	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point169	169	125	35	9	35	9	35	0	0	0	0
	point170	170	125	35	9	35	9	35	0	0	0	0
	point171	171	125	35	9	35	9	35	0	0	0	0
	point172	172	125	35	9	35	9	35	0	0	0	0
	point173	173	125	35	9	35	9	35	0	0	0	0
	point174	174	125	35	9	35	9	35	0	0	0	0
	point175	175	125	35	9	35	9	35	0	0	0	0
	point176	176										
Scott Rd	point221	221	58	30	4	30	3	30	0	0	0	0
	point222	222	58	30	4	30	3	30	0	0	0	0
	point223	223	58	30	4	30	3	30	0	0	0	0
	point224	224	58	30	4	30	3	30	0	0	0	0
	point225	225	58	30	4	30	3	30	0	0	0	0
	point226	226	58	30	4	30	3	30	0	0	0	0
	point227	227	58	30	4	30	3	30	0	0	0	0
	point228	228	58	30	4	30	3	30	0	0	0	0
	point229	229	58	30	4	30	3	30	0	0	0	0
	point230	230	58	30	4	30	3	30	0	0	0	0
	point231	231	58	30	4	30	3	30	0	0	0	0
	point232	232	58	30	4	30	3	30	0	0	0	0
	point233	233	58	30	4	30	3	30	0	0	0	0
	point234	234										
IL47 from Merrill Rd to Scott Rd	point240	240	859	55	48	55	48	55	0	0	0	0
	point99	99	859	55	48	55	48	55	0	0	0	0
	point100	100	859	55	48	55	48	55	0	0	0	0
	point101	101	859	55	48	55	48	55	0	0	0	0
	point236	236										
IL47 bt I-88 Ramps	point243	243	800	55	55	55	55	55	0	0	0	0
	point76	76	800	55	55	55	55	55	0	0	0	0
	point77	77	800	55	55	55	55	55	0	0	0	0
	point158	158	800	55	55	55	55	55	0	0	0	0
	point78	78	800	55	55	55	55	55	0	0	0	0
	point79	79	800	55	55	55	55	55	0	0	0	0
	point159	159										

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

IL47 from I-88 WB On Ramp to Seavy Rd	point244	244	696	55	47	55	39	55	0	0	0	0
	point69	69	696	55	47	55	39	55	0	0	0	0
	point70	70	696	55	47	55	39	55	0	0	0	0
	point71	71	696	55	47	55	39	55	0	0	0	0
	point72	72	696	55	47	55	39	55	0	0	0	0
	point73	73	696	55	47	55	39	55	0	0	0	0
	point74	74	696	55	47	55	39	55	0	0	0	0
	point75	75										
IL47 from Seavy Rd to Green Rd	point246	246	647	55	52	55	45	55	0	0	0	0
	point46	46	647	55	52	55	45	55	0	0	0	0
	point47	47	647	55	52	55	45	55	0	0	0	0
	point48	48	647	55	52	55	45	55	0	0	0	0
	point49	49	647	55	52	55	45	55	0	0	0	0
	point50	50	647	55	52	55	45	55	0	0	0	0
	point119	119	647	55	52	55	45	55	0	0	0	0
	point54	54	647	55	52	55	45	55	0	0	0	0
	point55	55	647	55	52	55	45	55	0	0	0	0
	point56	56	647	55	52	55	45	55	0	0	0	0
	point57	57	647	55	52	55	45	55	0	0	0	0
	point58	58	647	55	52	55	45	55	0	0	0	0
	point59	59	647	55	52	55	45	55	0	0	0	0
	point60	60	647	55	52	55	45	55	0	0	0	0
	point63	63	647	55	52	55	45	55	0	0	0	0
	point64	64	647	55	52	55	45	55	0	0	0	0
	point65	65	647	55	52	55	45	55	0	0	0	0
	point66	66	647	55	52	55	45	55	0	0	0	0
	point67	67	647	55	52	55	45	55	0	0	0	0
	point68	68	647	55	52	55	45	55	0	0	0	0
	point157	157										
IL47 from College Rd to Merrill Rd NB	point1	1	357	55	25	55	38	55	0	0	0	0
	point2	2	357	55	25	55	38	55	0	0	0	0
	point3	3	357	55	25	55	38	55	0	0	0	0
	point4	4	357	55	25	55	38	55	0	0	0	0
	point5	5	357	55	25	55	38	55	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point6	6	357	55	25	55	38	55	0	0	0	0
	point7	7	357	55	25	55	38	55	0	0	0	0
	point115	115	357	55	25	55	38	55	0	0	0	0
	point116	116										
IL 47 from College Dr to Merrill Rd 2 Lane	point237	237	788	55	56	55	83	55	0	0	0	0
	point102	102	788	55	56	55	83	55	0	0	0	0
	point103	103	788	55	56	55	83	55	0	0	0	0
	point104	104	788	55	56	55	83	55	0	0	0	0
	point105	105	788	55	56	55	83	55	0	0	0	0
	point106	106	788	55	56	55	83	55	0	0	0	0
	point107	107	788	55	56	55	83	55	0	0	0	0
	point108	108	788	55	56	55	83	55	0	0	0	0
	point112	112	788	55	56	55	83	55	0	0	0	0
	point113	113	788	55	56	55	83	55	0	0	0	0
	point114	114										
IL47 from College Rd to Merrill Rd SB	point117	117	431	55	30	55	46	55	0	0	0	0
	point15	15	431	55	30	55	46	55	0	0	0	0
	point14	14	431	55	30	55	46	55	0	0	0	0
	point13	13	431	55	30	55	46	55	0	0	0	0
	point12	12	431	55	30	55	46	55	0	0	0	0
	point11	11	431	55	30	55	46	55	0	0	0	0
	point10	10	431	55	30	55	46	55	0	0	0	0
	point9	9										
Finley Rd	point204	204	30	35	2	35	2	35	0	0	0	0
	point205	205	30	35	2	35	2	35	0	0	0	0
	point206	206	30	35	2	35	2	35	0	0	0	0
	point207	207	30	35	2	35	2	35	0	0	0	0
	point208	208	30	35	2	35	2	35	0	0	0	0
	point209	209	30	35	2	35	2	35	0	0	0	0
	point213	213	30	35	2	35	2	35	0	0	0	0
	point214	214	30	35	2	35	2	35	0	0	0	0
	point215	215	30	35	2	35	2	35	0	0	0	0
	point216	216	30	35	2	35	2	35	0	0	0	0
	point217	217	30	35	2	35	2	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point218	218	30	35	2	35	2	35	0	0	0	0
	point219	219	30	35	2	35	2	35	0	0	0	0
	point220	220										
Seavy Rd	point197	197	9	35	1	35	1	35	0	0	0	0
	point198	198	9	35	1	35	1	35	0	0	0	0
	point199	199	9	35	1	35	1	35	0	0	0	0
	point200	200	9	35	1	35	1	35	0	0	0	0
	point201	201	9	35	1	35	1	35	0	0	0	0
	point202	202	9	35	1	35	1	35	0	0	0	0
	point121	121	9	35	1	35	1	35	0	0	0	0
	point196	196	9	35	1	35	1	35	0	0	0	0
	point122	122	9	35	1	35	1	35	0	0	0	0
	point123	123	9	35	1	35	1	35	0	0	0	0
	point124	124	9	35	1	35	1	35	0	0	0	0
	point125	125	9	35	1	35	1	35	0	0	0	0
	point126	126	9	35	1	35	1	35	0	0	0	0
	point127	127										
Green Rd	point135	135	95	35	7	35	8	35	0	0	0	0
	point136	136	95	35	7	35	8	35	0	0	0	0
	point137	137	95	35	7	35	8	35	0	0	0	0
	point138	138	95	35	7	35	8	35	0	0	0	0
	point139	139	95	35	7	35	8	35	0	0	0	0
	point140	140	95	35	7	35	8	35	0	0	0	0
	point141	141	95	35	7	35	8	35	0	0	0	0
	point142	142	95	35	7	35	8	35	0	0	0	0
	point143	143	95	35	7	35	8	35	0	0	0	0
	point144	144	95	35	7	35	8	35	0	0	0	0
	point178	178	95	35	7	35	8	35	0	0	0	0
	point179	179	95	35	7	35	8	35	0	0	0	0
	point180	180	95	35	7	35	8	35	0	0	0	0
	point181	181	95	35	7	35	8	35	0	0	0	0
	point182	182	95	35	7	35	8	35	0	0	0	0
	point183	183	95	35	7	35	8	35	0	0	0	0
	point184	184	95	35	7	35	8	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point185	185	95	35	7	35	8	35	0	0	0	0
	point186	186	95	35	7	35	8	35	0	0	0	0
	point187	187	95	35	7	35	8	35	0	0	0	0
	point188	188	95	35	7	35	8	35	0	0	0	0
	point189	189										
IL47 from Finley Rd to I-88 EB Off Ramp	point242	242	860	55	59	55	59	55	0	0	0	0
	point80	80	860	55	59	55	59	55	0	0	0	0
	point84	84	860	55	59	55	59	55	0	0	0	0
	point85	85										
IL47 from Scott Rd to Finley Rd	point241	241	867	55	58	55	49	55	0	0	0	0
	point86	86	867	55	58	55	49	55	0	0	0	0
	point87	87	867	55	58	55	49	55	0	0	0	0
	point88	88	867	55	58	55	49	55	0	0	0	0
	point89	89	867	55	58	55	49	55	0	0	0	0
	point90	90	867	55	58	55	49	55	0	0	0	0
	point91	91	867	55	58	55	49	55	0	0	0	0
	point92	92	867	55	58	55	49	55	0	0	0	0
	point93	93	867	55	58	55	49	55	0	0	0	0
	point94	94	867	55	58	55	49	55	0	0	0	0
	point95	95	867	55	58	55	49	55	0	0	0	0
	point96	96	867	55	58	55	49	55	0	0	0	0
	point235	235	867	55	58	55	49	55	0	0	0	0
	point98	98										

INPUT: RECEIVERS

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5

INPUT: RECEIVERS

PROJECT/CONTRACT: IL 47 at I 88 Interchange
RUN: AM Peak Existing IL47

Receiver

Name	No.	#DUs	Coordinates (ground)			Height above Ground	Input Sound Levels and Criteria				Active in Calc.
			X	Y	Z		Existing LAeq1h	Impact Criteria		NR Goal	
			ft	ft	ft			ft	LAeq1h		
Res 1	1	4	949,221.6	1,870,476.6	722.00	4.92	0.00	66	14.0	8.0	Y
Res 2	2	36	949,072.8	1,874,065.4	722.00	4.92	0.00	66	14.0	8.0	Y
Res 3	3	12	948,247.1	1,875,256.5	740.00	4.92	0.00	66	14.0	8.0	Y
Res 4	4	3	946,760.2	1,878,303.6	724.00	4.92	0.00	66	14.0	8.0	Y
Res 5	5	26	947,670.5	1,879,476.8	755.00	4.92	0.00	66	14.0	8.0	Y
Res 6	6	2	948,527.0	1,880,460.2	731.00	4.92	0.00	66	14.0	8.0	Y
Res 7	7	3	948,837.2	1,881,350.0	745.00	4.92	0.00	66	14.0	8.0	Y
Res 8	8	3	948,437.2	1,881,221.6	735.00	4.92	0.00	66	14.0	8.0	Y

INPUT: TERRAIN LINES

Volkert	23 May 2017
Nik Simonson	TNM 2.5
INPUT: TERRAIN LINES	
PROJECT/CONTRACT:	IL 47 at I 88 Interchange
RUN:	AM Peak Existing IL47

IL 47 at I 88 Interchange

Terrain Line Name	Points			
	No.	Coordinates (ground)		
		X ft	Y ft	Z ft
Terrain Line2	1	949,256.2	1,870,168.4	705.00
	2	949,281.8	1,870,266.0	709.00
	3	949,293.6	1,870,367.4	714.00
	4	949,311.9	1,870,460.6	719.00
	5	949,330.1	1,870,559.2	722.00
	6	949,353.9	1,870,658.8	721.00
	7	949,382.2	1,870,751.9	714.00
	8	949,409.6	1,870,843.4	708.00
	9	949,422.4	1,870,951.1	703.00
	10	949,433.3	1,871,050.9	700.00

RESULTS: SOUND LEVELS

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

IL 47 at I 88 Interchange

RUN:

AM Peak Existing IL47

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal	
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal		
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
Res 1	1	4	0.0	60.4	66	60.4	14	----	60.4	0.0	8	-8.0	
Res 2	2	36	0.0	70.0	66	70.0	14	Snd Lvl	70.0	0.0	8	-8.0	
Res 3	3	12	0.0	67.8	66	67.8	14	Snd Lvl	67.8	0.0	8	-8.0	
Res 4	4	3	0.0	50.5	66	50.5	14	----	50.5	0.0	8	-8.0	
Res 5	5	26	0.0	68.6	66	68.6	14	Snd Lvl	68.6	0.0	8	-8.0	
Res 6	6	2	0.0	60.1	66	60.1	14	----	60.1	0.0	8	-8.0	
Res 7	7	3	0.0	58.8	66	58.8	14	----	58.8	0.0	8	-8.0	
Res 8	8	3	0.0	62.3	66	62.3	14	----	62.3	0.0	8	-8.0	
Dwelling Units		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		89	0.0	0.0	0.0								
All Impacted		74	0.0	0.0	0.0								
All that meet NR Goal		0	0.0	0.0	0.0								

INPUT: ROADWAYS

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT:
RUN:

IL 47 at I 88 Interchange
PM Peak Existing IL47

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
IL 47 north of Green Rd	24.0	point30	30	948,106.8	1,883,317.1	774.00				Average	
		point31	31	948,171.4	1,883,154.6	777.00				Average	
		point32	32	948,245.4	1,882,968.2	778.00				Average	
		point33	33	948,318.1	1,882,783.0	779.00				Average	
		point34	34	948,392.6	1,882,595.1	778.00				Average	
		point35	35	948,453.1	1,882,445.2	776.00				Average	
		point36	36	948,498.7	1,882,316.4	774.00				Average	
		point37	37	948,527.7	1,882,221.1	772.00				Average	
		point38	38	948,552.4	1,882,125.0	769.00				Average	
		point39	39	948,589.6	1,881,928.5	764.00				Average	
		point40	40	948,601.7	1,881,827.8	760.00				Average	
		point41	41	948,614.1	1,881,627.4	753.00				Average	
		point42	42	948,607.9	1,881,427.5	747.00				Average	
		point43	43	948,598.3	1,881,328.9	744.00				Average	
		point44	44	948,584.2	1,881,229.4	740.00				Average	
		point45	45	948,546.9	1,881,046.1	736.00				Average	
		point245	245	948,527.4	1,880,978.9	734.00					
I-88 EB Off Ramp	16.0	point164	164	948,034.1	1,876,059.1	749.00				Average	
		point165	165	947,997.3	1,876,055.8	749.00				Average	
		point166	166	947,847.8	1,876,066.9	745.00				Average	
		point167	167	947,745.8	1,876,072.4	741.00				Average	
		point168	168	947,676.7	1,876,084.0	739.00				Average	
		point169	169	947,557.2	1,876,123.9	735.00				Average	
		point170	170	947,515.6	1,876,141.0	734.00				Average	
		point171	171	947,407.9	1,876,209.4	732.00				Average	

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point172	172	947,319.6	1,876,270.9	731.00				Average
		point173	173	947,178.9	1,876,375.8	731.00				Average
		point174	174	946,772.4	1,876,673.5	729.00				Average
		point175	175	946,490.6	1,876,881.4	729.00				Average
		point176	176	946,367.2	1,876,984.1	729.00				
Scott Rd	24.0	point221	221	949,399.2	1,873,506.6	719.00				Average
		point222	222	949,199.1	1,873,503.8	718.00				Average
		point223	223	949,099.8	1,873,502.1	717.00				Average
		point224	224	948,999.1	1,873,499.9	717.00				Average
		point225	225	948,899.8	1,873,498.2	717.00				Average
		point226	226	948,809.0	1,873,497.6	716.00				Average
		point227	227	948,765.4	1,873,499.2	717.00				Average
		point228	228	948,650.4	1,873,499.9	716.00				Average
		point229	229	948,600.2	1,873,500.5	716.00				Average
		point230	230	948,564.2	1,873,499.2	713.00				Average
		point231	231	948,529.9	1,873,493.4	710.00				Average
		point232	232	948,490.1	1,873,481.4	708.00				Average
		point233	233	948,448.6	1,873,461.0	708.00				Average
		point234	234	948,259.4	1,873,341.2	706.00				
IL 47 from Merrill Rd to Scott Rd	24.0	point240	240	949,399.2	1,873,506.6	719.00				Average
		point99	99	949,475.3	1,873,266.2	719.00				Average
		point100	100	949,523.1	1,873,071.5	716.00				Average
		point101	101	949,560.8	1,872,875.1	713.00				Average
		point236	236	949,579.9	1,872,735.1	712.00				
IL 47 between I-88 Ramps	24.0	point243	243	947,845.6	1,876,943.1	761.00				Average
		point76	76	947,902.5	1,876,679.0	759.00				Average
		point77	77	947,944.4	1,876,484.1	757.00				Average
		point158	158	947,954.8	1,876,426.6	755.00				Average
		point78	78	947,985.5	1,876,288.2	753.00				Average
		point79	79	948,026.9	1,876,092.4	749.00				Average
		point159	159	948,034.1	1,876,059.1	749.00				
IL 47 from I-88 WB OnRamp to Seavy R	24.0	point244	244	947,627.2	1,878,166.2	747.00				Average
		point69	69	947,643.7	1,878,054.8	750.00				Average
		point70	70	947,675.8	1,877,856.6	755.00				Average
		point71	71	947,710.6	1,877,662.5	758.00				Average
		point72	72	947,745.5	1,877,464.9	760.00				Average
		point73	73	947,779.8	1,877,267.2	761.00				Average
		point74	74	947,818.6	1,877,069.6	762.00				Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point75	75	947,845.8	1,876,942.6	761.00				
IL 47 from Seavy Rd to Green Rd	24.0	point246	246	948,527.4	1,880,978.9	734.00				Average
		point46	46	948,486.3	1,880,843.1	734.00				Average
		point47	47	948,412.1	1,880,657.4	734.00				Average
		point48	48	948,322.6	1,880,478.4	737.00				Average
		point49	49	948,218.5	1,880,308.9	743.00				Average
		point50	50	948,104.2	1,880,143.9	748.00				Average
		point119	119	947,994.3	1,879,976.9	751.00				Average
		point54	54	947,942.4	1,879,891.6	753.00				Average
		point55	55	947,849.1	1,879,713.9	754.00				Average
		point56	56	947,770.9	1,879,529.8	754.00				Average
		point57	57	947,736.2	1,879,435.6	754.00				Average
		point58	58	947,704.8	1,879,341.1	753.00				Average
		point59	59	947,655.2	1,879,147.5	751.00				Average
		point60	60	947,618.7	1,878,951.6	747.00				Average
		point63	63	947,600.4	1,878,751.1	744.00				Average
		point64	64	947,596.4	1,878,653.1	742.00				Average
		point65	65	947,595.3	1,878,553.0	742.00				Average
		point66	66	947,601.5	1,878,454.6	742.00				Average
		point67	67	947,605.4	1,878,353.6	743.00				Average
		point68	68	947,614.8	1,878,254.0	744.00				Average
		point157	157	947,627.2	1,878,166.2	747.00				
IL 47 from College Dr to Merrill Rd NB	24.0	point1	1	949,208.0	1,869,312.1	707.00				Average
		point2	2	949,371.9	1,870,087.8	708.00				Average
		point3	3	949,414.4	1,870,287.5	708.00				Average
		point4	4	949,455.6	1,870,484.8	708.00				Average
		point5	5	949,481.1	1,870,685.6	708.00				Average
		point6	6	949,505.9	1,870,881.5	707.00				Average
		point7	7	949,516.6	1,870,983.0	707.00				Average
		point115	115	949,516.6	1,870,982.4	707.00				Average
		point116	116	949,524.8	1,871,033.4	707.00				
IL 47 from College Dr to Merrill Rd 2 Lane	24.0	point237	237	949,579.9	1,872,735.1	712.00				Average
		point102	102	949,588.4	1,872,677.5	711.00				Average
		point103	103	949,605.9	1,872,479.2	708.00				Average
		point104	104	949,612.6	1,872,279.4	708.00				Average
		point105	105	949,610.9	1,872,077.9	708.00				Average
		point106	106	949,604.8	1,871,878.0	707.00				Average
		point107	107	949,594.6	1,871,679.2	707.00				Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point108	108	949,578.2	1,871,478.9	707.00			Average
		point112	112	949,557.4	1,871,281.1	707.00			Average
		point113	113	949,532.1	1,871,083.1	707.00			Average
		point114	114	949,524.8	1,871,033.1	707.00			
IL 47 from College Dr to Merrill Rd SB	24.0	point117	117	949,524.4	1,871,033.4	707.00			Average
		point15	15	949,511.4	1,870,985.1	707.00			Average
		point14	14	949,490.9	1,870,887.2	707.00			Average
		point13	13	949,445.6	1,870,693.9	708.00			Average
		point12	12	949,400.2	1,870,489.5	708.00			Average
		point11	11	949,358.4	1,870,302.4	708.00			Average
		point10	10	949,312.3	1,870,100.0	707.00			Average
		point9	9	949,160.5	1,869,424.2	707.00			
Finley Rd	24.0	point204	204	948,171.2	1,875,612.1	740.00			Average
		point205	205	948,071.8	1,875,611.0	740.00			Average
		point206	206	947,871.4	1,875,608.4	736.00			Average
		point207	207	947,672.1	1,875,605.6	737.00			Average
		point208	208	947,471.9	1,875,603.4	739.00			Average
		point209	209	947,394.9	1,875,601.8	739.00			Average
		point213	213	947,372.9	1,875,599.9	740.00			Average
		point214	214	947,346.9	1,875,595.5	740.00			Average
		point215	215	947,318.2	1,875,586.5	741.00			Average
		point216	216	947,290.1	1,875,575.2	741.00			Average
		point217	217	947,280.0	1,875,569.8	741.00			Average
		point218	218	947,254.9	1,875,551.8	741.00			Average
		point219	219	947,228.5	1,875,526.5	742.00			Average
		point220	220	947,176.9	1,875,468.6	742.00			
Seavy Rd	24.0	point197	197	945,662.2	1,878,267.2	713.00			Average
		point198	198	945,864.9	1,878,251.1	715.00			Average
		point199	199	946,098.2	1,878,236.8	717.00			Average
		point200	200	946,280.0	1,878,227.2	718.00			Average
		point201	201	946,441.8	1,878,219.6	719.00			Average
		point202	202	946,582.7	1,878,213.9	721.00			Average
		point121	121	946,582.2	1,878,214.0	721.00			Average
		point196	196	946,682.2	1,878,209.5	722.00			Average
		point122	122	946,782.3	1,878,205.4	723.00			Average
		point123	123	946,981.2	1,878,195.2	725.00			Average
		point124	124	947,181.6	1,878,186.2	731.00			Average
		point125	125	947,381.4	1,878,177.2	740.00			Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point126	126	947,581.4	1,878,167.5	747.00			Average
		point127	127	947,627.2	1,878,166.2	747.00			
Green Rd	24.0	point135	135	948,527.4	1,880,978.9	734.00			Average
		point136	136	948,671.2	1,880,956.5	734.00			Average
		point137	137	948,727.4	1,880,957.4	733.00			Average
		point138	138	948,770.6	1,880,965.4	731.00			Average
		point139	139	948,818.8	1,880,985.4	731.00			Average
		point140	140	948,862.1	1,881,015.1	731.00			Average
		point141	141	948,897.3	1,881,052.8	731.00			Average
		point142	142	948,935.0	1,881,135.4	733.00			Average
		point143	143	948,986.1	1,881,336.5	738.00			Average
		point144	144	948,996.1	1,881,371.5	740.00			Average
		point178	178	949,005.7	1,881,413.6	740.00			Average
		point179	179	949,029.0	1,881,518.5	747.00			Average
		point180	180	949,072.1	1,881,637.4	752.00			Average
		point181	181	949,131.9	1,881,754.5	755.00			Average
		point182	182	949,177.5	1,881,821.8	758.00			Average
		point183	183	949,246.4	1,881,898.8	762.00			Average
		point184	184	949,302.8	1,881,960.9	765.00			Average
		point185	185	949,387.6	1,882,027.6	766.00			Average
		point186	186	949,496.0	1,882,088.8	766.00			Average
		point187	187	949,593.6	1,882,137.0	768.00			Average
		point188	188	949,696.2	1,882,180.9	772.00			Average
		point189	189	949,806.9	1,882,228.6	773.00			
IL47 from Finley Rd to I-88 EB Off Ramp	24.0	point242	242	948,034.1	1,876,059.1	749.00			Average
		point80	80	948,073.0	1,875,897.0	745.00			Average
		point84	84	948,138.0	1,875,708.9	745.00			Average
		point85	85	948,171.2	1,875,612.1	740.00			
IL 47 from Scott Rd to Finley Rd	24.0	point241	241	948,171.2	1,875,612.1	740.00			Average
		point86	86	948,257.8	1,875,434.2	736.00			Average
		point87	87	948,357.4	1,875,262.0	733.00			Average
		point88	88	948,471.1	1,875,095.2	729.00			Average
		point89	89	948,584.2	1,874,931.5	723.00			Average
		point90	90	948,696.2	1,874,765.5	717.00			Average
		point91	91	948,809.9	1,874,600.5	713.00			Average
		point92	92	948,924.1	1,874,436.6	713.00			Average
		point93	93	949,031.6	1,874,271.8	716.00			Average
		point94	94	949,135.7	1,874,097.2	717.00			Average

INPUT: ROADWAYS

IL 47 at I 88 Interchange

		point95	95	949,226.6	1,873,921.0	718.00				Average
		point96	96	949,309.3	1,873,739.1	719.00				Average
		point235	235	949,382.8	1,873,552.9	719.00				Average
		point98	98	949,399.2	1,873,506.6	719.00				

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: IL 47 at I 88 Interchange

RUN: PM Peak Existing IL47

Roadway Name	Points											
	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
IL 47 north of Green Rd	point30	30	639	55	0	0	20	55	0	0	0	0
	point31	31	639	55	0	0	20	55	0	0	0	0
	point32	32	639	55	0	0	20	55	0	0	0	0
	point33	33	639	55	0	0	20	55	0	0	0	0
	point34	34	639	55	0	0	20	55	0	0	0	0
	point35	35	639	55	0	0	20	55	0	0	0	0
	point36	36	639	55	0	0	20	55	0	0	0	0
	point37	37	639	55	0	0	20	55	0	0	0	0
	point38	38	639	55	0	0	20	55	0	0	0	0
	point39	39	639	55	0	0	20	55	0	0	0	0
	point40	40	639	55	0	0	20	55	0	0	0	0
	point41	41	639	55	0	0	20	55	0	0	0	0
	point42	42	639	55	0	0	20	55	0	0	0	0
	point43	43	639	55	0	0	20	55	0	0	0	0
	point44	44	639	55	0	0	20	55	0	0	0	0
point45	45	639	55	0	0	20	55	0	0	0	0	
	point245	245										
I-88 EB Off Ramp	point164	164	157	35	3	35	7	35	0	0	0	0
	point165	165	157	35	3	35	7	35	0	0	0	0
	point166	166	157	35	3	35	7	35	0	0	0	0
	point167	167	157	35	3	35	7	35	0	0	0	0
	point168	168	157	35	3	35	7	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point169	169	157	35	3	35	7	35	0	0	0	0
	point170	170	157	35	3	35	7	35	0	0	0	0
	point171	171	157	35	3	35	7	35	0	0	0	0
	point172	172	157	35	3	35	7	35	0	0	0	0
	point173	173	157	35	3	35	7	35	0	0	0	0
	point174	174	157	35	3	35	7	35	0	0	0	0
	point175	175	157	35	3	35	7	35	0	0	0	0
	point176	176										
Scott Rd	point221	221	69	30	1	30	3	30	0	0	0	0
	point222	222	69	30	1	30	3	30	0	0	0	0
	point223	223	69	30	1	30	3	30	0	0	0	0
	point224	224	69	30	1	30	3	30	0	0	0	0
	point225	225	69	30	1	30	3	30	0	0	0	0
	point226	226	69	30	1	30	3	30	0	0	0	0
	point227	227	69	30	1	30	3	30	0	0	0	0
	point228	228	69	30	1	30	3	30	0	0	0	0
	point229	229	69	30	1	30	3	30	0	0	0	0
	point230	230	69	30	1	30	3	30	0	0	0	0
	point231	231	69	30	1	30	3	30	0	0	0	0
	point232	232	69	30	1	30	3	30	0	0	0	0
	point233	233	69	30	1	30	3	30	0	0	0	0
	point234	234										
IL 47 from Merrill Rd to Scott Rd	point240	240	820	55	9	55	44	55	0	0	0	0
	point99	99	820	55	9	55	44	55	0	0	0	0
	point100	100	820	55	9	55	44	55	0	0	0	0
	point101	101	820	55	9	55	44	55	0	0	0	0
	point236	236										
IL 47 between I-88 Ramps	point243	243	755	55	16	55	32	55	0	0	0	0
	point76	76	755	55	16	55	32	55	0	0	0	0
	point77	77	755	55	16	55	32	55	0	0	0	0
	point158	158	755	55	16	55	32	55	0	0	0	0
	point78	78	755	55	16	55	32	55	0	0	0	0
	point79	79	755	55	16	55	32	55	0	0	0	0
	point159	159										

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

IL 47 from I-88 WB OnRamp to Seavy R	point244	244	688	55	7	55	29	55	0	0	0	0
	point69	69	688	55	7	55	29	55	0	0	0	0
	point70	70	688	55	7	55	29	55	0	0	0	0
	point71	71	688	55	7	55	29	55	0	0	0	0
	point72	72	688	55	7	55	29	55	0	0	0	0
	point73	73	688	55	7	55	29	55	0	0	0	0
	point74	74	688	55	7	55	29	55	0	0	0	0
	point75	75										
IL 47 from Seavy Rd to Green Rd	point246	246	716	55	0	0	22	55	0	0	0	0
	point46	46	716	55	0	0	22	55	0	0	0	0
	point47	47	716	55	0	0	22	55	0	0	0	0
	point48	48	716	55	0	0	22	55	0	0	0	0
	point49	49	716	55	0	0	22	55	0	0	0	0
	point50	50	716	55	0	0	22	55	0	0	0	0
	point119	119	716	55	0	0	22	55	0	0	0	0
	point54	54	716	55	0	0	22	55	0	0	0	0
	point55	55	716	55	0	0	22	55	0	0	0	0
	point56	56	716	55	0	0	22	55	0	0	0	0
	point57	57	716	55	0	0	22	55	0	0	0	0
	point58	58	716	55	0	0	22	55	0	0	0	0
	point59	59	716	55	0	0	22	55	0	0	0	0
	point60	60	716	55	0	0	22	55	0	0	0	0
	point63	63	716	55	0	0	22	55	0	0	0	0
	point64	64	716	55	0	0	22	55	0	0	0	0
	point65	65	716	55	0	0	22	55	0	0	0	0
	point66	66	716	55	0	0	22	55	0	0	0	0
	point67	67	716	55	0	0	22	55	0	0	0	0
	point68	68	716	55	0	0	22	55	0	0	0	0
	point157	157										
IL 47 from College Dr to Merrill Rd NB	point1	1	494	55	11	55	21	55	0	0	0	0
	point2	2	494	55	11	55	21	55	0	0	0	0
	point3	3	494	55	11	55	21	55	0	0	0	0
	point4	4	494	55	11	55	21	55	0	0	0	0
	point5	5	494	55	11	55	21	55	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point6	6	494	55	11	55	21	55	0	0	0	0
	point7	7	494	55	11	55	21	55	0	0	0	0
	point115	115	494	0	11	55	21	55	0	0	0	0
	point116	116										
IL 47 from College Dr to Merrill Rd 2 Lane	point237	237	919	55	20	55	39	55	0	0	0	0
	point102	102	919	55	20	55	39	55	0	0	0	0
	point103	103	919	55	20	55	39	55	0	0	0	0
	point104	104	919	55	20	55	39	55	0	0	0	0
	point105	105	919	55	20	55	39	55	0	0	0	0
	point106	106	919	55	20	55	39	55	0	0	0	0
	point107	107	919	55	20	55	39	55	0	0	0	0
	point108	108	919	55	20	55	39	55	0	0	0	0
	point112	112	919	55	20	55	39	55	0	0	0	0
	point113	113	919	55	20	55	39	55	0	0	0	0
	point114	114										
IL 47 from College Dr to Merrill Rd SB	point117	117	426	55	9	55	18	55	0	0	0	0
	point15	15	426	55	9	55	18	55	0	0	0	0
	point14	14	426	55	9	55	18	55	0	0	0	0
	point13	13	426	55	9	55	18	55	0	0	0	0
	point12	12	426	55	9	55	18	55	0	0	0	0
	point11	11	426	55	9	55	18	55	0	0	0	0
	point10	10	426	55	9	55	18	55	0	0	0	0
	point9	9										
Finley Rd	point204	204	21	35	0	0	1	35	0	0	0	0
	point205	205	21	35	0	0	1	35	0	0	0	0
	point206	206	21	35	0	0	1	35	0	0	0	0
	point207	207	21	35	0	0	1	35	0	0	0	0
	point208	208	21	35	0	0	1	35	0	0	0	0
	point209	209	21	35	0	0	1	35	0	0	0	0
	point213	213	21	35	0	0	1	35	0	0	0	0
	point214	214	21	35	0	0	1	35	0	0	0	0
	point215	215	21	35	0	0	1	35	0	0	0	0
	point216	216	21	35	0	0	1	35	0	0	0	0
	point217	217	21	35	0	0	1	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point218	218	21	35	0	0	1	35	0	0	0	0
	point219	219	21	35	0	0	1	35	0	0	0	0
	point220	220										
Seavy Rd	point197	197	10	35	0	0	0	0	0	0	0	0
	point198	198	10	35	0	0	0	0	0	0	0	0
	point199	199	10	35	0	0	0	0	0	0	0	0
	point200	200	10	35	0	0	0	0	0	0	0	0
	point201	201	10	35	0	0	0	0	0	0	0	0
	point202	202	10	35	0	0	0	0	0	0	0	0
	point121	121	10	35	0	0	0	0	0	0	0	0
	point196	196	10	35	0	0	0	0	0	0	0	0
	point122	122	10	35	0	0	0	0	0	0	0	0
	point123	123	10	35	0	0	0	0	0	0	0	0
	point124	124	10	35	0	0	0	0	0	0	0	0
	point125	125	10	35	0	0	0	0	0	0	0	0
	point126	126	10	35	0	0	0	0	0	0	0	0
	point127	127										
Green Rd	point135	135	155	35	0	0	5	35	0	0	0	0
	point136	136	155	35	0	0	5	35	0	0	0	0
	point137	137	155	35	0	0	5	35	0	0	0	0
	point138	138	155	35	0	0	5	35	0	0	0	0
	point139	139	155	35	0	0	5	35	0	0	0	0
	point140	140	155	35	0	0	5	35	0	0	0	0
	point141	141	155	35	0	0	5	35	0	0	0	0
	point142	142	155	35	0	0	5	35	0	0	0	0
	point143	143	155	35	0	0	5	35	0	0	0	0
	point144	144	155	35	0	0	5	35	0	0	0	0
	point178	178	155	35	0	0	5	35	0	0	0	0
	point179	179	155	35	0	0	5	35	0	0	0	0
	point180	180	155	35	0	0	5	35	0	0	0	0
	point181	181	155	35	0	0	5	35	0	0	0	0
	point182	182	155	35	0	0	5	35	0	0	0	0
	point183	183	155	35	0	0	5	35	0	0	0	0
	point184	184	155	35	0	0	5	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

IL 47 at I 88 Interchange

	point185	185	155	35	0	0	5	35	0	0	0	0
	point186	186	155	35	0	0	5	35	0	0	0	0
	point187	187	155	35	0	0	5	35	0	0	0	0
	point188	188	155	35	0	0	5	35	0	0	0	0
	point189	189										
IL47 from Finley Rd to I-88 EB Off Ramp	point242	242	853	55	9	55	36	55	0	0	0	0
	point80	80	853	55	9	55	36	55	0	0	0	0
	point84	84	853	55	9	55	36	55	0	0	0	0
	point85	85										
IL 47 from Scott Rd to Finley Rd	point241	241	849	55	18	55	36	55	0	0	0	0
	point86	86	849	55	18	55	36	55	0	0	0	0
	point87	87	849	55	18	55	36	55	0	0	0	0
	point88	88	849	55	18	55	36	55	0	0	0	0
	point89	89	849	55	18	55	36	55	0	0	0	0
	point90	90	849	55	18	55	36	55	0	0	0	0
	point91	91	849	55	18	55	36	55	0	0	0	0
	point92	92	849	55	18	55	36	55	0	0	0	0
	point93	93	849	55	18	55	36	55	0	0	0	0
	point94	94	849	55	18	55	36	55	0	0	0	0
	point95	95	849	55	18	55	36	55	0	0	0	0
	point96	96	849	55	18	55	36	55	0	0	0	0
	point235	235	867	55	58	55	49	55	0	0	0	0
	point98	98										

INPUT: RECEIVERS

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5

INPUT: RECEIVERS

PROJECT/CONTRACT: IL 47 at I 88 Interchange

RUN: PM Peak Existing IL47

Receiver

Name	No.	#DUs	Coordinates (ground)			Height above Ground	Input Sound Levels and Criteria				Active in Calc.
			X	Y	Z		Existing LAeq1h	Impact Criteria		NR Goal	
			ft	ft	ft			ft	LAeq1h		
Res 1	1	4	949,221.6	1,870,476.6	722.00	4.92	0.00	66	14.0	8.0	Y
Res 2	2	36	949,072.8	1,874,065.4	722.00	4.92	0.00	66	14.0	8.0	Y
Res 3	3	12	948,247.1	1,875,256.5	740.00	4.92	0.00	66	14.0	8.0	Y
Res 4	4	3	946,760.2	1,878,303.6	724.00	4.92	0.00	66	14.0	8.0	Y
Res 5	5	26	947,670.5	1,879,476.8	755.00	4.92	0.00	66	14.0	8.0	Y
Res 6	6	2	948,527.0	1,880,460.2	731.00	4.92	0.00	66	14.0	8.0	Y
Res 7	7	3	948,837.2	1,881,350.0	745.00	4.92	0.00	66	14.0	8.0	Y
Res 8	8	3	948,437.2	1,881,221.6	735.00	4.92	0.00	66	14.0	8.0	Y

INPUT: TERRAIN LINES

Volkert
Nik Simonson

23 May 2017
TNM 2.5

INPUT: TERRAIN LINES

PROJECT/CONTRACT:

IL 47 at I 88 Interchange

RUN:

PM Peak Existing IL47

Terrain Line Name	Points			
	No.	Coordinates (ground)		
		X	Y	Z
		ft	ft	ft
Terrain Line2	1	949,256.2	1,870,168.4	705.00
	2	949,281.8	1,870,266.0	709.00
	3	949,293.6	1,870,367.4	714.00
	4	949,311.9	1,870,460.6	719.00
	5	949,330.1	1,870,559.2	722.00
	6	949,353.9	1,870,658.8	721.00
	7	949,382.2	1,870,751.9	714.00
	8	949,409.6	1,870,843.4	708.00
	9	949,422.4	1,870,951.1	703.00
	10	949,433.3	1,871,050.9	700.00

IL 47 at I 88 Interchange

RESULTS: SOUND LEVELS

IL 47 at I 88 Interchange

Volkert
Nik Simonson

23 May 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: IL 47 at I 88 Interchange
RUN: PM Peak Existing IL47
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier				With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Res 1	1	4	0.0	58.7	66	58.7	14	----	58.7	0.0	8	-8.0
Res 2	2	36	0.0	69.1	66	69.1	14	Snd Lvl	69.1	0.0	8	-8.0
Res 3	3	12	0.0	66.9	66	66.9	14	Snd Lvl	66.9	0.0	8	-8.0
Res 4	4	3	0.0	48.2	66	48.2	14	----	48.2	0.0	8	-8.0
Res 5	5	26	0.0	67.1	66	67.1	14	Snd Lvl	67.1	0.0	8	-8.0
Res 6	6	2	0.0	58.3	66	58.3	14	----	58.3	0.0	8	-8.0
Res 7	7	3	0.0	57.1	66	57.1	14	----	57.1	0.0	8	-8.0
Res 8	8	3	0.0	60.5	66	60.5	14	----	60.5	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		89	0.0	0.0	0.0							
All Impacted		74	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							