



Key Route Illinois Route 47	Marked Route/Road Name Illinois Route 47
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Job Number P-91-015-14	Contract Number	Section 14-00028-00-CH
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Project Length 12,830' along Illinois Route 47 4,100' on Interstate 88	PPS Number
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County(ies) Kane

Location/Limits IL 47 from Waubensee Community College North Entrance to Green Road; I-88 approximately one-half mile both east and west of IL 47

General Description of Existing Facility Illinois Route 47 (IL 47), from the Waubensee Community College North Entrance to Green Road, is located in the Village of Sugar Grove in Kane County. IL 47 is functionally classified as Other Principal Arterial. It is on the National Highway System (NHS), designated a Class II truck route and is maintained by the Illinois Department of Transportation. The Ronald Reagan Memorial Tollway (I-88) is functionally classified as an Interstate. It is also on the NHS and is maintained by the Illinois Tollway. IL 47 consists of a rural 2-lane section that expands to 4-lanes at the I-88 interchange. The shoulders along IL 47 consist of asphalt and aggregate. I-88 consists of a 4-lane divided section with asphalt and aggregate shoulders. The horizontal alignment of IL 47 is generally straight with slight curves at the north and south termini, and the profile of the roadway is generally flat, matching the surrounding topography. The horizontal alignment of I-88 generally aligns from the northwest to the southeast and the profile of the roadway is flat within the project limits. The intersection of IL 47 and the Waubensee Community College north entrance is the only signalized intersection along IL 47 within the project limits. The existing interchange of IL 47 with I-88 consists of ramps to/from the west.

Need for Proposed Improvement The Purpose and Need of this project is to improve system linkage and to accommodate land use and economic development.

Scope of Project	<input type="checkbox"/> New Construction	<input checked="" type="checkbox"/> Reconstruction	<input type="checkbox"/> 3R	<input type="checkbox"/> 3P
	<input type="checkbox"/> SMART	<input type="checkbox"/> Other _____		

General Description of Proposed Improvement IL 47 will be widened from a 2-lane facility to a 4-lane facility. A raised 30' median with mountable curb will be provided. The centerline alignment of reconstructed IL 47 will generally be 30' east of the existing centerline alignment. A rural cross sections with ditches and culverts will be developed on the outside of IL 47 in both directions. A Partial Cloverleaf interchange with a loop ramp in the northeast quadrant is proposed at the intersection of I-88 and IL 47. Provisions for a future shared use path will be made on the east side of IL 47 as well as provisions for a future sidewalk on the west side of IL 47. No signalized intersections, with the exception of the existing signal at College Drive at the south project limit, are anticipated on opening day of the reconstruction.

Environmental Processing EIS EA Federal Approved CE
 State Approved CE Other _____

Approximate Amount of ROW to be Purchased

52

Parcels Totalling 18.8 Acres

Number of Businesses 0 and Residences 0 to be Acquired

ROW Cost

\$7,700,000.00

Estimated Program Cost

\$22,400,000.00

(in FY NP)

Fund Type

NHPP

Construction Cost

\$44,400,000.00

Utility Relocation Cost

\$566,000.00

Consultant PE Cost

Design Exceptions

Type of Public Involvement Activity

- Level One Required Yes No

- Public Hearing Offered Yes No

- Level Two Required Yes No

- Informational Meeting Held Yes No

- If yes, note date approved 08/15/18

- Property Owners Contacted Yes No

Regional Design Approval

IDOT Regional Engineer Signature

Date

Anthony J. Dingley / AB

12/13/18

Contact Information

Job Number: P-91-015-14

Project: FAP 326 (IL Route 47) at FAI 88 (Ronald Reagan Memorial Tollway)

Location: Kane County, Illinois

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1. NEED FOR IMPROVEMENT

The existing Illinois Route 47 (IL 47) Interchange at the Ronald Reagan Memorial Tollway (I-88) is a partial service interchange that provides access to and from the west only. A need has been identified to construct a full-service interchange as well as to widen IL 47 within the project limits.

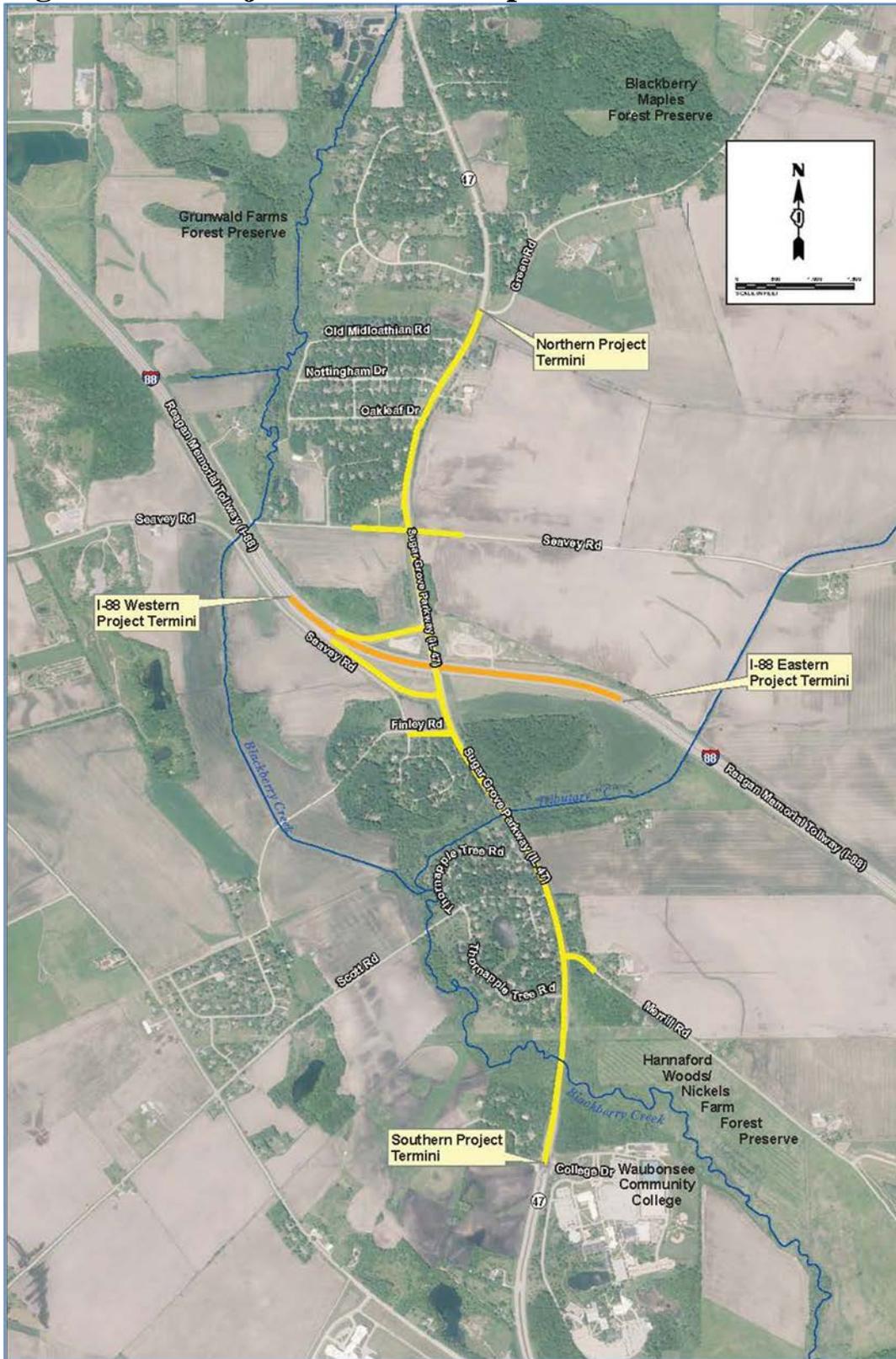
1.1 Project Location and Termini

The project is in southern Kane County in Blackberry and Sugar Grove Townships. 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).

The project extends from the Waubensee Community College north entrance as the southern logical termini to Green Road as the northern logical termini along IL 47. The study area on I-88 extends a half mile both east and west of IL 47. The Village of Sugar Grove is located south of the interchange and the Village of Elburn is located to the north. The interchange is located at milepost 109.5 on I-88. See Figure 1-1, Project Location Map.

The project will include the addition of ramps to and from the east, as well as a partial reconstruction of the existing ramps to and from the west. New toll plazas are anticipated to be constructed on some or all ramps of the proposed interchange. Modifications to IL 47 will also be included. This includes adding a lane on IL 47 in each direction of travel and modification of the IL 47 over I-88 bridge to accommodate the proposed interchange geometry.

Figure 1-1: Project Location Map



2. DESCRIPTION OF EXISTING CONDITIONS

2.1 Description of Existing Conditions

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. The section of IL 47 within the study limits is between the Villages of Sugar Grove and Elburn.

The Reagan Memorial Tollway (I-88) is a tolled Interstate Highway located in northern Illinois. I-88 was previously known as the East-West Tollway and is now part of the Chicago to Kansas City Expressway (IL 110).

IDOT's Bureau of Design and Environment (BDE) Manual has been used in developing the IL 47 design. The design criteria utilized in developing the proposed ramp improvements are those outlined in the Illinois Tollway Roadway Design Criteria Manual. A comprehensive list of relevant design criteria is in BDE 3108 (Appendix A-5).

Table 2-1. Roadway Data

Design Element	IL 47 (FAP 326)	I-88 (Reagan Memorial Tollway)
Highway Functional Classification	Strategic Regional Arterial (Rural)	Interstate
Truck Route Classification	Class II	Class I
Strategic Regional Arterial (yes/no)	Yes	No
On NHS (yes/no)	Yes	Yes
Jurisdiction	IDOT	IL Tollway
Current ADT	10,900 S of I-88 7,450 N of I-88	31,000 W of IL 47 28,000 E of IL 47
% Trucks	23%	11%
Posted Speed	55	70
Design Speed	60	75
Number of through lanes and widths	2	4
Turn lanes and widths	NB @ I-88 WB Ramp - 12' SB @ Old Oaks Dr. - 12'	N/A
Shoulder or Curb Type	Asphalt/Gravel	Asphalt
Shoulder Width	10'	12' Outside 6' Inside

Design Element	IL 47 (FAP 326)	I-88 (Reagan Memorial Tollway)
Clear Zone Width	44'	44'
Pavement Surface Condition in CRS (year)	7.3 (Green Rd. to Seavey) 5.5 (Seavey to Old Oaks Dr.) (2015)	7.9 (East Project limit to existing ramp gores) 7.4 (existing ramp gores to west project limit) (2014)
Sidewalks/paths	None	None
Parking	None	None
Roadway Lighting	Single light standard at intersections	On ramps
Traffic Control Type	Stop signs at side streets and EB I-88 exit ramp. Signal at Old Oaks Rd.	N/A

2.2 IL 47

IL 47 is a two-lane undivided highway north and south of the existing half diamond interchange. The roadway becomes a four-lane, raised median divided roadway at I-88 between Finley Road and Seavey Road. IL 47 is a primary north-south thoroughfare serving the Village of Sugar Grove, Village of Elburn and the Kane County region.

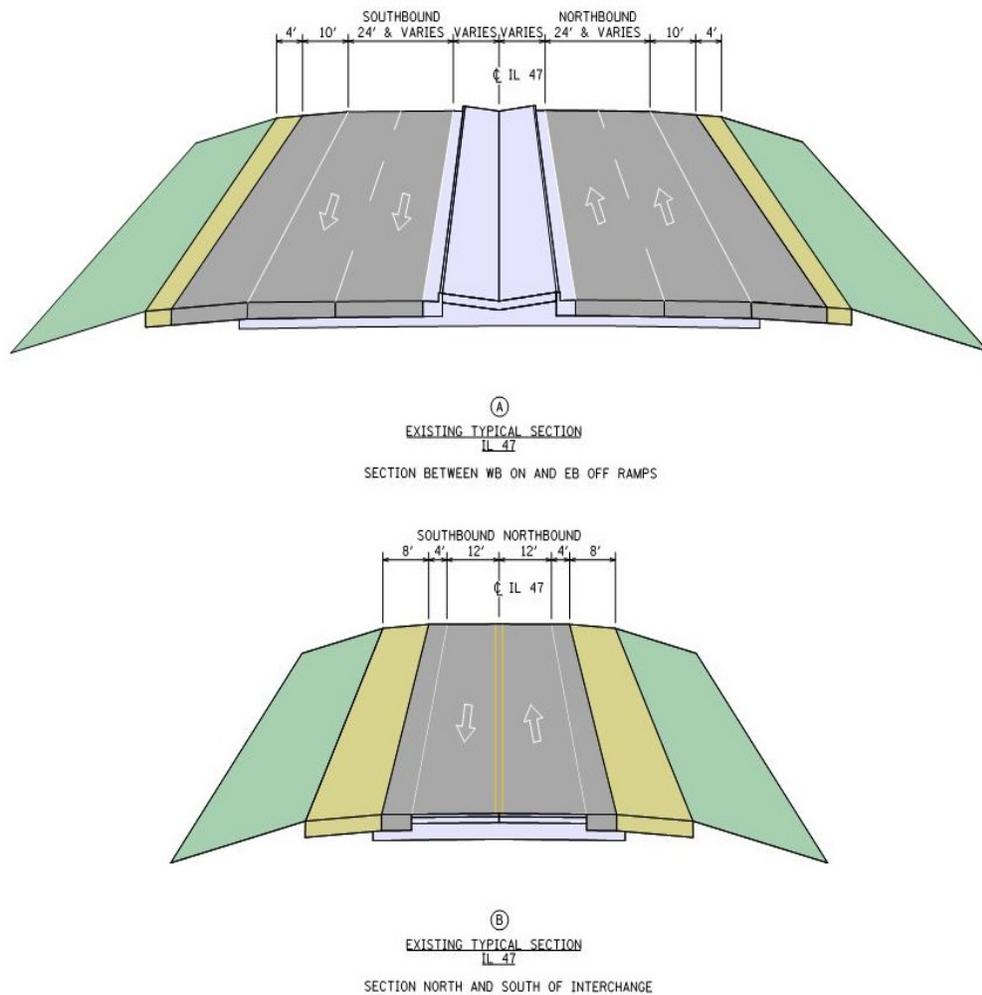
There are several collector roadways that intersect IL 47 within the project limits, which are as follows. At the north termini of the project, Green Road is a two-lane undivided road that is approximately 4,800 feet north of I-88 and forms a T-intersection with IL 47. Approximately 1,800 feet north of I-88, there is an unsignalized intersection with Seavey Road, an east-west undivided roadway. Finley Road is an east-west two-lane undivided roadway that forms a T-intersection with IL 47 roughly 800 feet south of the Tollway centerline. Approximately 3,300 feet south of I-88, Scott Road is an east-west two-lane undivided roadway that forms a T-intersection with IL 47. Merrill Road is approximately 4,100 feet south of I-88 and forms a T-intersection with IL 47.

Additionally, there are local roadways that intersect IL 47 within the project limits. North of I-88, these roadways are (from north to south): Old Midlothian Road, Nottingham Drive, and Oakleaf Drive. All three roads intersect IL 47 at a stop-controlled T-intersection and are located west of IL 47. Local roads south of I-88 include: Thornapple Tree Road (North), Thornapple Tree Road (South), and Waubensee Drive/Old Oaks Road. The two Thornapple Tree Road intersections are T-controlled stop intersections while the College Drive/Old Oaks Road is a signalized 4-way intersection located approximately 6,750 feet south of I-88.

The roads intersecting IL 47 are shown in Figure 1-1.

The existing IL 47 pavement includes an asphalt surface over continuously reinforced concrete pavement. Thru lanes are 12' wide. There is typically a 10' wide asphalt outside shoulder and 8' wide asphalt inside shoulder. Typical sections of the IL 47 roadway are provided in **Figure 2-1** on the following page.

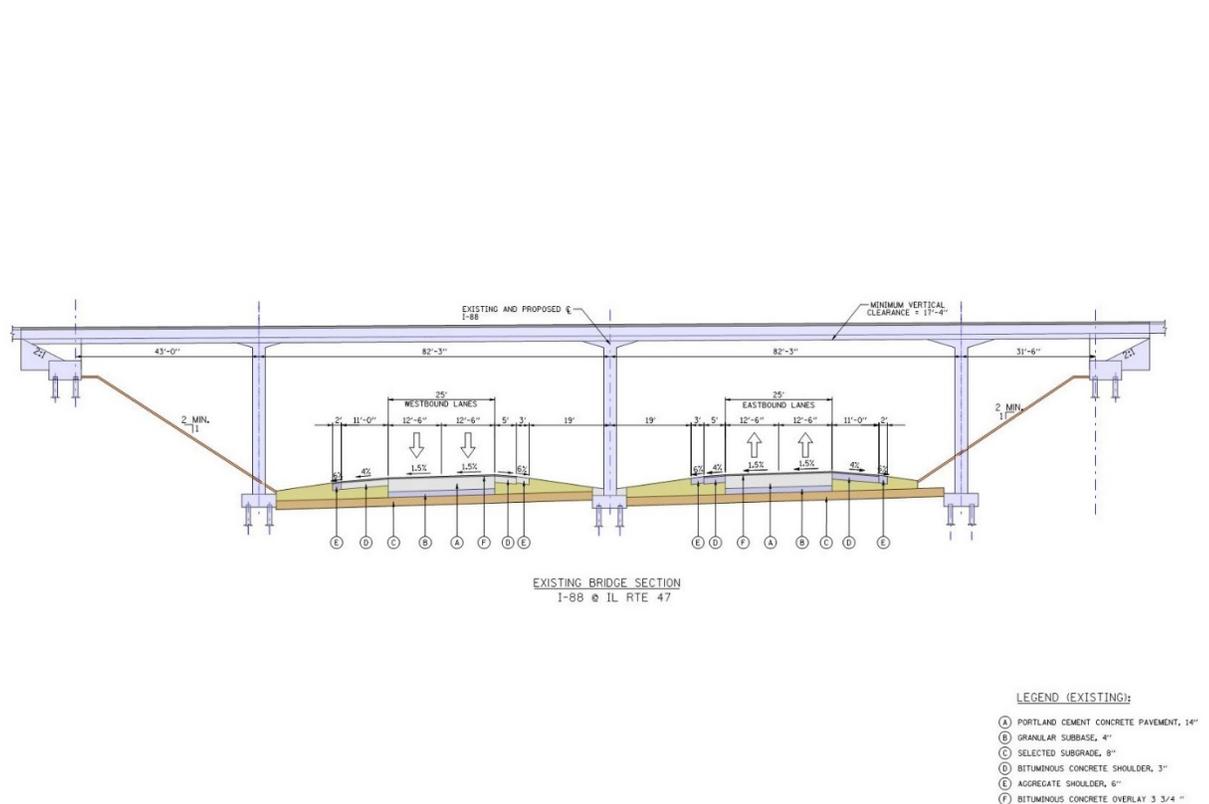
Figure 2-1: IL 47 Typical Sections



2.3 I-88 (Reagan Memorial Tollway)

I-88 is classified as a tollway and has two mainline lanes in each direction within the project limits. An open grassed median separates the lanes. Median cable guard is adjacent to westbound lanes west of the IL 47 bridge, while median cable guard is adjacent to the eastbound lanes east of the IL 47 bridge. The posted speed limit is 65 mph eastbound and 70 mph westbound.

The existing pavement includes an asphalt surface over a concrete base. Mainline lanes are 12.5' wide. There is an 11' wide asphalt shoulder on the outside and 5' asphalt shoulder on the inside. The inside shoulder also includes a 3' aggregate shoulder adjacent to the asphalt shoulder. A typical section of I-88 beneath IL 47 is shown in **Figure 2-2** on the following page.

Figure 2-2: I-88 Typical Section at IL 47

The IL 47 at I-88 interchange is shown in **Figure 1-1**.

2.4 Land Use

Current land use in the immediate vicinity of the I-88/IL 47 interchange is a mix of farmed land, residential, and privately owned open land. The project area is entirely within Blackberry and Sugar Grove Townships, which are in Kane County. The Village of Sugar Grove is generally located south of the interchange, while the Village of Elburn is located to the north. Quadrants, as referenced below, are relative to the intersection of I-88 and IL 47.

Northeast Quadrant

The northeast quadrant of the project lies within Blackberry Township. Adjacent to I-88, the Tollway maintains a storage yard in their right-of-way. From the I-88 right-of-way to Seavey Road, this quadrant of the project is owned by a private developer. This parcel is currently farmed along IL 47. The area north of Seavey Road on the east side of IL 47 is generally farmed, with the exception of two residential properties. Both residential properties have access drives to IL 47.

Southeast Quadrant

The southeast quadrant of the project lies within Blackberry and Sugar Grove Townships. From I-88 south to Merrill Road, a significant portion of the property is owned by a private developer. There is also a farmstead in this section with an access drive to IL 47. The parcel is currently undeveloped adjacent to the I-88 right-of-way and farmed south of Tributary C to Blackberry Creek. South of Merrill Road, the area is wooded and includes an electric transmission corridor perpendicular to IL 47. A large portion of this area is within the Hannaford Woods/Nickels Farm Forest Preserve. Blackberry Creek crosses under IL 47 and flows to the east thru the Forest Preserve.

Southwest Quadrant

The southwest quadrant of the project lies within Blackberry and Sugar Grove Townships. The area between the existing eastbound off-ramp and Finley Road is currently undeveloped and is owned by a single investor/developer who supports the project. Immediately south of Finley Road is an unincorporated residential subdivision adjacent to IL 47. Further south and bordering Scott Road on the north and south, another unincorporated residential subdivision is adjacent to IL 47. An electric transmission corridor crosses IL 47 thru this quadrant as well. The Hannaford Woods/Nickels Farm Forest Preserve containing Blackberry Creek is at the south project limit in this quadrant.

Northwest Quadrant

The northwest quadrant of the project lies within Blackberry Township. The Tollway maintains a salt storage yard between I-88 and the existing westbound on-ramp in this quadrant. A private developer owns the property between the WB on-ramp and Seavey Road. This property is currently farmed. North of Seavey Road, there is an existing unincorporated residential subdivision adjacent to IL 47 that extends to the north project limit.

2.5 Right-of-Way

I-88 (Reagan Memorial Tollway)

The general limits of the existing right-of-way for I-88 within the project are approximately 125 feet both north and south of the existing Tollway centerline. However, a wider right-of-way occurs both immediately east and west of IL 47 for the existing ramps to and from the west and for future ramps to and from the east.

IL 47

The existing ROW varies considerably along IL 47 within the project limits. The ROW width at the south end of the project is approximately 210', whereas the general range of ROW width within the project is between 120' and 160'.

2.6 Environmental Resources

There are several environmental resource areas within the IL 47/ I-88 study area. These include the Hannaford Woods/Nickels Farm Forest Preserve, Blackberry Creek, Tributary C of Blackberry Creek, wetlands, floodplains, and farmland. Most of these environmentally sensitive areas are located south of the IL 47/I-88 Interchange.

An Environmental Assessment (EA), which evaluated impacts to natural resources including wetlands, water quality, floodplains, and threatened and endangered species, did not indicate any significant adverse environmental impacts. The analysis also included an investigation of noise impacts and potential hazardous material within the study area. A detailed description of the environmental resources is provided in the project's Environmental Assessment, Supplement S-1.

2.7 Structures

IL 47 Bridge over I-88 (SN 045-0082)

The existing IL 47 Bridge over I-88 carries two through traffic lanes in each direction separated by a 20-foot wide raised median. It is a four-span bridge with vaulted abutments. The concrete deck is supported by precast, pre-stressed concrete (PPC) I-Beams. The deck is 93'-2" wide out-to-out. The overall length is 239'-0" (back-to-back of approach bents). In 2007, the entire deck was replaced and the PPC I-Beams at Spans 2 & 3 were replaced.

IL 47 Culvert at Tributary C to Blackberry Creek (SN 045-2001)

The existing Blackberry Creek Tributary C crossing of IL 47 is a three-cell concrete box culvert. Each cell has clear dimensions of 7' wide by 8' rise. The culvert is 89' long and was constructed perpendicular to IL 47 (no skew). At the culvert location, IL 47 consists of one traffic lane in each direction with gravel shoulders. There is no existing median. The culvert was constructed in 1971 and is in very good condition.

IL 47 Bridge over Blackberry Creek (SN 045-0024)

The existing IL 47 Bridge over Blackberry Creek carries one traffic lane and shoulder in each direction with no median. It is a two-span bridge with a concrete deck supported by steel beams. The deck is 47'-2" wide out-to-out. The overall length is 116'-2" (back-to-back of abutments). The bridge superstructure was completely reconstructed in 2003.

2.8 Lighting

Existing roadway lighting is provided at all side road intersections with IL 47. Additionally, ramp lighting is present on the ramps to/from the west. No high mast lighting is located at the interchange.

2.9 Drainage and Detention

The existing IL 47 typical section includes open ditches on the outside of the pavement. South of I-88, these open ditches either flow to Tributary C of Blackberry Creek or Blackberry Creek. North of I-88, there is a high point near Oak Leak Drive. Subsequently, water either flows to the low point just north of Seavey Road or north from the high point to just south of Green Road.

The existing Tollway ramps and I-88 mainline have open drainage, with surface water directed to adjacent ditches.

No existing detention facilities are evident within the project limits.

2.10 Project History and Identified Deficiencies

A full-service interchange at IL 47 has been in the planning or concept stage for over 20 years. In 1994 the Illinois Tollway prepared construction plans for conversion of the interchange to a full service conventional diamond interchange by adding ramps to and from the east. However, this project was not constructed due to funding shortfalls and other priorities.

Crown Community Development previously retained CEMCON, Ltd. to provide an analysis for the conversion of the IL 47 interchange at I-88 to a full-service interchange. This report, titled *I-88/Illinois Route 47 Interchange Completion Analysis*, is dated June 28, 2006 and recommends several alternatives for the proposed interchange improvements. These include a full diamond interchange and a Partial Cloverleaf/Partial Diamond interchange.

In 2008 the Village of Sugar Grove enlisted the project team of GRAEF, Metro Transportation Group, Traffic Analysis & Design, Inc., and Huff & Huff, Inc. to prepare an Interchange Feasibility Study for a full-service interchange at the existing I-88 and IL 47 half-diamond interchange. This Study was completed in August of 2010.

Ramps to and from the east at IL 47 are included in the Kane County 2030 Transportation Plan, Village of Sugar Grove Transportation Planning Study, and the 2004 Kane County Transportation Planning Area Study. The full-service interchange is also supported by the Chicago Metropolitan Agency for Planning (CMAP) and is a critical component of the recently completed IL 47 Corridor Plan prepared by Kane County.

Deficiencies that have been identified during the Phase I project development include the following:

- Partial interchange at IL 47 at I-88
- Concerns of residents regarding the potential of rear end accidents with vehicles entering local subdivisions
- Concerns of residents turning left onto IL 47 and their ability to merge into traffic safely
- Geometric concerns have been raised at the IL 47 at Green Road intersection regarding left turning vehicles from Green Road entering SB IL 47

3. PURPOSE AND NEED FOR IMPROVEMENT

3.1 Project Purpose

The purpose of the project is to improve system linkage and accommodate land use and economic development within the IL 47 and I-88 project study area. Planning documents from the Village of Sugar Grove, Village of Elburn, and the Chicago Metropolitan Agency for Planning (CMAP) indicate a significant potential for residential and commercial/industrial development with associated traffic growth in the project area over the next several years. This facility will help to address the inappropriate usage of local roadways by regional traffic. Kane County supports the full interchange as integral to their land use and transportation planning, as evidenced by their Long-Range Transportation Plan.

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.

The Purpose and Need (P&N) received concurrence on April 7, 2016.

3.2 Project Need

3.2.1 Operational Analysis

Level of Service

Level of Service (LOS) classification is used to classify how well traffic flows. LOS A describes operations with the best traffic flow and very low delay, up to an average of 10 seconds per vehicle. LOS F describes operations with oversaturated conditions and very high delay, in excess of 80 seconds. In general, IDOT targets a minimum LOS C for roadways with an SRA classification such as IL 47.

Average Daily Traffic (ADT) along IL 47 currently (2013/2014) ranges from 7,450 to 10,900 vehicles per day (vpd). Average Daily Traffic for the Build Condition (2040), which assumes a full interchange, ranges from 14,400 to 26,600 vpd. A two-lane roadway can safely and efficiently accommodate between 14,000 and 18,000 vpd. This capacity will be well exceeded by the 2040 design year. Based on the projected traffic along IL 47, an additional lane is needed in both directions. This widening is necessary regardless of the selected interchange configuration. If a lane is not added in each direction, most of the IL 47 roadway segments will exhibit Levels of Service E during weekday peak hours.

Intersection Design Studies have been prepared for the ramp intersections at the proposed interchange, Supplement S-14. The proposed geometry has been refined to assure acceptable Levels of Service at these intersections.

3.2.2 Traffic Benefit

The Reagan Memorial Tollway (I-88) serves as a regional transportation corridor extending from the Quad Cities area of Illinois and Iowa to the Chicago metropolitan area. Existing access at IL 47 provides access only to and from the west. No direct access to and from the east to I-88 is available and this traffic currently accesses I-88 at IL Route 56 (4 miles east), Orchard Road (5 miles east), or Peace Road (15.5 miles west). This restricted access is not compatible with growth demands of the Village of Sugar Grove, Village of Elburn, and southern Kane County.

IL 47 is a designated Strategic Regional Arterial (SRA) Route and part of the approximate 1,300-mile SRA system in Illinois. The purpose of Strategic Regional Arterial routes is to supplement the existing expressway system by providing local arterials with high mobility for regional travel. IL 47 is also a Class II Truck route, serving north-south commercial truck trips between Interstates 55, 80, 88, 90, and Wisconsin.

A full access interchange at I-88 and IL 47 is consistent with regional transportation plans such as those identified and recommended in IDOT's SRA Report for IL 47, the Kane County 2030

Transportation Plan, Village of Sugar Grove's Transportation Planning Study, the 2004 Kane County Transportation Planning Area Study, and the Illinois 47 Corridor Planning Study (2010) that was completed by Kane County.

Without ramps to/from the east at IL 47, the nearest access points to I-88 to/from the east are at IL 56 and at Orchard Road. For motorists with origins or destinations south of I-88, IL 56 is the most proximate and can be accessed from IL 47 roughly four miles south of the I-88 interchange. Vehicles traveling to and from areas north of I-88 likely utilize Orchard Road by way of local roadways such as Seavey Road, Main Street, Keslinger Road, and Randall Road. Each of these routes to the Orchard Road interchange are primarily comprised of rural, two-lane roadways and do not provide efficient access to the chosen interchange. The addition of ramps to and from the east at IL 47 would provide improved interstate access to areas north of I-88 (particularly the Villages of Elburn and Kaneville), thereby reducing traffic on the local roadways currently used to travel to and from the Orchard Road interchange.

As development trends continue to extend radially from the Chicago core, increasing pressure will be imposed on the existing transportation network. Effective access to and from regional transportation corridors such as I-88 is essential to the economic vitality and preservation of the quality of life in developing communities. The completion of a full interchange will also prevent the local roadway system from serving regional traffic for which it was not designed.

The Villages of Sugar Grove and Elburn have experienced high growth rates in recent years as development continues to occur along IL 47 and in southern Kane County. In 2000, the Village of Sugar Grove had a population of 3,909. In a special census performed in 2005, the population had expanded to 7,958, an annual growth rate of over 15 percent. The Northern Illinois Planning Commission (NIPC) has projected that Sugar Grove's population will increase to 32,300 by 2040. Sugar Grove's 2008 Zoning Map and Land Use Plan from the Village's Comprehensive Plan are included in **Appendix A-1**.

In 2000, the Village of Elburn had a population of 2,756. In the 2010 census, the population had expanded to 5,602, an annual growth rate of over 7 percent. The Chicago Metropolitan Agency for Planning (CMAP) has projected that Elburn's population will increase to 18,224 by 2040. Elburn's Zoning District Map is included in **Appendix A-1**.

3.2.3 Land Use and Economic Demands

Efficient access to regional routes is critical to accommodate the growth and development that is planned and anticipated for this region. In addition, providing full access to the Reagan Memorial Tollway (I-88) will contribute to reducing traffic demands on the regional roadway network and the existing interchanges near the IL 47 interchange.

Commercial and residential development is poised to increase with the completion of a full interchange. There is undeveloped land within 1 mile of the interchange that likely will be converted to commercial uses once the interchange is constructed.

The reconfiguration of the existing half diamond interchange to a full access interchange is a high priority transportation project that will facilitate economic development in the region and improve the distribution of regional traffic in rapidly growing southern Kane County. The local communities of Sugar Grove and Elburn recognize that a full interchange improvement will accommodate the traffic demand that will develop as a result of their development plans. This development will in turn will create more employment opportunities in the region.

3.2.4 Interchange Spacing Requirements

Analysis of agency interchange spacing requirements was reviewed for the IL 47 to Peace Road freeway segment (15.5 miles west) and the IL 47 to IL 56 segment (4 miles east). On the Illinois Tollway, the minimum interchange spacing desired is two miles with the assumption that adjacent land will be in a suburban condition by the 2040 design year. See Section III.B.1.F of the Illinois Tollway's "Interchange and Roadway Cost Sharing Policy" (October 2012) for spacing requirements.

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The addition of ramps to and from the east on I-88 would meet the minimum and desired spacing design criteria for the Illinois Tollway. Please note that it would also meet IDOT, Tollway, and FHWA minimum spacing criteria for a rural area, which is 3 miles between interchanges.

4. ALTERNATIVES OVERVIEW

4.1 Proposed Highway Design Guidelines

Alternatives were developed utilizing design criteria as outlined in the IDOT BDE Manual and Illinois Tollway's Roadway Design Criteria 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 corridor, IL 47 is designated as a State Other Principal Arterial and a Strategic Regional Arterial.

The design guidelines utilized for intersecting side roads were determined based on individual roadway's functional classification, projected traffic, and 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 Illinois Tollway's Roadway Design Criteria. Table 2-1 in Section 2.1 shows basic elements of the design criteria utilized for both IL 47 and I-88 within the project limits.

4.2 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 at large, and the Project Study Group (PSG). 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. The related document was the "Alternatives to be Carried Forward".

The IL 47 alternatives analyzed include the no-build, widening along the existing centerline, widening east of the centerline, and new alignments to the east and west of IL 47. All build alternatives require a 4-lane roadway to accommodate projected traffic. The No-Build alternative will have insufficient thru lanes on IL 47 to accommodate projected traffic. Each build alternative except the new alignment with four lanes to the west of the existing alignment, was designed and evaluated with a 50-foot depressed median. The new alignment with four lanes to the west of the existing alignment was evaluated only with a 30-foot raised median to minimize impacts to environmental resources. The widening on the existing centerline and the widening to the east alignments were also evaluated with a 30-foot raised median.

The IL 47 and I-88 Interchange alternatives include the no-build, conventional diamond interchange, conventional diamond interchange with roundabouts at ramp termini, 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 in the southeast quadrant with a loop ramp terminating at Finley Road.

4.3 IL 47 Alternatives Carried Forward

A brief description of the No-Build and the three Build alternatives carried forward for the IL 47 Mainline are provided below. **Appendix A-2** includes a detailed aerial layout of each of the three IL 47 Build alternatives.

- The **No-Build** maintains the existing IL 47 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 Purpose and Need, but is being carried forward for comparison purposes.
- The **M-1A** alternative provides a 30-foot raised median on the existing IL 47 alignment with two 12-foot lanes in each direction from Old Oaks Road to Green Road and 10 foot outside shoulders.
- The **M-1C** alternative provides a 30-foot raised median on the existing alignment; however, the median is reduced to an 18-foot raised barrier median 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 outside shoulders.

- The **M-2C** alternative provides a 30-foot raised median (18' thru Hannaford Woods) on the existing alignment from Old Oaks Road to Thornapple Tree Road. The alignment then shifts to the east. Ten-foot outside shoulders and four-foot inside shoulders are typically provided.

Each of the Build Alternatives includes provisions (i.e. ROW and grading) for a future 10' wide path on the east side of IL 47 and provisions for a future 5' wide sidewalk on the west side of IL 47.

4.4 IL 47/ I-88 Interchange Alternatives Carried Forward

A brief description of the No-Build and the four Build alternatives for the IL 47/I-88 Interchange are provided below. **Appendix A-3** includes a detailed aerial layout of each of the four Interchange Build alternatives. **Appendix A-4** contains IL 47 at I-88 Bridge Typical Sections for the four Interchange Build alternatives.

- The No-Build consists of the existing entrance ramp to westbound I-88 from IL 47 and the existing exit ramp from eastbound I-88 to IL 47. It does not meet the Purpose and Need; however, it is being carried forward for comparison purposes.
- The Conventional Diamond Interchange (**I-1**) creates a full-service interchange by adding an entrance ramp from IL 47 to eastbound I-88 and an exit ramp from westbound I-88 to IL 47. The Conventional Diamond Interchange is designed to allow a northeast quadrant loop ramp to be constructed in the future should the traffic demand warrant it.
- The Conventional Diamond Interchange with Roundabouts (**I-2**) 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. Roundabouts would be located on both the north and south side of the existing bridge at the ramp termini. Each roundabout would provide two lanes.
- The Diverging Diamond Interchange (**I-3**) creates a full-service interchange by adding an entrance ramp from IL 47 to eastbound I-88 and an exit ramp from westbound I-88 to IL 47. Traffic conflict points would be reduced in this type of layout.
- The Partial Cloverleaf with Loop Ramp in Northeast Quadrant Interchange (**I-4**) creates a full-service interchange by adding an entrance ramp from IL 47 to eastbound I-88 and an exit ramp from westbound I-88 to IL 47. This design would eliminate the back-to-back left turn lanes on the bridge due to the inclusion of the loop ramp.

5. DISCUSSION AND ANALYSIS OF BUILD ALTERNATIVES

5.1 Alternative Analysis

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 criterion was evaluated based on the design of the interchange and whether a full-service interchange resulted. The second criterion was evaluated based on a review of the future land use plan of Sugar Grove (see Appendix A-1) and whether a full-service interchange resulted.

The Alternatives that met Purpose and Need were then evaluated using cost, operations, design constraints, environmental resources, and socioeconomic resources.

The IL 47 alternatives and the interchange alternatives were evaluated separately and independently of each other. The evaluations of each are discussed in the subsections below.

5.2 IL 47 Alternatives

The IL 47 alternatives, described in Section 4.2, include the no-build, widening along the existing centerline, widening east of the centerline and new alignments both to the east and west of IL 47. Each build alternative except the new alignment with four lanes to the west of the existing alignment, was designed and evaluated with a 50-foot depressed median.

5.2.1 Analysis and Evaluation

In order for IL 47 to meet the Purpose and Need, it needs to be able to accommodate the 2040 traffic projections. The IL 47 corridor 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). Given IL 47's status as a Strategic Regional Arterial (SRA), LOS C or better is desirable for corridor operation.

5.2.2 IL 47 Alternative Selected

The alternatives considered that would bring the IL 47 alignment significantly east or west of the existing alignment were eliminated due to excessive cost and the significant impact to natural resources that would result. The IL 47 alternative that would remain on the existing IL 47 alignment was eliminated due to the residential displacements that would result on the west side of the roadway. Similarly, the "on alignment" alternative with a reduction to the median at Hannaford Woods was also eliminated due to the resulting residential displacements.

The selected alternative, designated M-2C, provides two through lanes in each direction and typically a 30-foot raised median on the existing alignment from Old Oaks Road to Thornapple Tree Road. The alignment then shifts to the east to minimize residential impacts moving north. Ten-foot outside shoulders and four-foot inside shoulders are typically provided. As with the other alternatives, one thru lane will be added in each direction of IL 47. The exception to the centerline alignment will be at the south end of the project. Thru Hannaford Woods at the south end, the median will narrow to 18' and the proposed centerline will be coincident with the existing centerline. The narrower median minimizes impact to the Forest Preserve.

5.3 Interchange Alternatives

The IL 47 and I-88 interchange alternatives include the No-Build Conventional Diamond Interchange (I-1), Conventional Diamond Interchange with Roundabouts (I-2), Diverging Diamond Interchange (I-

3), Partial Cloverleaf with loop ramp in the northeast quadrant (**I-4**), 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.

5.3.1 Interchange Analysis and Evaluation

All the Build interchange 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 purposes, it will be carried forward.

The alternatives were then screened against Right-of-Way required, operations, cost, impacts to the existing IL 47 bridge, environmental resources, and socio-economic impacts. For the interchange design alternatives, the operational review of the ramp intersections was based on BDE design standards and an opinion of the geometric configurations that would be required to accommodate the projected Design Hourly Volumes (DHVs). Note that Level of Service 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 various impacts are discussed in the *Concurrence for Alternatives to be Carried Forward* report and the *Concurrence for Preferred Alternative* report, which are included as Supplements S-4 and S-5, respectively.

The Conventional Diamond Interchange (**I-1**) 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 can be placed. The projected traffic for this project is assumed to develop in a straight-line fashion from current traffic numbers. If development occurs at a more accelerated pace, the back to back left turn lanes may very well prove inadequate to accommodate the IL 47 traffic accessing I-88. This could then necessitate a significant modification of the interchange not long after its construction. Due to operational concerns, this alternative was eliminated.

The Conventional Diamond Interchange with Roundabouts (**I-2**) was eliminated due to its potential 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. Therefore, due to operational concerns, this alternative was eliminated.

The Diverging Diamond Interchange (**I-3**) has crossover angles of 45 degrees and horizontal curve radii in excess of 1,000 feet due to the high design speed. This alternative would necessitate the construction of a new bridge to accommodate one direction of travel. Due to the construction cost, amount of new right of way required, and additional environmental impacts, this alternative was eliminated.

The selected alternative (I-4), includes a partial cloverleaf with a loop ramp in the northeast quadrant. The addition of a loop ramp in the I-4 alternative eliminates the concern of back to back left turn lanes. This design will also minimize the impact to the superstructure of the IL 47 over I-88 bridge. The construction cost is minimized while still maintaining its operational objective.

5.3.2 Interchange Alternative Selected

The Conventional Diamond (**I-1**) was not selected due to operational concerns and the potential for premature capacity issues. The Conventional Diamond with Roundabouts (**I-2**) was also eliminated due to operational concerns. The Diverging Diamond (**I-3**) was also eliminated primarily due to the excessive cost.

The Parclo Interchange with loop ramp in the northeast quadrant (**I-4**) is the preferred configuration. This design eliminates the back-to-back left turn lanes that would result with the Conventional Diamond Interchange. This design will also minimize the impact to the superstructure of the IL 47 over I-88

bridge, which was reconstructed in 2006. Construction cost is minimized while still meeting the operational objectives.

6. DESCRIPTION OF PROPOSED IMPROVEMENT

6.1 Introduction

The proposed improvement will be comprised of the IL 47 M-2C alternative and the Parclo interchange alternative with loop ramp in the northeast quadrant **(I-4)**. This improvement addresses the Purpose and Need of the project, meets the operational parameters, minimizes impacts to residential properties, minimizes impacts to environmental resources, and is cost effective. The scope of the project primarily involves widening IL 47 to two lanes in each direction, adding ramps to/from the east at I-88, and providing turn lanes at the more significant intersections along IL 47. The project will require the acquisition of ROW and temporary easements, earthwork, pavement widening and reconstruction, storm sewer and utility removal and replacement, storm water detention, curb and gutter installation, shoulder construction, bridge modifications, retaining wall, and various other related items.

6.2 Design Criteria Utilized

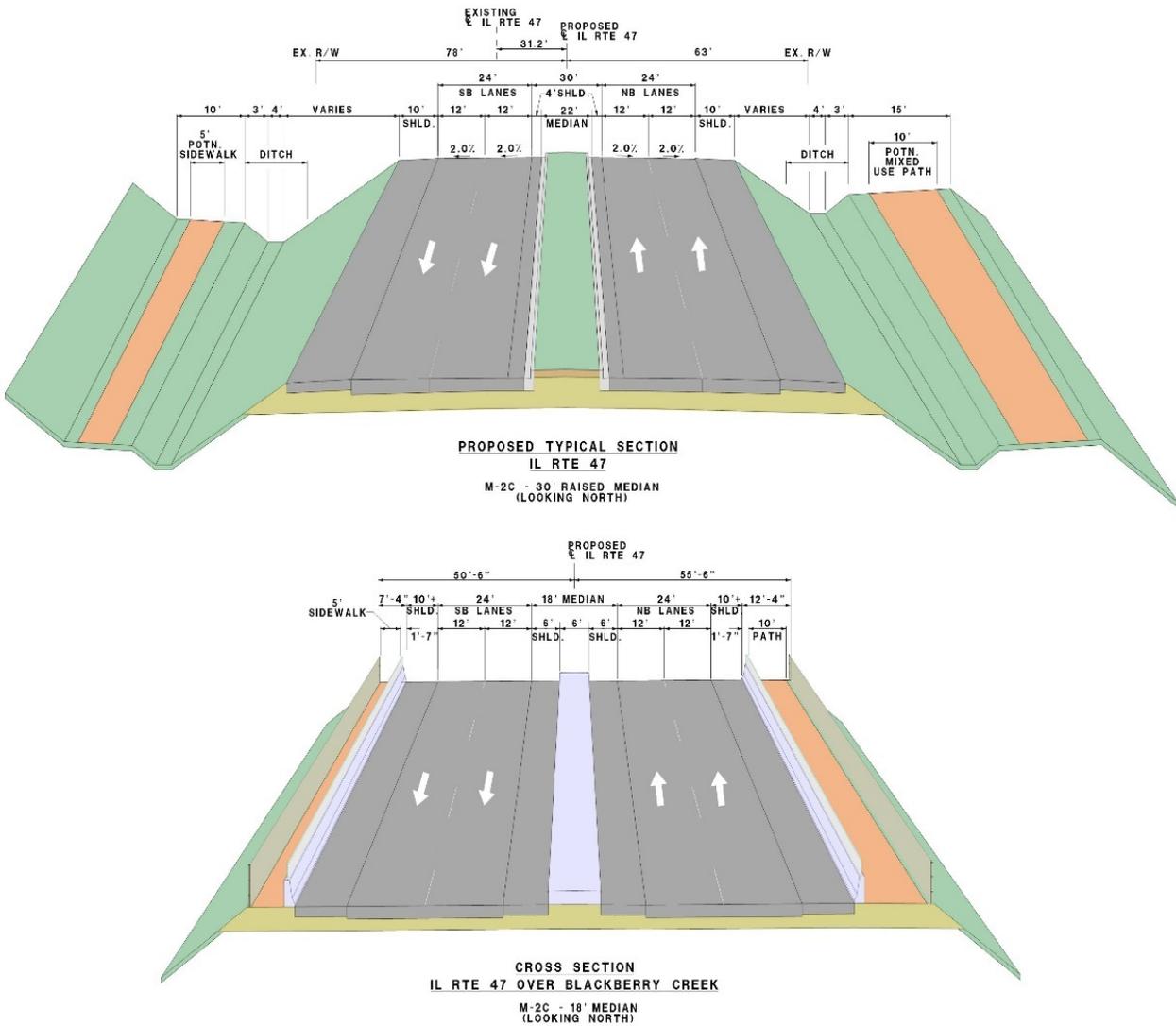
The design criteria utilized in developing the proposed improvements were those outlined in IDOT's BDE Manual and the Illinois Tollway's Roadway Design Criteria Manual. Additionally, BDE Chapter 37 (Interchanges) was used when developing the design. A comprehensive list of design criteria (BDE 3108) is located in Appendix A-5.

6.3 Geometric Improvements

6.3.1 IL 47 Design

The Preferred Alternative for IL 47 is M-2C. This alternative typically consists of two 12-foot lanes in each direction, a 30-foot raised median with mountable curb, channelization at intersections, and a centerline alignment shift to the east of approximately 30 feet. See Figure 6-1 on the following page for typical sections along IL 47. The horizontal alignment will change since the proposed centerline of IL 47 is shifting east. Exceptions to this description are at the south end of the project, where the centerline alignment doesn't change, and the median narrows to 18 feet on the IL 47 bridge over Blackberry Creek. This is to minimize impacts to the Forest Preserve and residential area. The vertical alignment changes slightly especially where the proposed centerline of the road is the furthest away from existing. The proposed crests and sags are relatively in the same locations as the existing.

Figure 6-1: Proposed IL 47 Typical Sections



6.3.2 Interchange Design

The Preferred Alternative for the IL 47/I-88 Interchange is I-4, the Partial Cloverleaf with Loop Ramp in the Northeast Quadrant of the interchange. This alternative creates a full-service interchange by adding an entrance ramp from IL 47 to I-88, an exit ramp from westbound I-88 to IL 47, and a loop ramp in the northeast quadrant for northbound IL 47 traffic travelling to westbound I-88. The loop ramp improves the operations for travelers utilizing the entrance ramps of the interchange.

The I-4 Interchange provides adequate capacity for 2040 traffic volumes. Also, since the majority of the land needed for the interchange is already within Illinois Tollway right-of-way, there is minimal land acquisition required.

6.3.3 Safety

Conceptual cross sections have been developed for the Preferred improvement. For IL 47, ditches are typically provided on the outside of 10' wide outside shoulders. The foreslopes are typically 1:4, but may be 1:3 in areas where right-of-way takes need to be minimized. Initial barrier warrants have been

completed. Shielding of side slopes with guardrail is anticipated at Tributary C to Blackberry Creek, the Blackberry Creek bridge, and in the vicinity of the I-88 bridge. Backslopes are typically 1:3 along IL 47.

This project generally adheres to the Clear Zone Criteria. Guardrail will likely be warranted at proposed waterway crossings and at the IL 47 over I-88 bridge. The Phase II consultant will need to evaluate individual obstacles and complete individual barrier warrants throughout the corridor.

6.4 Pavement Drainage

Both IL 47 and the interchange ramps will have a rural design with full shoulders and roadside ditches per agency standards. There will, however, be M 4.24 curb and gutter adjacent to the 4' wide inside shoulders along IL 47. The crown of the pavement typically coincides with the inside edge-of-pavement. The exception to this is when the roadway is super-elevated, in which case all paved surfaces (i.e. lanes and shoulders) are directed either to the outside or inside.

Detention storage is anticipated to be provided in detention ponds and bio-filtration systems. Detention volumes have been determined based on either IDOT's or Illinois Tollway criteria as applicable.

6.5 Design Exceptions

There are 9 Design Exceptions for this project as listed in the following Table. These exceptions were approved on August 15, 2018 as documented in CDR Volume 2 Design Exceptions.

No.	Design Element	BDE Policy Value	Proposed Design Value (Exception)	Location	Justification
1	Median Width (BDE Fig. 46-4.c)	50'	30'	IL Route 47 from College Dr./Old Oaks Rd. to Green Rd. (i.e. south project limit to north project limit)(Sta. 116+00 to Sta. 195+75)	In order to minimize the impact to adjacent properties and to the ROW take needed, the median width will be 30' wide with 4' inside shoulders, M-4.24 curb and gutter, with a raised grass median.
2	Median Width (BDE Fig. 46-4.c)	50'	18'	IL Route 47, Sta. 109+00 to Sta. 116+65	In order to minimize the impact to the forest preserve, the median width will be reduced from 30' to 18'. Outside shoulders will be consistent at 10' throughout the corridor, with the exception of the I-88 bridge (see below).

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3	Median Width (BDE Fig. 46-4.c)	50'	12'	IL Route 47, Sta. 203+08 to Sta. 208+00	In order to minimize the impact to adjacent residential properties, the median width will be reduced from 30' to 12'. SB RTL's will be provided in this area.
4	Lane Width (AASHTO Green Book, Sct. 4.3)	12' lane	11' lane	IL Route 47, Sta. 161+50 to Sta. 171+00	There is a desire to not impact the approximate 10 year old superstructure of the bridge over I-88. A 30' median and 2' outside shoulder/gutter are desired.
5	Shoulder Width (BDE Fig. 46-4.C)	10' outside shoulder	2' outside shoulder/gutter	IL Route 47, NB Sta. 164+00 to Sta. 166+59, SB Sta. 164+00 to Sta. 167+17	There is a desire to not impact the approximate 10 year old superstructure of the bridge over I-88. A 30' median and 2' outside shoulder/gutter are desired.
6	NB to WB Loop Ramp Taper and Initial Radius BDE Figure 37-6.A	800' taper and initial ramp curve radius of 587'	138' taper and 250' radius for initial ramp curve	IL Route 47, Sta. 166+00 to Sta. 169+00, Rt.	There is a desire to not impact the relatively new superstructure of the bridge and to minimize ROW take in the northeast quadrant of the interchange.
7	Level of Service (BDE 46-4.C)	LOS C	LOS D	IL Route 47 at I-88 EB Ramps: EB Right-Turn and EB Left-Turn (AM & PM)	Delay is a function of cycle length and random arrivals from the freeway
8	Level of Service (BDE 46-4.C)	LOS C	LOS D	IL Route 47 at I-88 EB Ramps: SB Left-Turn (AM & PM)	Delay is a function of cycle length
9	Level of Service (BDE 46-4.C)	LOS C	LOS D	IL Route 47 at I-88 WB Ramps: WB Right-Turn and	Delay is a function of cycle length and random arrivals from the freeway

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				WB Left-Turn (AM & PM)	
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6.6 Right-of-Way

Proposed right-of-way in the form of fee simple acquisitions (FSA) and temporary easements (TE) will be required for this project. A total of 52 parcels will be impacted, requiring 16.1 acres of FSA and 2.7 acres of TE as seen in the following table. No displacements are required.

Table 6-2. Proposed Property Acquisition Summary

No.	PIN	FSA (Sq Ft)	TE (Sq Ft)
1	14-05-252-007	227	9,060
2	14-05-200-038	12,419	-
3	14-05-200-039	9,865	-
4	14-05-400-011	2,376	-
5	14-05-200-026	69,051	-
6	14-05-200-015	3,464	519
7	14-05-202-013	5,267	1,989
8	14-05-202-012	3,594	158
9	14-05-201-008	3,828	1,927
10	14-05-201-030	281	592
11	14-05-200-032	1,577	3,748
12	14-05-200-031	195	415
13	14-05-200-024	541	1,153
14	14-05-200-023	263	1,208
15	14-05-200-025	8	927
16	14-05-200-028	53,393	3,569
17	11-32-454-007	765	325
18	14-05-200-041	19,192	2,622
19	11-32-426-006	9,267	1,496
20	11-32-426-004	28,165	2,050
21	11-32-454-003	856	788
22	11-32-454-002	558	781
23	11-32-454-001	3,682	1,289
24	11-32-452-006	340	-
25	11-32-452-007	5,551	646
26	11-32-452-003	4,840	-
27	11-32-451-002	3,767	1,970
28	11-32-451-001	3,664	1,173
29	11-32-376-018	351	896
30	11-32-426-009	157,518	7,616
31	11-32-328-007	15,841	1,334

32	11-32-326-022	-	3,256
33	11-32-326-021	121	1,610
34	11-32-326-023	2,380	803
35	11-32-326-015	3,241	659
36	11-32-326-014	5,318	1,321
37	11-32-100-019	781	-
38	11-32-100-023	-	1,626
39	11-32-100-024	18,256	4,010
40	11-32-100-022	28,784	10,866
41	11-32-100-023		3,152
42	11-32-100-021	21,435	9,023
43	11-29-376-012	84,280	4,399
44	11-29-376-007	5,480	6,115
45	11-29-351-028	-	2,055
46	11-29-351-015	-	1,491
47	11-29-376-011	37,245	855
48	11-29-376-010	41,566	6,056
49	11-29-328-004	15,519	11,443
50	11-29-328-002	10,091	347
51	11-29-100-060	3,351	761
52	11-29-200-040	2,816	602
	TOTAL (Sq Ft)	701,370	118,701
	TOTAL (Acres)	16.1	2.7

6.7 Structures

- **IL 47 Bridge over I-88 (SN 045-0082)**

Proposed work includes adding a SB left turn lane and a 10' wide multi-use path on the east side of the bridge. In order to fit the turn lane and path within the existing deck, the lane and shoulder widths will be reduced. Design exceptions were approved to allow the reduced widths, see Section 6.5.

The existing bridge will also be rehabilitated. The recommended rehabilitation work includes the following:

1. Remove the existing raised concrete median. The proposed medians will be painted.
2. Scarify the entire deck and place a latex concrete overlay.
3. Remove the existing east concrete parapet.
4. Construct a new raised concrete sidewalk, parapet and railing on the east side.
5. Repair the existing pier and abutments with structural repair of concrete and epoxy crack injection.

6. Remove and replace isolated sections of the existing south slopewall. Repair washed-out slopewall bedding.

See Bridge Condition Report, Supplement S-7.

- **IL 47 Culvert at Tributary C to Blackberry Creek (SN 045-2001)**

At the culvert location, IL 47 will be widened to provide two traffic lanes in each direction, a 30' wide median, 10' wide paved shoulders, and adequate area for a future sidewalk (west side) and future 10' wide multi-use path (east side). To accommodate the added lanes, median, path and sidewalk, extension of the existing culvert is recommended. IL 47 is to be widened almost entirely to the east (the proposed centerline is offset to the east). Therefore, the culvert will be extended entirely on the east. The extension will be about 76' long and will bend to the south at a 30-degree angle to match a bend in the creek. The inside dimensions of the culvert extension will match the existing triple cell box culvert. The existing culvert cells will require very little rehabilitation work.

See Bridge Condition Report, Supplement S-8.

- **IL 47 Bridge over Blackberry Creek (SN 045-0024)**

Proposed work includes widening IL 47 to two lanes in each direction, adding an 18' wide median, adding a 10' wide multi-use path on the east side and a sidewalk on the west side. The resulting proposed deck width is about 106'. Complete replacement of the bridge is recommended largely due the proposed deck width being more than twice as wide as the existing deck. Complete replacement will also allow the addition of a 20' wide wildlife crossing below the bridge with openings on both sides of the bridge. Therefore, the clearance to the low bridge beam will be increased to accommodate bicycles as well as wildlife. The shared use path and greater low beam clearance will result in a proposed bridge length of about 145' (back-to-back of abutments).

See Bridge Condition Report, Supplement S-9.

- **Retaining Walls at IL 47 near Blackberry Creek**

Retaining walls are proposed at the Blackberry Creek bridge in the northeast and southeast corners of the bridge. In the northeast corner, the wall is necessary to minimize impacts to high quality wetlands and to enable construction of shared use paths that will go over and under the new bridge. In the southeast corner, a wall is needed to minimize the IL 47 widening impact to Blackberry Creek and avoid a realignment of the creek.

In the northeast corner of the bridge, the proposed retaining wall is 250' in length with a maximum retained height of 12'. In the southeast corner of the bridge, the proposed retaining wall is 186' in length with a maximum retained height of 11'.

6.8 Traffic Signal Modernization/Installation

With the exception of the existing traffic signal at Old Oaks Road/College Drive and IL 47, there are no other existing traffic signals within the project study limits.

Since traffic signals are not warranted in the Year 2025, no additional traffic signals will be installed with the construction occurring around 2020. However, based on 2040 traffic projections, signal installation is anticipated at the following intersections along the study corridor of IL 47:

- Seavey Road
- I-88 West ramps

- I-88 East ramps
- Scott Road
- Merrill Road

6.9 Lighting

It is anticipated that roadway lighting will be provided on all interchange ramps at the completion of the project. Additionally, roadway lighting will be provided on IL 47 between Finley Road and Seavey Road to achieve Complete Interchange Lighting (CIL) as discussed in IDOT BDE Chapter 56. It is also anticipated that individual highway lights will illuminate all IL 47 intersections within the project limits.

6.10 Bicyclists and Pedestrians

Provisions have been made for a future 5' wide sidewalk on the west side of IL 47 and a future 10' wide shared use path on the east side of IL 47. These provisions include appropriate grading and earthwork design, as well as identification of sufficient proposed right-of-way. If sufficient funding for the sidewalk and shared use path are identified, these improvements will be constructed with the IL 47 reconstruction project or subsequent construction contract.

6.11 Utility Conflicts

There are existing overhead electric and communication lines that typically run along the east side of IL 47 throughout the project limits. Since the proposed IL 47 alignment south of I-88 is shifting east approximately 30' and there is a traffic lane being added in each direction, the utility poles carrying these lines will be in conflict with the improvement. Similarly, north of I-88, the existing utility poles on the east side of IL 47 will likely be in conflict and will need to be relocated further east. Therefore, Commonwealth Edison and the pertinent communication provider will likely need an advance contract to relocate the utility lines.

An existing 6" Nicor gas main on the east side of IL 47 south of I-88 will be impacted by the IL 47 widening and cross street improvements. The extension of the box culvert at Tributary C to Blackberry Creek will also likely be in conflict with the gas main. Additionally, the replacement of the Blackberry Creek bridge may also be in conflict.

Tollway fiber optic lines will likely require relocation for the proposed WB off-ramp construction between Sta. 5796+40 and 5799+60 on the north side of I-88.

AT&T underground utilities on the east side of IL Rte. 47 south of I-88 will be impacted by the IL 47 widening and intersection improvements.

IDOT maintains a 1-¼" diameter fiber optic conduit along the west side of IL 47 from the south project limits to I-88. Potential conflicts occur at the Blackberry Creek bridge reconstruction and side road reconstructions.

6.12 Encroachments

There are no encroachments of residential or commercial structures onto the existing or anticipated proposed right-of-way for this project.

6.13 Landscape/Roadside Development

All areas disturbed by construction will be restored to turf cover in accordance with Chapter 59 of IDOT's BDE Manual as appropriate for the project location. All trees and other plants removed for construction will be replaced on a 1:1 nursery stock basis at a minimum wherever feasible and appropriate under IDOT guidelines. Forested areas or dense strands of trees and shrubs may be replaced with seedling trees on a 3:1 basis where appropriate. Wildflower plantings will be considered for inclusion where applicable to the project.

A copy of the Tree Survey is included in Supplemental Section S-6. Ten transect locations were included and information is provided as to the tree species, scientific name, diameter, health, structure/form, and origin. All efforts shall be made to keep removals to a minimum in accordance with Departmental Policy D&E-18, "A Policy on Removal and Replacement of Trees".

Protection and care will be provided for all existing trees and shrubs to remain within the project limits as provided in Section 201 of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, adopted April 1, 2016. Existing trees and shrubs which are to remain will be delineated on the plans, as will those which are to be removed.

The following items were investigated and have been determined to be non-applicable to this project:

- Parking
- Mass Transportation
- At-Grade Railroad Crossing
- Surveillance
- Pump Stations

6.14 Environmental Resources

The *Illinois Route 47 (FAP 326) at Ronald Reagan Memorial Tollway I-88 (FAI 88) Environmental Assessment* (Supplement S-1) evaluated impacts to natural resources including wetlands, water quality, floodplains, and threatened and endangered species. The table below provide a synopsis of this information. For additional information, please see Supplements S-13 *IL 47 at I-88 Errata* and S-14 *Finding of No Significant Impact* report.

Table 6-3 – Environmental Resource Impacts

Resources	Impact	Details
Land Use		
Residential Displacements	0	
Business Displacements	0	
Proposed ROW	16.1 acres	
Agricultural Land Conversion	11 acres	Only 6.1 acres are actively being farmed.
Wetlands and Waters of the U.S.		
Jurisdictional Impacts-Wetlands	1.7 acres	This includes 0.9 acres of ADID and HQAR wetlands.
Jurisdictional Impacts-WOUS	0.8 acres	This includes 0.4 acres to Blackberry Creek and 0.2 acres to Seavey Road Run.
Biological Resources		
Federally Threatened and Endangered Species	Tree Clearing Restriction for Bats	No Tree Clearing between April 1 st and October 14.
State Threatened and Endangered Species	No Impacts	
Floodplain	4.7 acres	
Cultural Resources		
4(f) Lands	1.74 acres	Only 0.2 acres are outside of 60 foot area set aside for transportation purposes. See Supplement S-1 Environmental Assessment for 4(f) report.
Special Waste	TBD	Some RECs located within project study limits. Further studies recommended.
Air Quality	No Impact	
Noise	No Impact	Noise barriers did not meet IDOT feasibility and reasonableness criteria.

6.15 Erosion and Sediment Control

The need for erosion and sediment control measures (and any additional right-of-way necessary to accommodate their implementation) have been evaluated for this project.

I. Project Description

a) Proposed Construction Activity

IL 47 is to be widened and reconstructed from College Drive/Old Oaks Road to Green Road. One lane will typically be added in each direction within these project limits.

Additionally, new ramps to/from the east are to be added at the IL 47 @ I-88 interchange.

The existing ramps to/from the west will be resurfaced where the alignment of the ramps is not changing.

b) Soil Disturbance

There is greater than 1 acre of soil disturbance, so NPDES SWPPP documentation is necessary.

- c) Sensitive Environmental Resources--The presence of sensitive environmental resources requiring special consideration for protection from sedimentation, or other resources which require special commitments for protection will require attention during the preparation of the erosion control plan whether or not a permit is required. In the case of this project, there are resources requiring special consideration for protection.

II. Information for the Erosion Control Plan

This project will result in the disturbance of 1.0 acres or more of total land area and is subject to the statewide general NPDES Storm Water Permit for Construction Site Activities. The District is responsible for preparing and updating as necessary throughout subsequent stages of project implementation, a Storm Water Pollution Prevention Plan (SWPPP). The portions of the Plan describing the construction activity, describing the erosion and sediment control measures intended for use and the associated maintenance practices, and describing any requirements applicable under approved State or local erosion and sediment control plans shall be prepared prior to project implementation.

Temporary measures in accordance with applicable Department standards will be used to control erosion and sedimentation while the project is under construction, prior to establishment of permanent measures. Permanent measures as necessary will be part of the completed project and will be used to prevent erosion and sedimentation after completion of the construction project. The designer shall include appropriate pay items and details in the plans and specifications to implement the selected erosion and sediment control measures. This project also involves sensitive environmental resources to be protected during all stages of project implementation. (see "Special Design and Construction Considerations" section.)

The following section includes information that will be required in the preparation of the suggested erosion control plan.

The following section includes information that will be required in the preparation of the suggested erosion control plan.

1. Additional information for the preparation of the erosion control plan
 - a) Area of Disturbance
61 acres
 - b) Environmental Resources or Critical Areas
Tributary C to Blackberry Creek and Blackberry Creek

- c) Sequence of Activity and Anticipated Erosion Control Items
Construct NB lanes in Stage 1, construct the SB lanes in Stage 2, and complete the median in Stage 3. The Tollway likely will have a separate construction contract for construction of the interchange. The new ramps to/from the east will not need to be staged except where adjacent to IL 47 and I-88. Reconstructing/overlay of existing ramps would need to be staged.
Erosion control items that are anticipated include: ditch checks, silt fence, sedimentation basins, excelsior blanket, and temporary seeding.
- d) Site Map, Runoff Coefficient, Receiving Waters
See Figure 1-1 for project site location. Existing Composite Runoff Coefficient = 0.45. Receiving streams within the project limits are Tributary C to Blackberry Creek and Blackberry Creek.

6.16 Transportation Management Plan

IL 47, between the limits defined below, is functionally classified as: “OTHER PRINCIPAL ARTERIAL”, an Illinois Significant Route that is “Free Flow under most conditions”, and is an existing “Two-lane Highway – 40 mph and higher” (55 mph posted). There are no existing traffic signals within the project limits.

The project consists of the widening of Illinois Rt. 47, from approximately One (1.0) mile south of I-88, just south of the bridge over Blackberry Creek to approximately One (1.0) mile north of I-88, just north of the Green Road intersection and includes the addition of two interchange ramps (WB exit and EB entrance) at I-88. The centerline of IL 47 is being relocated approximately 30 feet to the east between Blackberry Creek and I-88 and between I-88 and Green Road. See Supplement S-12 for the approved Transportation Management Plan.

Staging

- a. The proposed construction will match the existing centerline at both the south and north project limits (Blackberry Creek and Green Road) and at the IL 47 bridge over I-88.
 - 1. Pre-Stage - Prior to any work starting on the IL 47 mainline, temporary pavement will be installed west of the existing pavement. Traffic will be minimally impacted.
 - 2. Stage 1 – Traffic will shift to the west so two-way traffic is maintained northbound and southbound. Northbound traffic will utilize the existing southbound lane and southbound traffic will utilize the temporary pavement constructed to the west. During this stage the new northbound lanes will be constructed.
 - 3. Stage 2 - Traffic will shift to the east so two-way traffic is maintained northbound and southbound. Traffic will utilize the newly constructed northbound lanes, one lane in each direction.
 - 4. Stage 3 – Traffic will shift to the outermost northbound and southbound lanes so that the median work can be completed. The interior lanes will remain closed for construction activities. During this stage, landscaping, permanent striping and any other items will be completed to finish the project.
- b. Use of day/night lane closures and shoulder closure is anticipated
- c. Flagger use and other traffic control measures are required.
- d. Access to driveways will be maintained with Temporary Stone and short duration closures. There are no existing bike paths or pedestrian sidewalks and none will be provided during construction.
- e. Signs, barricades, and temporary striping to conform to “Manual on Uniform Traffic Control Devices.”

- f. IL 47 has significant truck traffic. Truck percentages on IL 47 range from 23% south of I-88 to 30% north of I-88 within the project limits.
- h. Temporary widening anticipated are discussed in a. above.

Detour:

A detour is not anticipated on IL 47. Detours of various cross roads may be required.

Based on current impact analysis and construction strategies the Work Zone Safety and Mobility Rule goals (Safety Memorandum 3-07) are expected to be met.

IDOT utilizes various Temporary Traffic Control Plan (TCP) strategies including signal phasing adjustments within the project limits, lane shifts, channelizing devices, temporary pavement markings, flaggers/traffic control officers, temporary signals as needed, lighting devices as needed, temporary lane closures, temporary signage, incentive/disincentive clauses in the contract documents, coordination with local stakeholders and adjacent projects, restrictions for special events as requested by the local municipalities, improvement and/or signing of alternate routes and pedestrian accommodations among others.

6.16.1 Transportation Operations Plan:

IDOT utilizes various Transportation Operations Plan (TOP) strategies which include:

- Demand Management
- Corridor Management
- Work Zone Safety Management
- Traffic and Incident Management
- Enforcement

Demand management includes techniques to reduce the volume of traffic traveling through the work zone. Examples include: working with local businesses to promote flexible work hours.

Corridor management is key during construction and something the Resident Engineer will need to monitor to avoid safety issues. One idea that could be utilized is temporary truck restrictions. Since the phasing includes installing temporary pavement to keep traffic moving, queues should be at a minimum.

Work zone safety management should be employed in order to protect workers and the general public. Temporary traffic barriers, traffic monitoring, and construction safety supervisors are examples of work zone safety tactics. The Resident Engineer and contractor should perform daily traffic safety checks.

Traffic and incident management can include traffic radio, Intelligent Transportation System (ITS) monitoring, surveillance through closed circuit TV (CCTV) and loop detectors, traffic screens, and local detour routes among others. Incident management is highly important in order to efficiently minimize traffic delays after an incident has taken place. Even though there is no impact to existing traffic conditions, local police and fire departments will be coordinated with in addition to the Villages of Sugar Grove and Elburn.

Enforcement is an important tool in order to protect workers and drivers. Increasing the presence of law enforcement will help reduce speed. Another option is to use photo speed enforcement devices.

Due to the unique staging for this project, minimal traffic impacts to local residents are expected and any queues due to construction traffic are minimal with the exception of temporary stops during material deliveries, lateral storm crossings etc....

6.16.2 Public Involvement Plan:

IDOT utilizes various Public Information Plan (PIP) strategies depending on the level of public involvement within the project, population and traveling public density, and overall resource availability within the project area. The impact that the IL 47 widening will have on the surrounding communities, businesses, travelers, emergency services, and schools requires an informative public information campaign before, during, and after the project. The strategies utilized can include brochures/mailers, press releases, telephone hot lines, websites, Public Hearings and/or Meetings, press conferences, Community Task Forces, coordination with media outlets, municipalities, schools and emergency services, and signage among others.

The Public Information Plan (PIP) should employ a public outreach program. This can consist of:

- Town hall public information meetings
- Advanced changeable message boards
- Meetings or presentations to major employers, such as Waubensee Community College
- Neighborhood associations meeting presentations
- Newspaper articles
- IDOT website for updated project information.

Factors to include during the outreach program include local emergency response teams. This project does not anticipate lane shutdowns, with the exception of the bridge during median work, so traffic should be continuously moving.

In order to keep safety the number one priority, this information should be distributed or broadcasted to the general public in a timely manner.

7. PRELIMINARY COST ESTIMATE

Route: IL 47 @ I-88
Limits: College Drive/Old Oaks Rd. to Green Road

PRELIMINARY COST ESTIMATE

Route: IL 47 at I-88
Limits: College Drive/Old Oaks Rd. to Green Road

Excavation and Earthwork	\$8,355,573.00
Drainage	\$1,259,836.00
Pavement	\$10,555,794.00
Shoulder, Curbs and Gutters	\$2,179,445.00
Roadside Improvements	\$4,869,850.00
Sub Total	\$27,220,498.00
Toll Plazas	\$2,200,000.00
Roadway Lighting	\$607,300.00
Traffic Signals	\$150,000.00
Sub Total	\$2,957,300.00
Maintenance of Traffic	\$1,233,000.00
Signing	\$634,000.00
Mobilization (6%)	\$1,922,688.00
Contingencies (25%)	\$8,491,872.00
Construction Total	\$42,459,358.00
Escalation from 2017 to 2019 (4.5%)	\$1,910,672.00
Total Cost	\$44,370,030.00
Utility Relocation Costs*	\$566,965.00
ROW Acquisition Costs**	\$7,749,529.00
Less City/Village Portion	\$152,708.50
Total IDOT Cost	\$52,533,815.50

Note 1: Maintenance of Traffic Cost is estimated to be 4% of the total project cost and is allocated 40% to IL 47 and 60% to the interchange.

Note 2: Signing based on cost component of total of Project I-13-4602 and includes overhead signing. 2.1% of total construction cost.

Note: Estimate does not include engineering.

*Utility Relocation Costs includes 25% Contingency and 4.5% Escalation

**ROW Acquisition Costs includes Temporary Easement and 4.5% Escalation (\$10/SF for ROW and \$5/SF for T.E.)

8. PUBLIC INVOLVEMENT ACTIVITIES

8.1 Coordination and Public Involvement

Public outreach and coordination has been extensive on this project, following the Context Sensitive Solutions (CSS) Process. This process gave the public opportunities to review project materials and provide comments on the proposed improvements through an initial stakeholder meeting, Community Advisory Group (CAG) meetings, public information meetings, comment periods, and the project website. During the project, the following activities were held:

- Four (4) initial Stake Holder meetings
- Five (5) Community Advisory Group (CAG) meetings – see CDR Volume 3, D-2.2.
- Three (3) Public Information Meetings, see CDR Volume 3, D-2.3.
- One (1) Public Hearing was held during this project, see CDR Volume 3, D-2.4, D-4.

8.1.1 Project Website

A project website was created and maintained (<http://www.sugargroveinterchange.org/>) to report the progress of the project. The website provided: the project background history, summary of public meetings and workshops, a description of the public involvement process, and a link to contact the design team with questions and/or comments.

8.1.2 Stakeholder Meeting

The project stakeholders included agencies, the Project Study Group (PSG), the Community Advisory Group (CAG), local and/or interest groups, and the public. These stakeholders were identified in the Sugar Grove Parkway (IL 47) Interchange at the Reagan Memorial Tollway (I-88) project's Stakeholder Improvement Plan (SIP), which is an implementation guide for the stakeholder's activities. The SIP identified the roles and responsibilities of the lead agency for the project, the timing and type of outreach activities, the process for stakeholders to provide timely input regarding the project, and an evaluation to determine the effectiveness of the public participation program. The SIP outlines the CSS process that was applied to the project.

The purpose of the meetings were: to introduce the project, study process, and schedule, to discuss stakeholder participation opportunities and solicit input on potential stakeholders, and to discuss initial comments, ideas, issues and concerns about the study.

8.1.2.1 Stakeholder Meeting #1 (May 15, 2015)

The first Stakeholder meeting was held on Friday, May 15, 2015 in the Campus Operations Building at Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, Illinois 60554, at 9:00 am. The meeting was attended by the Project Study Group (PSG).

8.1.2.2 Stakeholder Meeting #2 (May 18, 2015)

The second Stakeholder meeting was held on Monday, May 18, 2015, at Crown Community Development, 1751 A West Diehl Road, Naperville, Illinois, 60563, at 9:00 am. The meeting was attended by the Project Study Group (PSG) and Crown Community Development.

8.1.2.3 Stakeholder Meeting #3 (May 26, 2015)

The third Stakeholder meeting was held on Monday, May 26, 2015, in the Bureau of Construction Conference Room at IDOT District 1, 201 Center Court, Schaumburg, Illinois, 60195, at 2:00pm. The meeting was attended by the Project Study Group (PSG) and Abbott Lane and Investment Corp.

8.1.2.4 Stakeholder Meeting #4 (June 17, 2015)

The fourth Stakeholder meeting was held on Wednesday, June 17, 2015, in at the Elburn Village Administration, 301 East North Street, Elburn, Illinois, 60119, at 1:00pm. The meeting was attended by the Project Study Group (PSG), The Village of Elburn and the Forest Preserve District of Kane County.

8.1.3 Community Advisory Group (CAG) Meeting

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

The first Community Advisory Group (CAG) meeting was held on Wednesday, September 1, 2015, from 10:00 A.M. to 12:30 P.M. at the Waubensee Community College. Twenty-nine (29) CAG members were identified, but only twenty-one (21) CAG members attended the meeting.

The CAG 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 elements, 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.

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

The second Community Advisory Group (CAG) meeting was held on Wednesday, November 18, 2015, from 10:00 A.M. to 12:15 P.M. at Waubensee Community College. The meeting was attended by nineteen (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, gather input from the CAG on the draft purpose & need, and to identify potential evaluation criteria.

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

The third Community Advisory Group (CAG) meeting was held on Thursday, March 10, 2016, from 9:30 A.M. to 11:30 A.M. at Waubensee Community College. The meeting was attended by fifteen (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,

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

The fourth Community Advisory Group (CAG) meeting was held on Tuesday, November 15, 2016, from 9:30 A.M. to 11:30 A.M. at Waubensee Community College. This meeting was attended by ten (10) CAG members.

The meeting included a power point presentation that reviewed the previous CAG #3 meeting, Public Information Meeting #2, 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 Alternatives Screening Process, and describe and seek input on the range of alternatives to be carried forward for this project.

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

The fourth Community Advisory Group (CAG) meeting was held on Wednesday, May 31, 2017, from 9:30 A.M. to 12:30 P.M. at Waubensee Community College. Twenty-five (25) stakeholders including fifteen (15) of the original CAG members and ten (10) additional stakeholders attended this meeting.

This meeting included a power point presentation that reviewed the previous public involvement activities and feedback (CAG #4 and Public Meeting #3), presented a 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 IL 47, corridor, presented the alternative evaluation, and presented the decision making process for the 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.

8.1.4 Public Information Meeting

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

The first Public Information Meeting was held on Wednesday, July 29, 2015, in the Academic and Professional Center (APC) Event Room at Waubensee Community College, Route 47 at Waubensee Drive, Sugar Grove, Illinois 60554, from 4:00 PM to 7:00 PM. Advertisements for the meeting were published in the *Daily Herald* and *Kane County Chronicles* on July 8, 2015, and July 28, 2015, and meeting invitations/brochures were sent out via mail. The meeting was attended by one hundred and three (103) people.

There were two (2) rooms: the first room 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 presentation boards and strip maps, comment forms, and a team of project study representatives. The presentation 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.

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

The second Public Information Meeting was held on Tuesday, May 3, 2016, 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 April 7, 2016, and April 28, 2016, and meeting invitations/brochures were sent out via mail. The meeting was attended by fifty-eight (58) people.

There were two (2) rooms: the first room 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 presentation boards, binders and strip maps. The presentation 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.

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

The third Public Information Meeting was held on Tuesday, March 28, 2017, 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 9, 2017, and March 16, 2017, and meeting invitations/brochures were sent out via mail. The meeting was attended by ninety-nine (99) people.

Attendees signed-in and a brochure unique to Public Information Meeting #3 was provided. There were two (2) 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.

8.1.4.4 Public Hearing (December 14, 2017)

The Public Hearing for the project was held on Thursday, December 14, 2017 from 4:00 P.M. to 7:00 P.M. in the APC Event Room at Waubensee Community College. Advertisement for the meeting was published in the *Daily Herald* on November 27, 2017 and December 7, 2017 and in the *Kane County Chronicle* on December 7, 2017. In addition, meeting invitations/brochures were sent out in the mail. The meeting was attended by 98 people and 14 comment forms were received at the meeting. For more information, please see Appendix H.

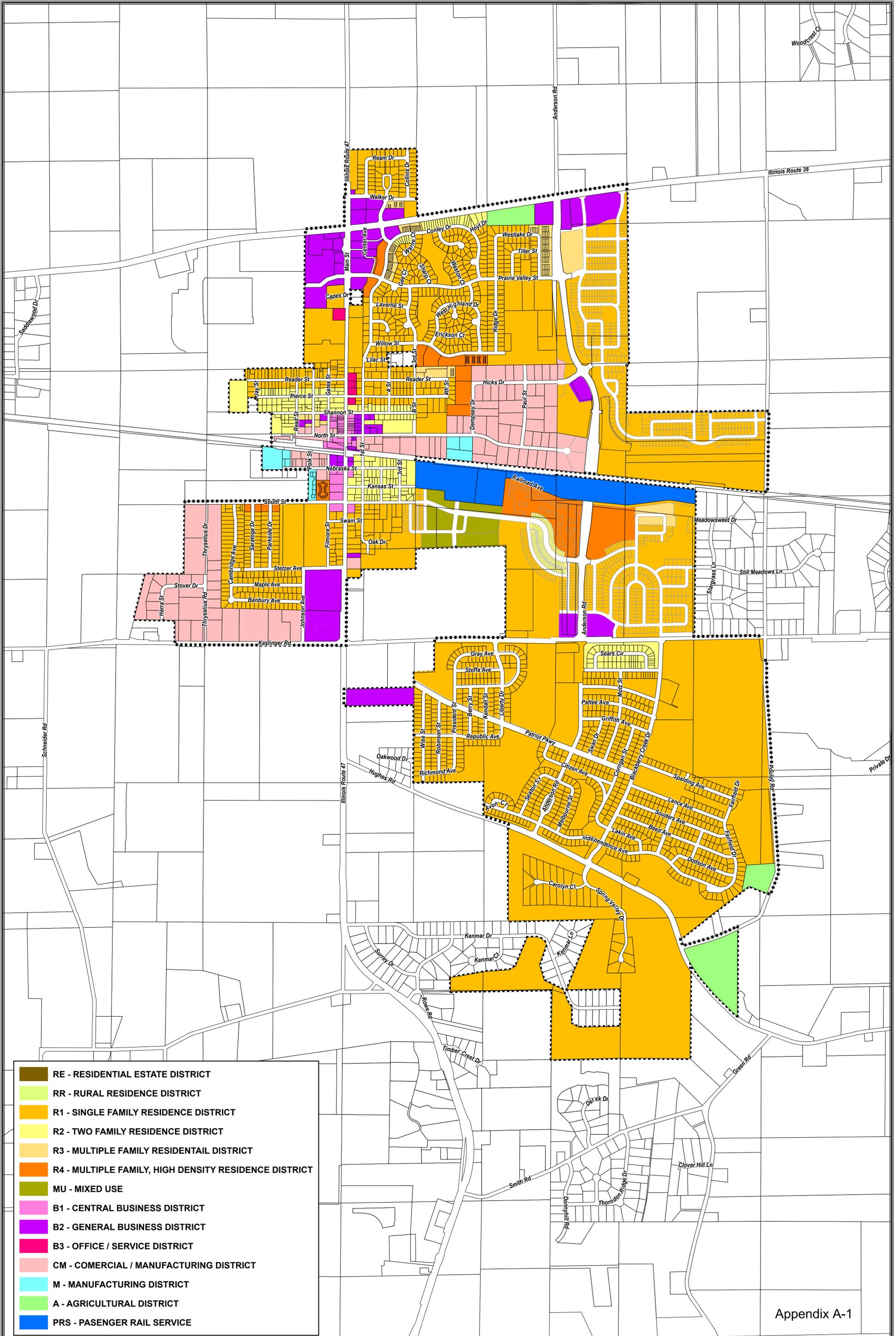
Attendees signed in and a brochure was provided. There were two rooms for attendees to learn more about the project. One room contained a continuous audio-visual presentation that described the project, provided the study process and schedule, outlined the alternative screening process, and described 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.

A third room was utilized for the public forum. A court reporter for verbal comments was available in the second room from 4:00 P.M. to 6:00 P.M. and recorded verbal comments at the public forum from 6:00 to 7:00 P.M.

The purpose of the meeting was to attain public input on the project study including the Environmental Assessment (EA) and the impacts to the Section 4(f) Hannaford Woods/Nickels Farm Forest Preserve (Kane County Forest Preserve).”

9. SPECIAL DESIGN AND CONSTRUCTION CONSIDERATIONS

1. Phase II shall coordinate with the Environmental Studies Unit (ESU) one year prior to project letting when a permit is required for in-stream work or wetland impacts. One year is needed in order to provide ample time for the review process as well as to conduct any necessary field surveys that will need to be performed.
2. A Preliminary Environmental Site Assessment (PESA) has been completed for this project. Further studies may be required if the project will require land acquisition or linear excavation from or adjacent to a property with sites identified in the PESA. It is the responsibility of Phase II to determine if any of the sites with PESA sites or ROW adjacent to the sites will be impacted with the proposed work.
3. The Construction Resident Engineer will contact the Forest Preserve District of Kane County prior to the start of construction to inform them of the initiation of construction activities near their properties.
4. Some areas within the project limits drain to Tributary C of Blackberry Creek and Blackberry Creek. Bio-swales are proposed upstream of these sensitive features and shall be included in the drainage design aspects of the Phase II plans and specifications. Additionally, detention ponds are proposed in the vicinity of the interchange, east of IL 47.



Appendix A-1



Engineering Enterprises, Inc.
 52 Wheeler Road
 Sugar Grove, Illinois 60554
 (630) 466-6700
 www.eeiweb.com

Village of Elburn
 301 E. North Street
 Elburn, IL 60119
 (630) 365-5060
 www.elburn.il.us

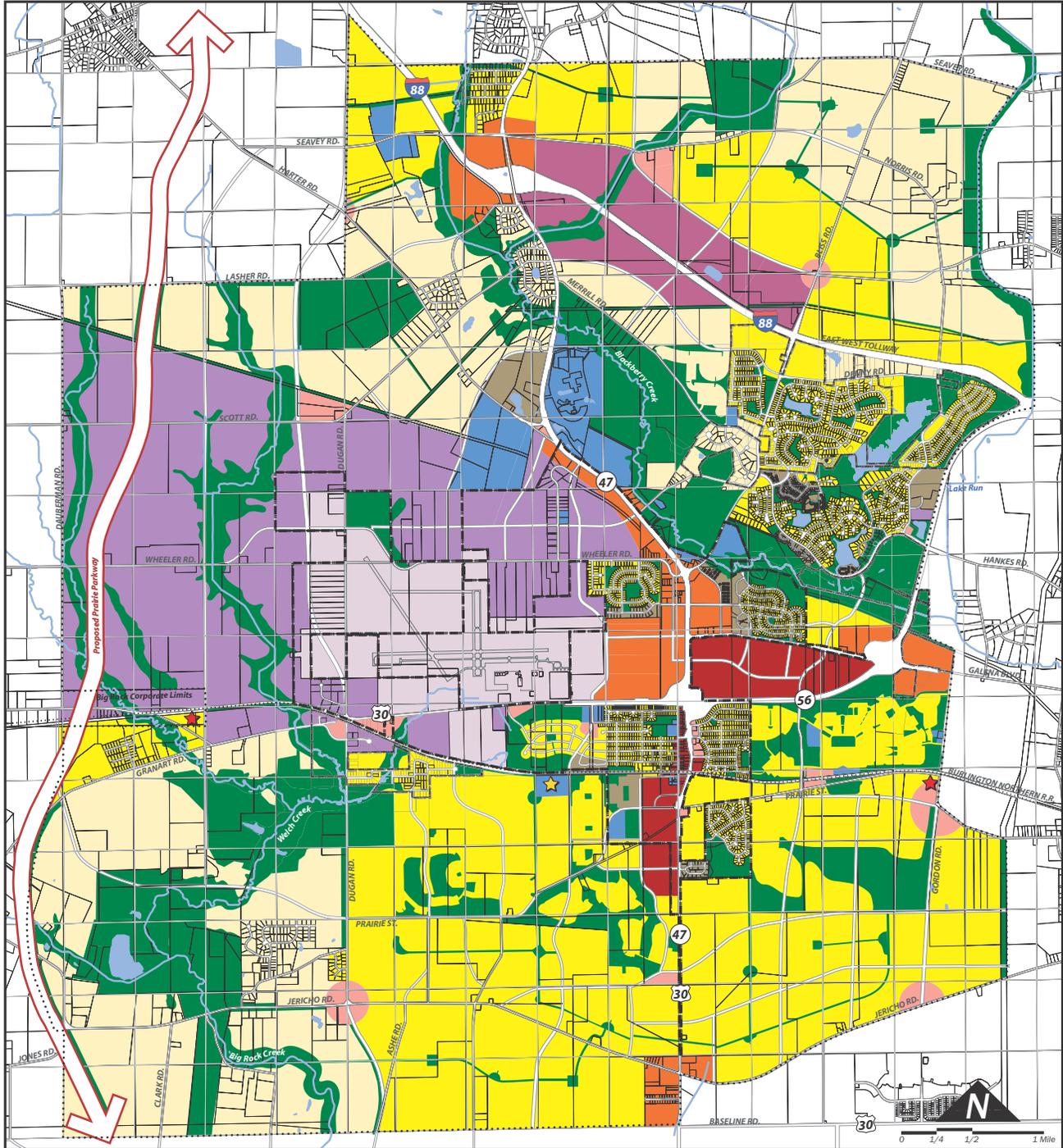
DATE: MARCH 2014
 PROJECT NO.: EL1404
 BY: JPN
 PATH: H:\GIS\PUBLIC\ELBURN
 FILE: EL1404_ZONING.MXD

**2014 ZONING DISTRICT MAP
 VILLAGE OF ELBURN, ILLINOIS**



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

Land Use Plan



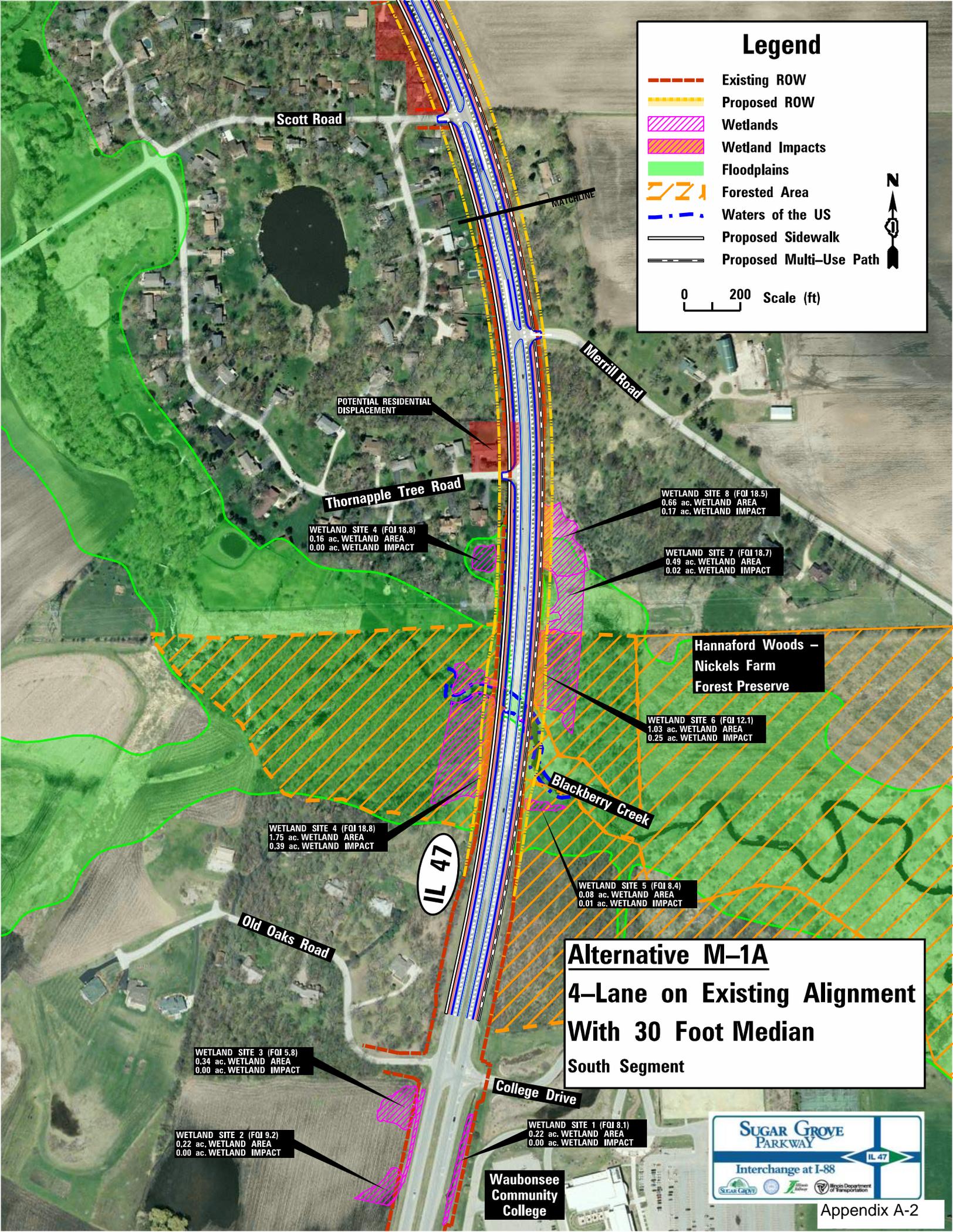
Village of Sugar Grove Comprehensive Plan

Prepared By: URS • TPAP

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

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-1A

4-Lane on Existing Alignment With 30 Foot Median

Central Segment

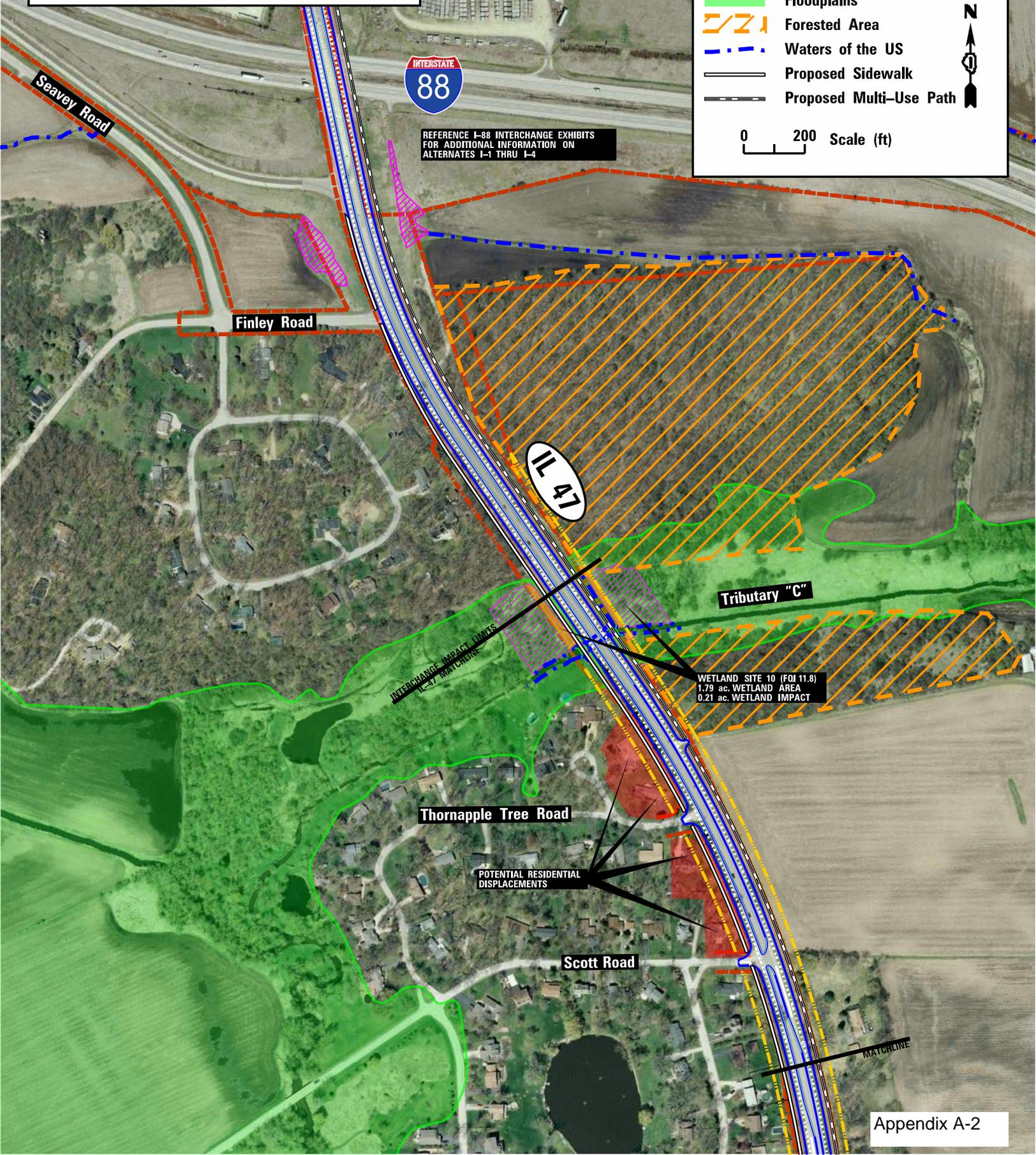


REFERENCE I-88 INTERCHANGE EXHIBITS FOR ADDITIONAL INFORMATION ON ALTERNATES I-1 THRU I-4

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

POTENTIAL RESIDENTIAL DISPLACEMENTS

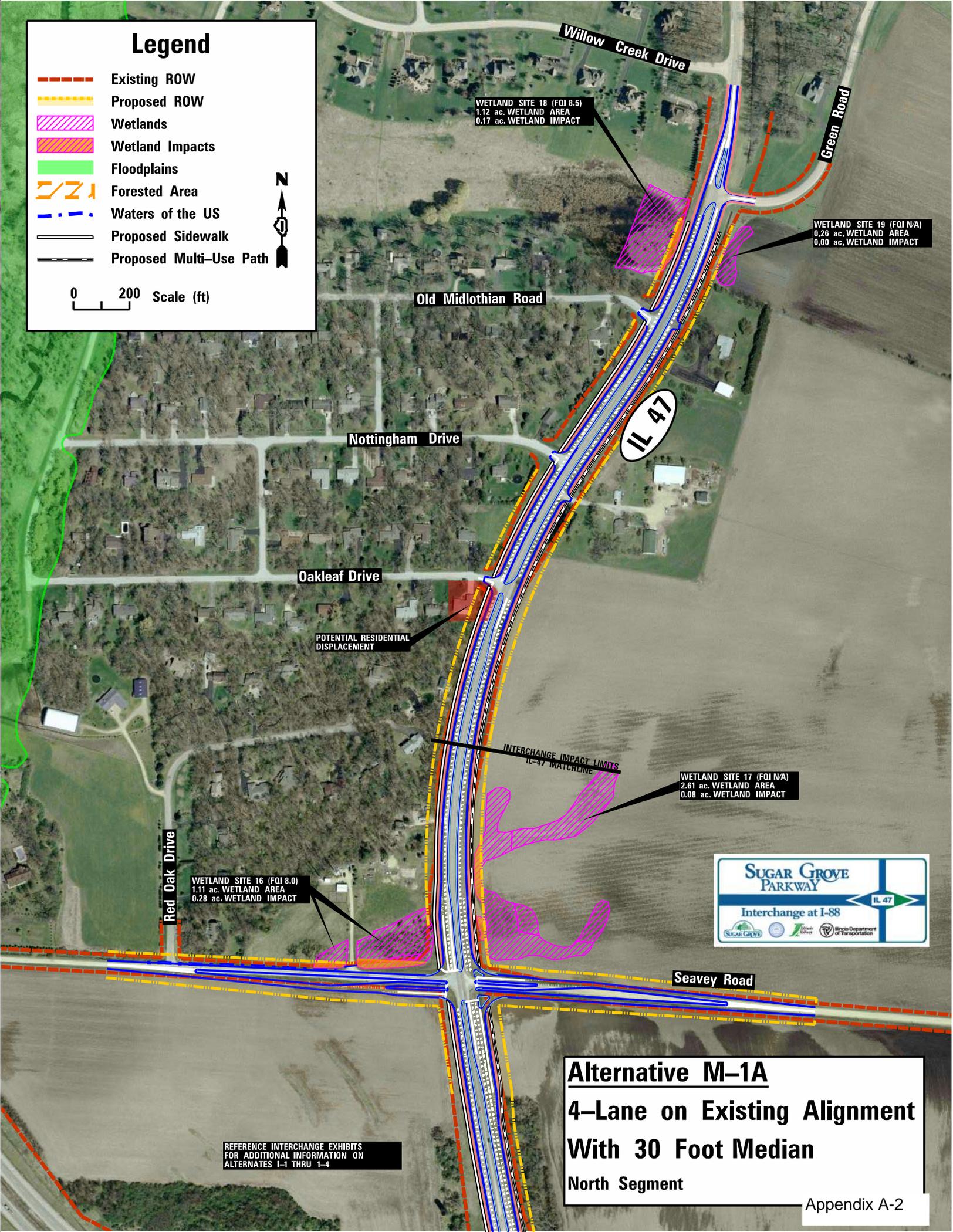
MATCHLINE

Legend

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

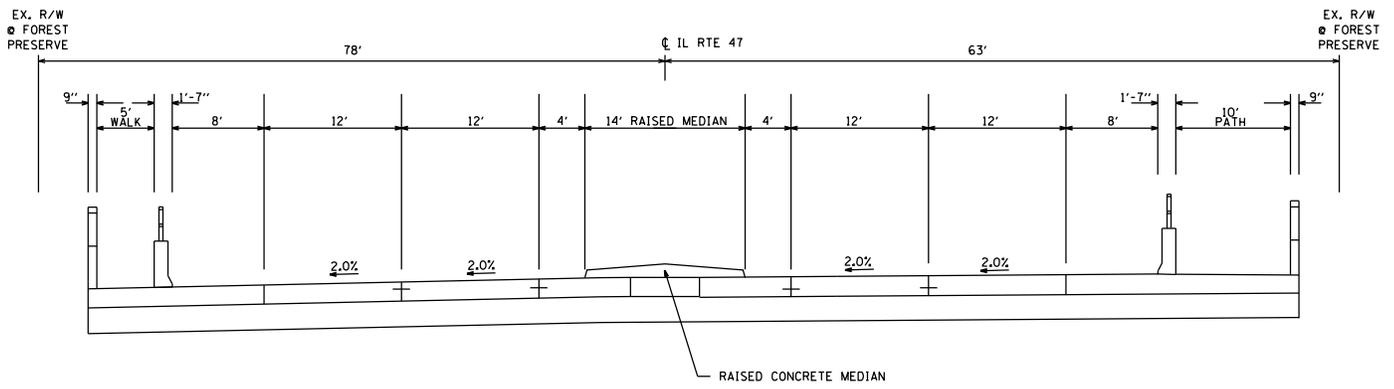


0 200 Scale (ft)



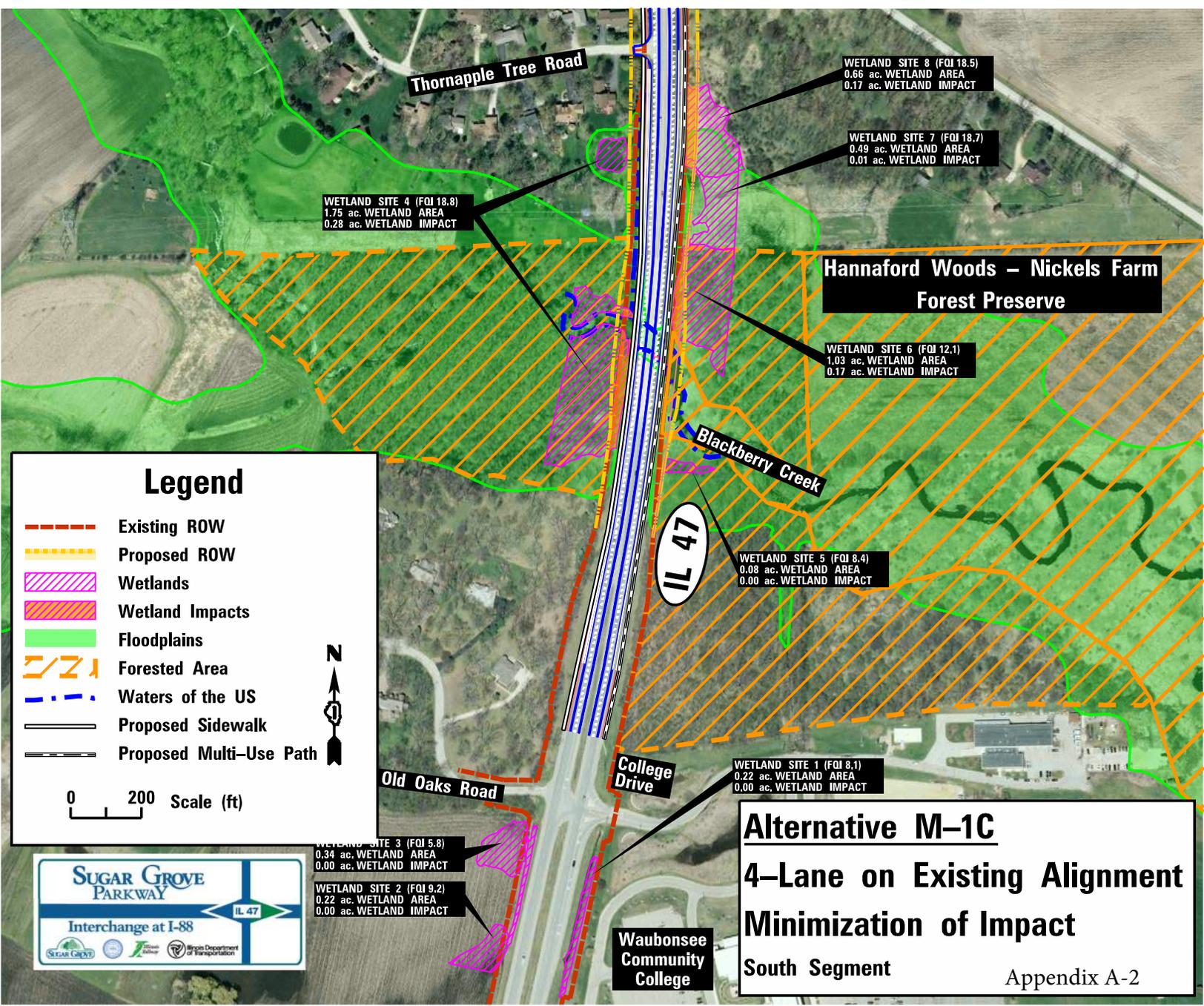
Alternative M-1A
4-Lane on Existing Alignment
With 30 Foot Median
North Segment

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



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

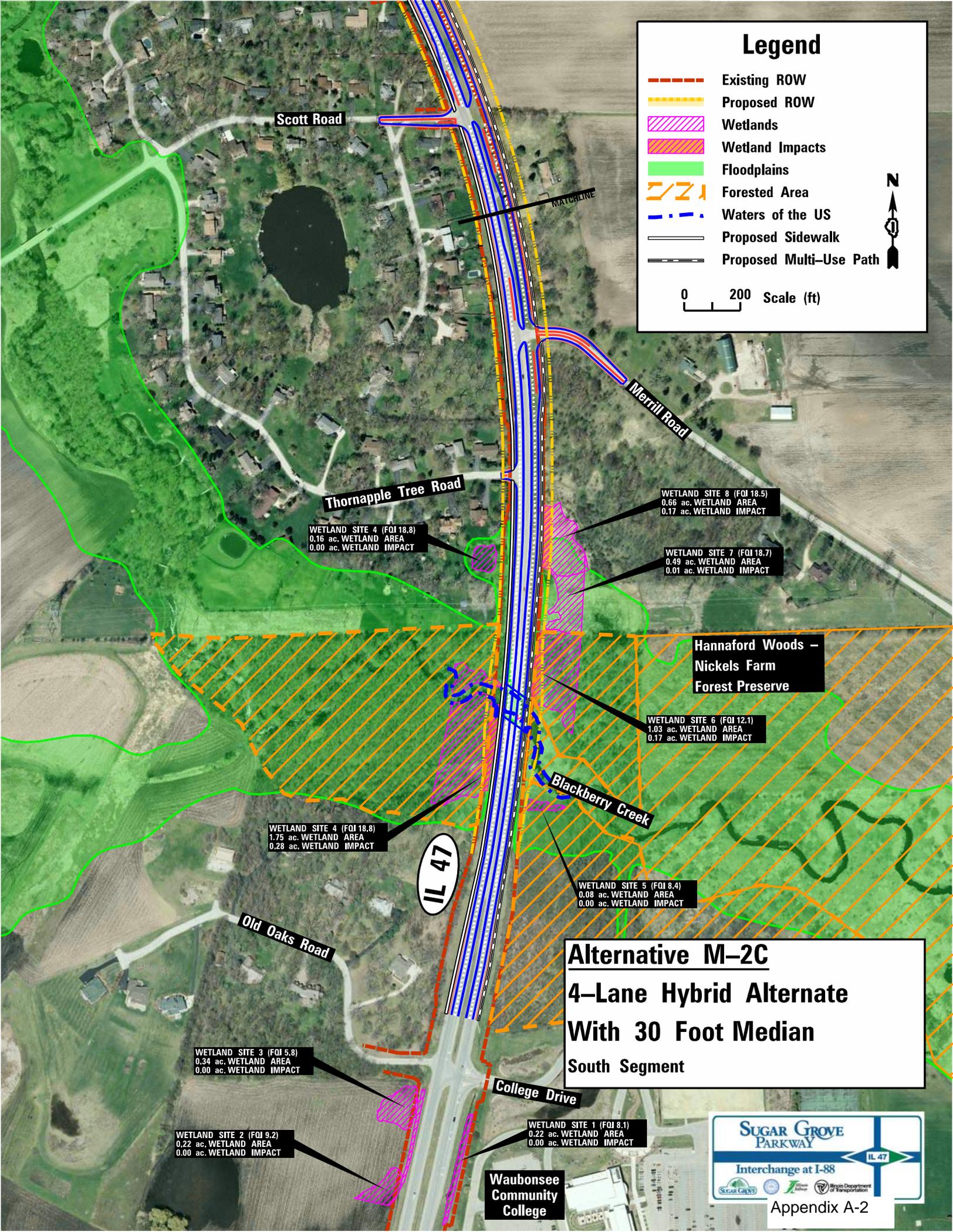
REDUCED MEDIAN WIDTH W/ CONCRETE BARRIER SEPARATION



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

SUGAR GROVE PARKWAY
Interchange at I-88
IL 47
Illinois Department of Transportation

Alternative M-2C

4-Lane Hybrid Alternate With 30 Foot Median

Central Segment

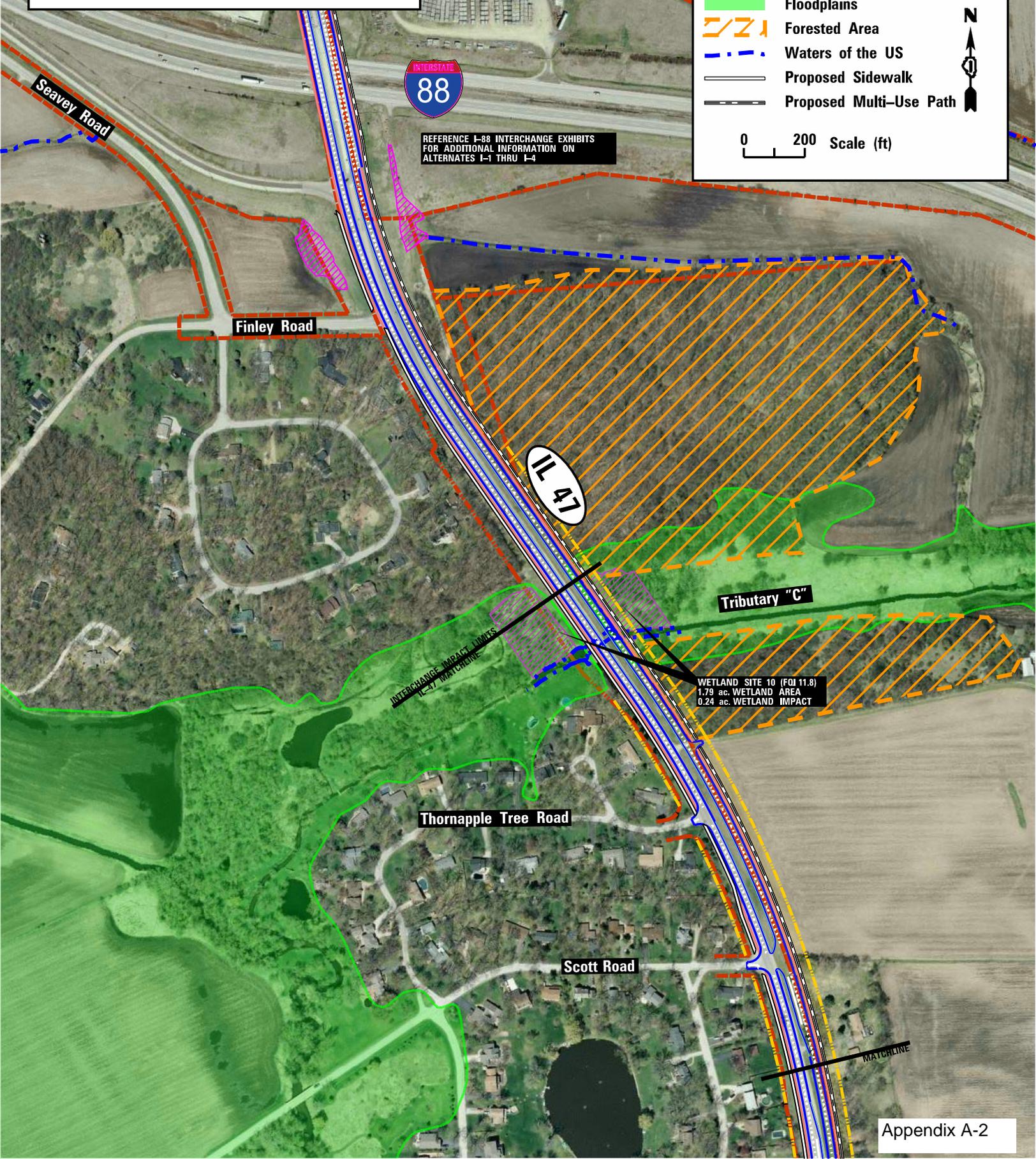


REFERENCE I-88 INTERCHANGE EXHIBITS FOR ADDITIONAL INFORMATION ON ALTERNATES I-1 THRU I-4

Legend

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

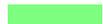
0 200 Scale (ft)



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

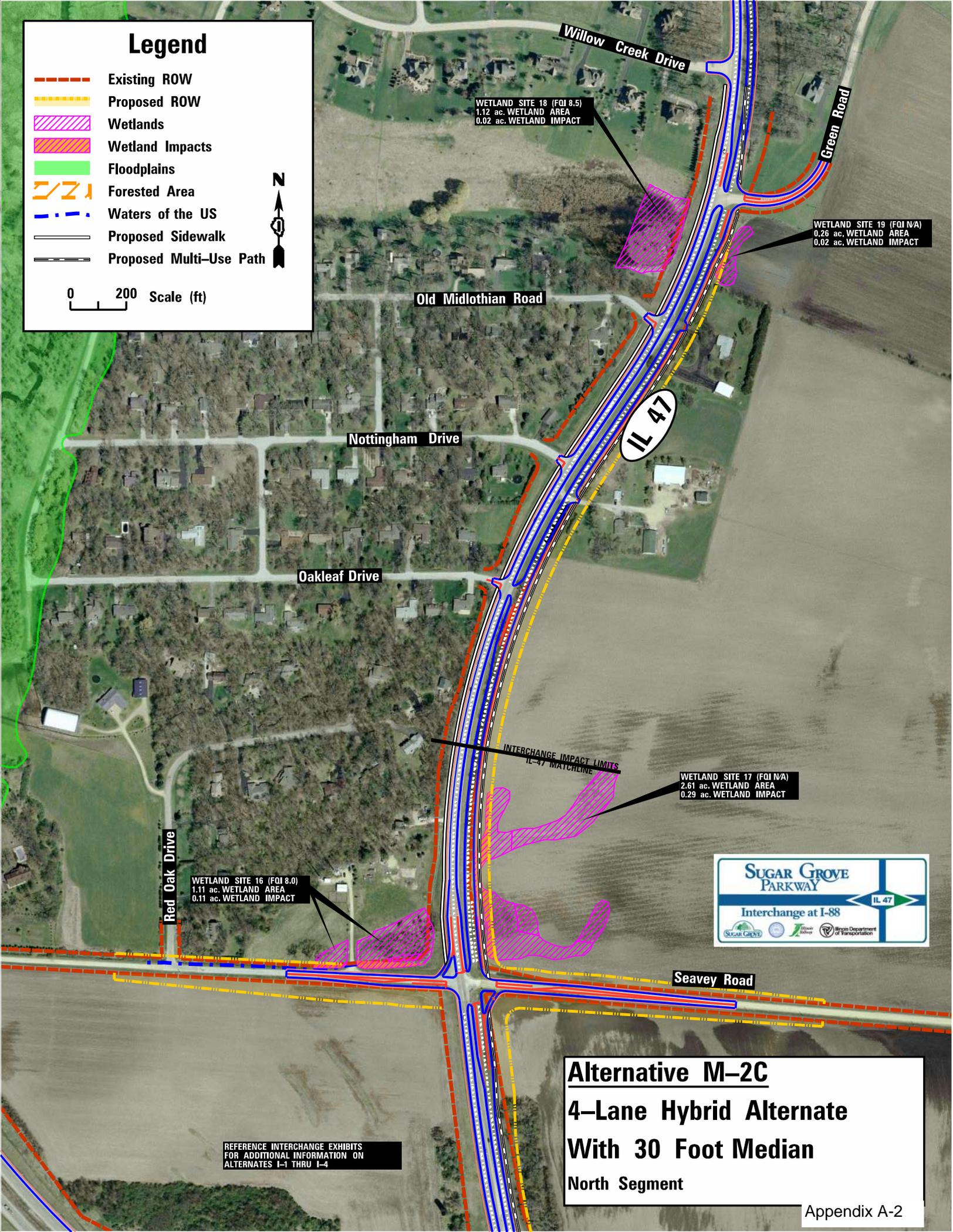
INTERCHANGE IMPACT LIMITS
IL 47 MATCHLINE

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

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

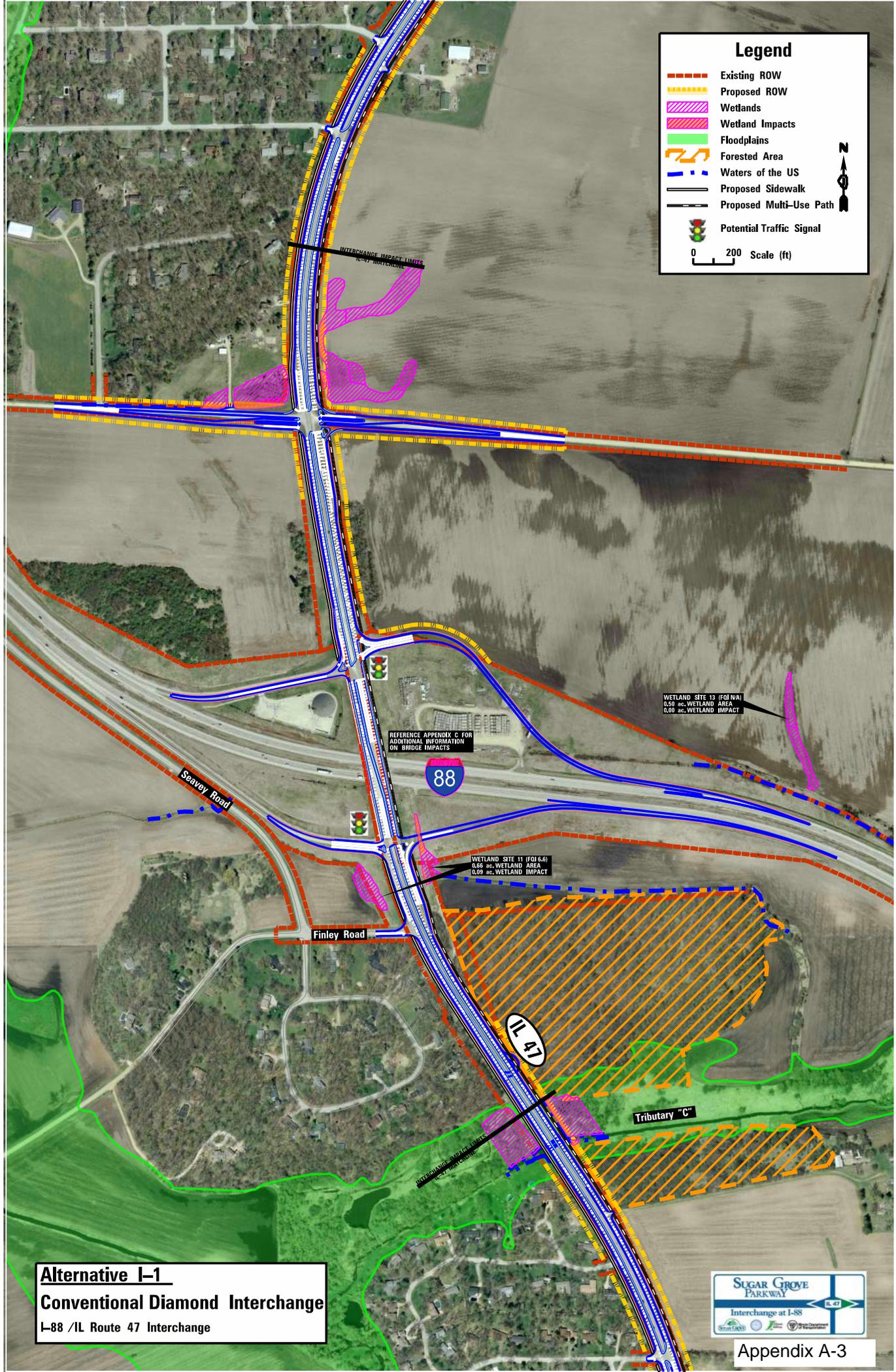
WETLAND SITE 17 (FOI N/A)
2.61 ac. WETLAND AREA
0.29 ac. WETLAND IMPACT

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

INTERCHANGE IMPACT LIMITS
IL-47 WATCHLINE

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



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)

INTERCHANGE IMPACT LIMITS
14-17 MATCHLINE

REFERENCE APPENDIX C FOR
ADDITIONAL INFORMATION
ON BRIDGE IMPACTS

88

Seavey Road

Finley Road

IL 47

Tributary "C"

WETLAND SITE 10 (FOI NA)
0.50 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

WETLAND SITE 11 (FOI 6.6)
0.66 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

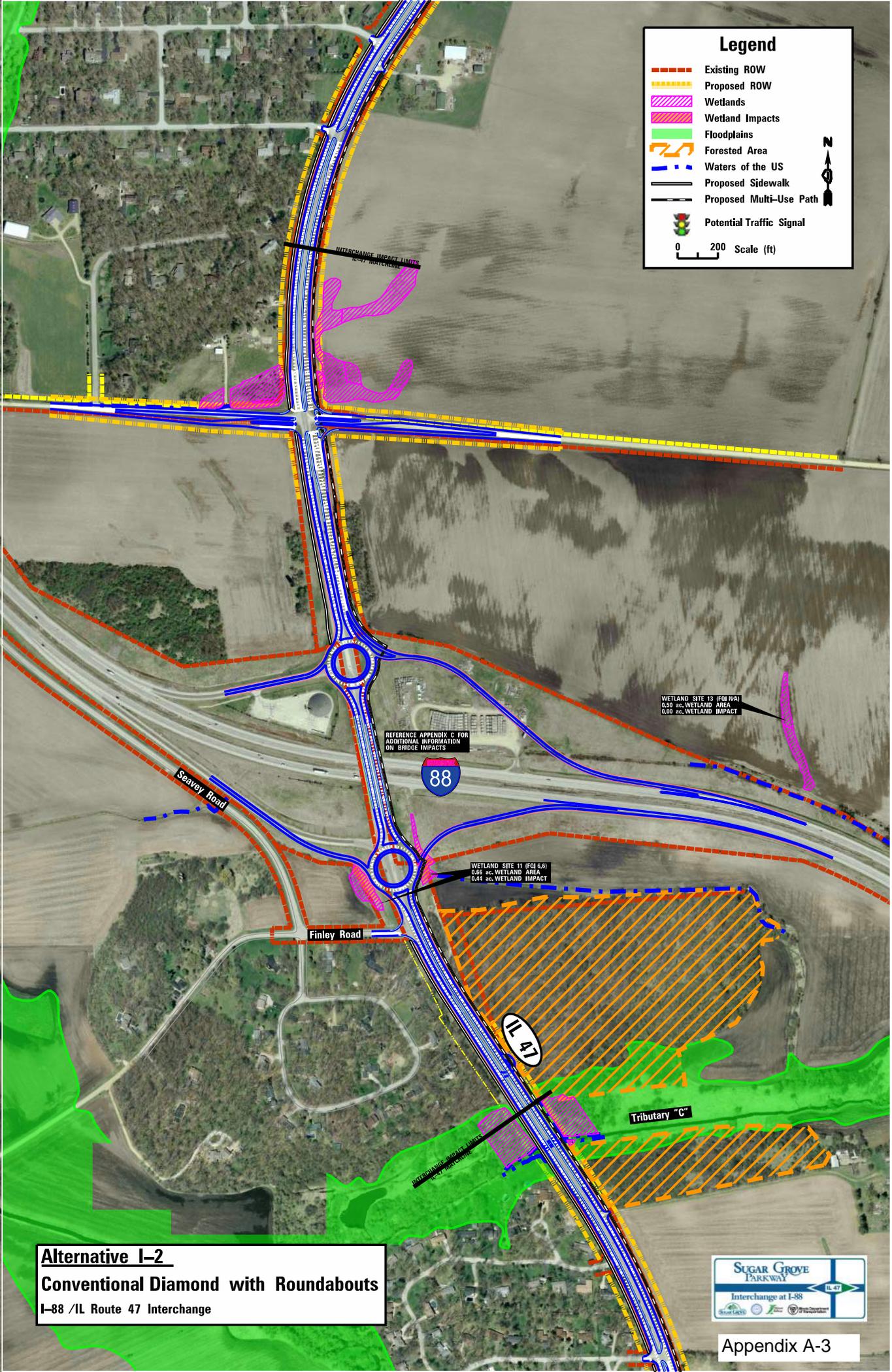
INTERCHANGE IMPACT LIMITS
14-17 MATCHLINE

Alternative I-1
Conventional 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)



INTERCHANGE IMPACT LIMITS
14-17 MATCHLINE

REFERENCE APPENDIX C FOR
ADDITIONAL INFORMATION
ON BRIDGE IMPACTS

88

Seavey Road

Finley Road

WETLAND SITE 11 (FOI 6.6)
0.86 ac. WETLAND AREA
0.44 ac. WETLAND IMPACT

IL 47

Tributary "C"

INTERCHANGE IMPACT LIMITS
14-17 MATCHLINE

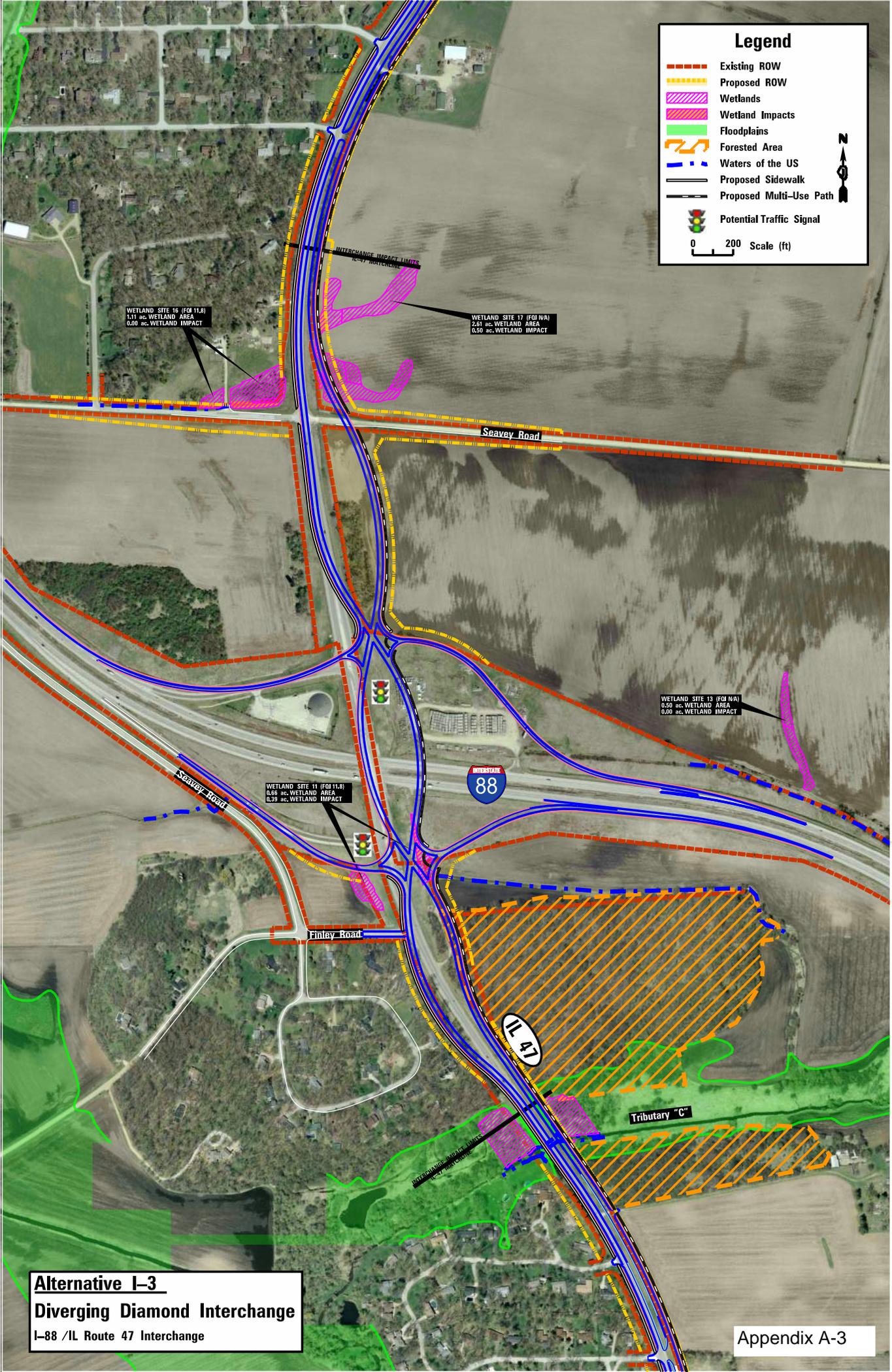
WETLAND SITE 13 (FOI 6.6)
0.50 ac. WETLAND AREA
0.00 ac. WETLAND IMPACT

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

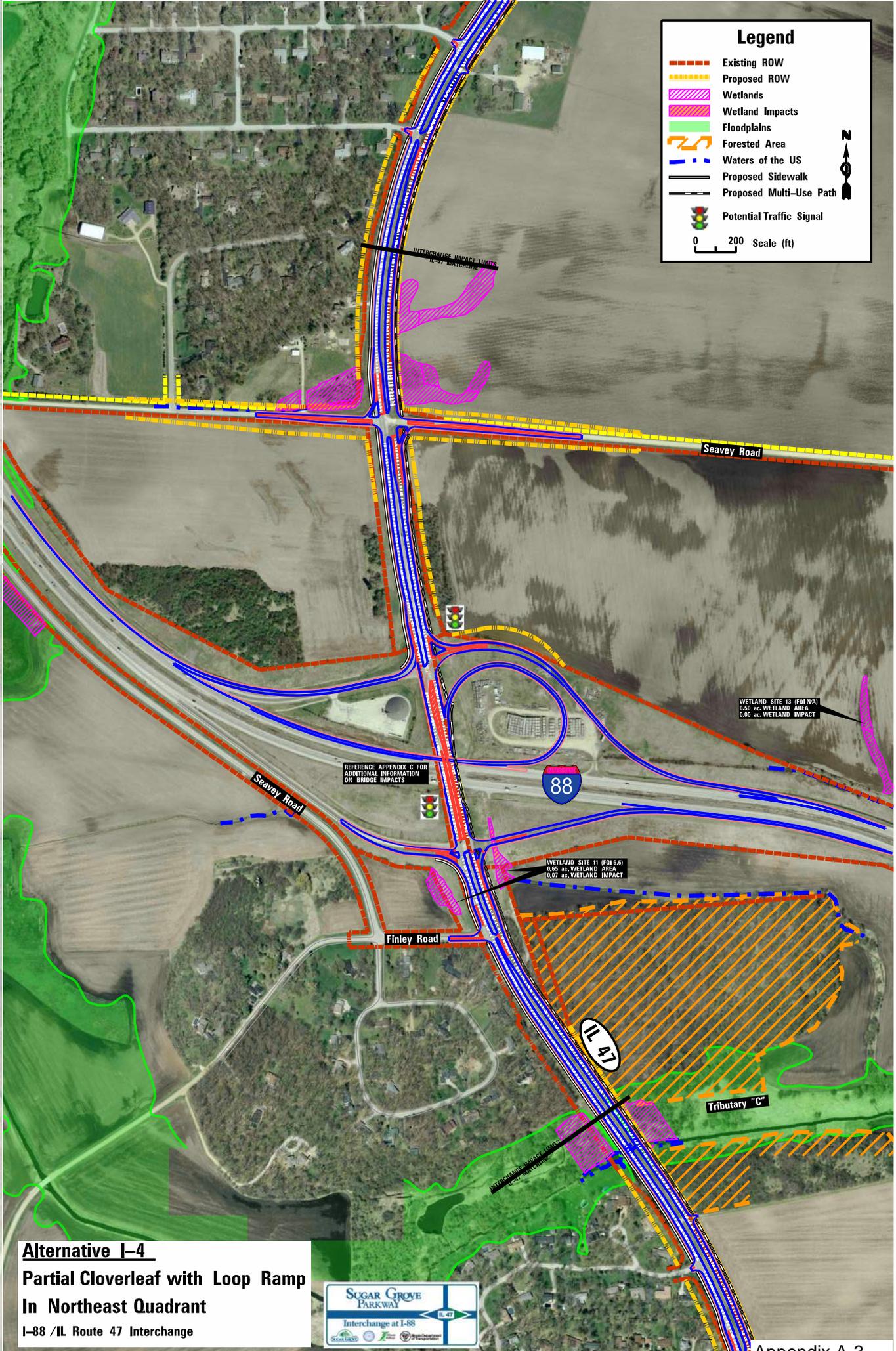
WETLAND SITE 11 (FOI 11.8)
0.66 ac. WETLAND AREA
0.39 ac. WETLAND IMPACT

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

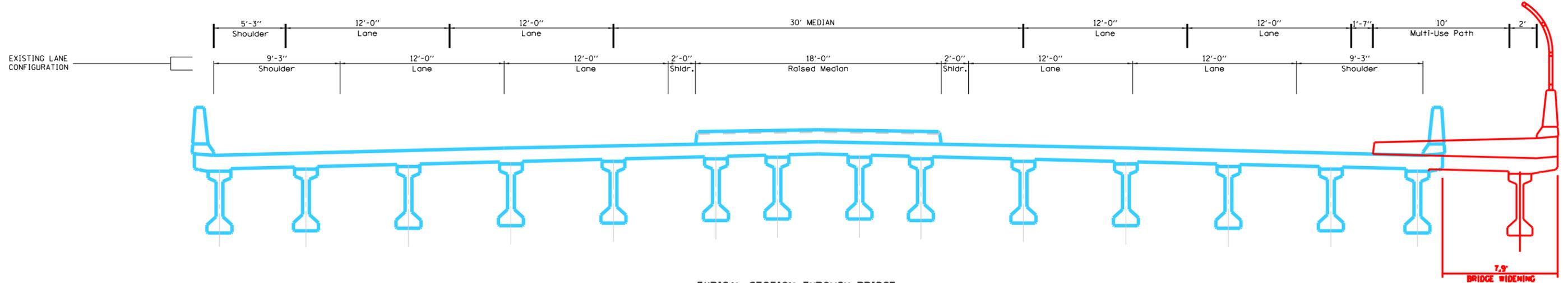
Legend

- 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)

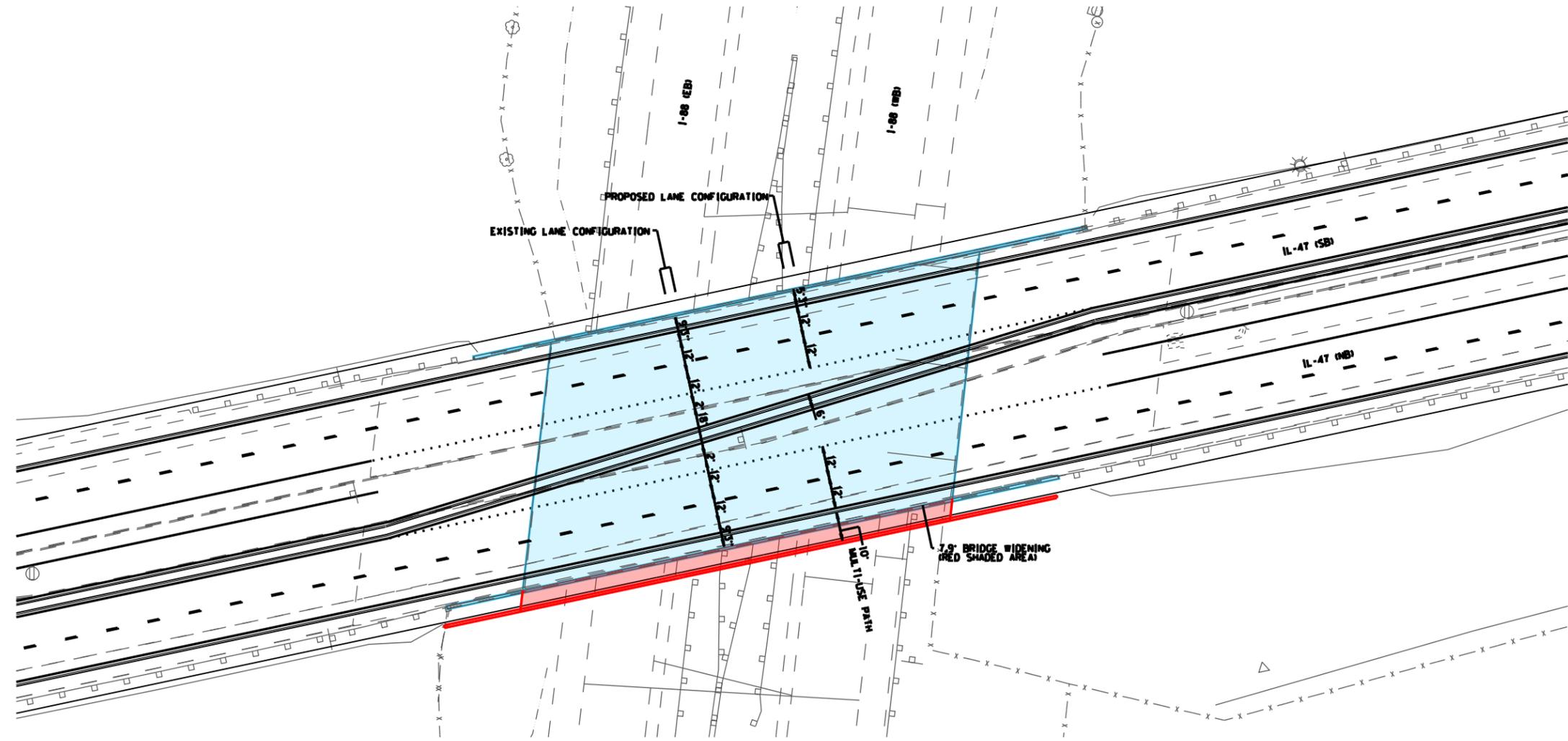


Alternative I-4
Partial Cloverleaf with Loop Ramp
In Northeast Quadrant
I-88 / IL Route 47 Interchange



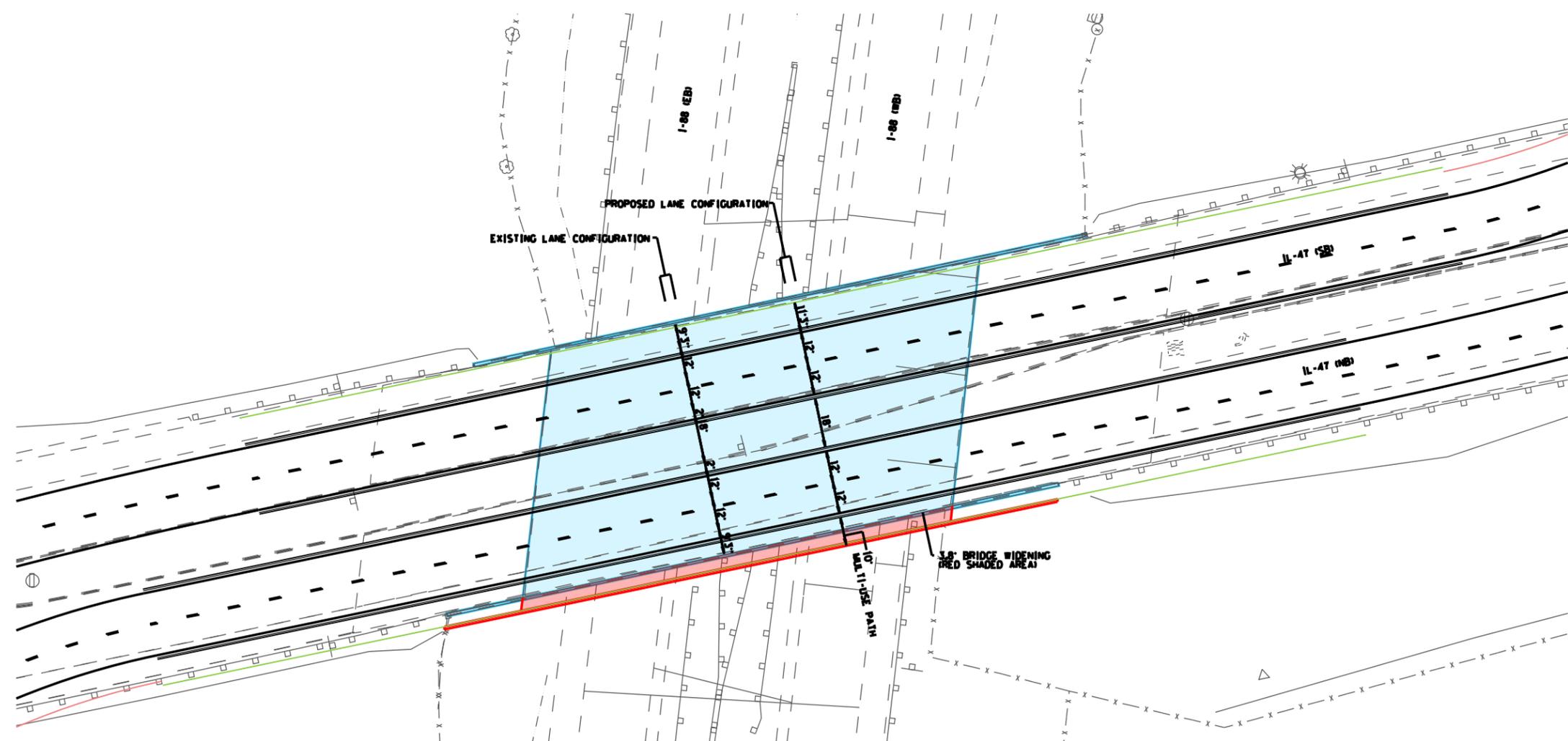
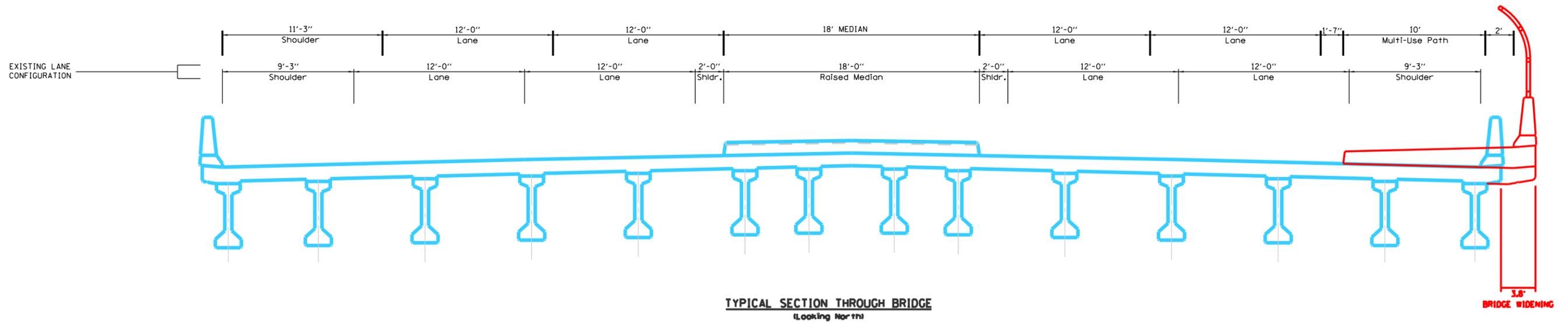


TYPICAL SECTION THROUGH BRIDGE
(Looking North)



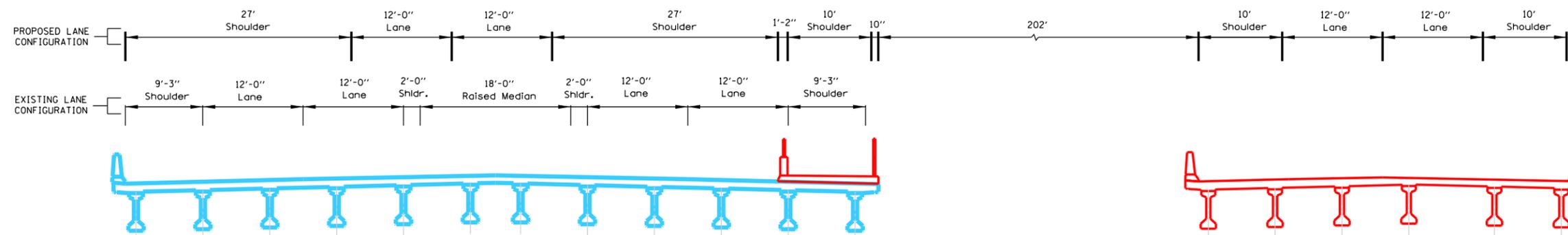
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850 N. Maple Road Suite 200 Chicago, Illinois 60631 (773) 399-0112	USER name : 1908 DESIGNED - DRAWN - PLOT SCALE : 50.0000' / 1" = 1' PLOT DATE : 4/27/2017	REVISIONS DESIGNED - DRAWN - CHECKED - DATE -	REVISIONS REVISED - REVISED - REVISED - REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ILLINOIS ROUTE 47 - STRUCTURE NO. 045-0082 TYPICAL SECTION - DIAMOND INTERCHANGE ALT I-1 SCALE: SHEET OF SHEETS STA. TO STA.	F.A. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO. CONTRACT NO. ILLINOIS FED. AID PROJECT
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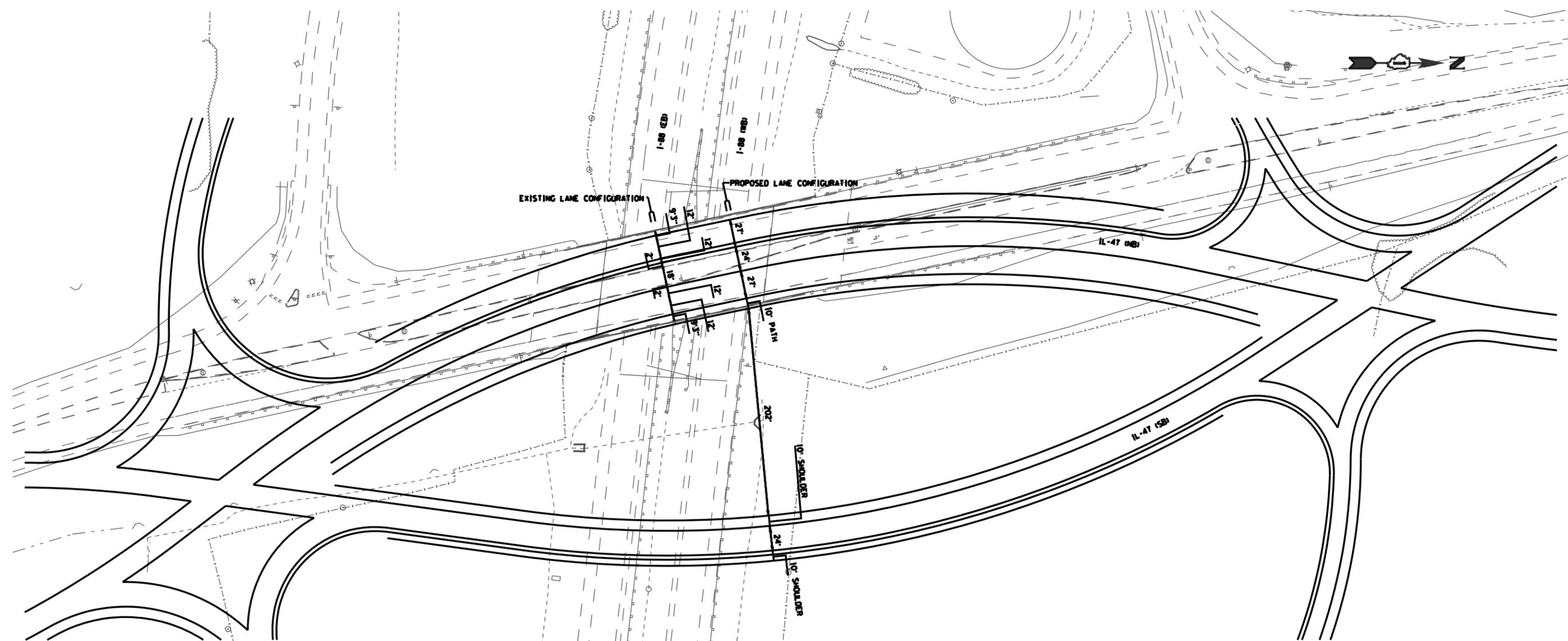


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850 N. Maple Road Suite 200 Chicago, Illinois 60611 (773) 399-0172	USER name : 1908	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ILLINOIS ROUTE 47 - STRUCTURE NO. 045-0082				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT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



TYPICAL SECTION THROUGH BRIDGE
(Looking North)



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850 N. Maple Road Suite 200 Chicago, Illinois 60631 (773) 399-0112	USER NAME : 1062	DESIGNED - _____	REVISED - _____	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ILLINOIS ROUTE 47 - STRUCTURE NO. 045-0082		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 100.0000' = 1" @ 11"	CHECKED - _____	REVISED - _____		REVISED - _____	TYPICAL SECTION - DDI - ALT 1-3		CONTRACT NO. _____			
PLOT DATE : 2/14/2017	DATE - _____	REVISED - _____	REVISED - _____	SCALE: _____	SHEET _____	OF _____	SHEETS	STA. _____	TO STA. _____	ILLINOIS FED. AID PROJECT	



Level Two Design Criteria Checklist

Key Route: IL Route 47
Marked Route/Road Name: IL Route 47
State Job No.: P-91-015-14 Contract No.:
Functional Classification: Other Principal Arterial Highway Type: Strategic Regional Arterial
County(ies): Kane Project Length: 2.2 miles along IL 47
City: Village of Sugar Grove Section: 14-00028-00-CH
Project Location: IL Route 47 from the Waubensee Community College North Entrance to Green Road; I-88 approximately one-half mile both east and west of IL Route 47

Project Scope of Work

- a. Check the appropriate box. See Section 31-6 for definitions.
[] New construction [x] *Reconstruction [] *3R (non-freeway) [] *3R (freeway)
[] 3P [] SMART [] HSIP [] Other

*Note: May include "Allowed to Remain in Place" criteria.
This form is required for all new construction, reconstruction, and 3R projects.

- b. Provide a brief project description:

IL 47 will be widened from a 2-lane facility to a 4-lane facility. A raised 30' median with mountable curb will be provided. The centerline alignment of reconstructed IL 47 will generally be 30' east of the existing centerline alignment. A rural cross sections with ditches and culverts will be developed on the outside of IL 47 in both directions. A Partial Cloverleaf interchange with a loop ramp in the northeast quadrant is proposed at the intersection of I-88 and IL 47. Provisions for a future shared use path will be made on the east side of IL 47 as well as provisions for a future sidewalk on the west side of IL 47. No signalized intersections, with the exception of the existing signal at College Drive at the south project limit, are anticipated on opening day of the reconstruction.

PAGE
NOT USED

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
1. Basic Design Controls (Chapter 31)			
a. Design speed 60 mph (km/h)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Stopping Sight Distance (SSD) application for vertical curves (downgrade adjusted SSD used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Truck SSD (level) (at specific sites)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Level of service (mainline) B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Horizontal Alignment (mainline) (Chapter 32)			
a. Horizontal curvature (minimum radius for selected design speed) 2112 feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Superelevation rates ($e_{max} = 5.4\%$)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Superelevation transition lengths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. SSD application at horizontal curves (downgrade adjusted SSD used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Superelevation distribution between tangent and curve (ratio or percent) 67% Tangent	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. "Breakover" of outside shoulder on super-elevated curves (percent) 8%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Relative longitudinal slope of shoulder to edge of traveled way on high side of S.E. curve adjacent to bridge with S.E.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Superelevation development at reverse curves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
i. Is superelevation transition length located off of bridges and bridge approach pavements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Horizontal stopping sight distance on inside of horizontal curves (Level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Vertical Alignment (mainline) (Chapter 33)			
a. Maximum grades (in percent) 2.42%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. SSD at crest vertical curves (level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. SSD at sag vertical curves (level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Minimum grades (in percent) considering drainage 0.37% Matching at south end.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Critical length of grade NB approaching I-88 for 2442.5'. 7 mph speed red.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Truck-climbing lanes/critical grade analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Design criteria for truck-climbing lanes (e.g., lane width and shoulder width)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Minimum length of vertical curves for selected design speed 225'	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Maximum length of vertical curves (drainage of curbed facilities and bridges) 1750'	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cross Section Elements (mainline) (Chapter 34)			
a. Lane widths 11' min feet (meters)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
b. Traveled way widening	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Cross-slopes on through lanes (in percent): Inside lane Lane 1 <u>-2%</u> Outside lanes Lane 2 <u>-2%</u> Lane 3 _____ Lane 4 _____	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
d. Shoulder widths <u>4</u> feet (meters)(inside) <u>10</u> feet (meters)(outside)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
e. Design of parking lanes: • Cross-slope _____ % • Width _____ feet (meters)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
f. Type of curb and gutter used on median M-4.24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Drainage of raised curb medians: • Direction of flow of median surface or pavement <u>To gutter unless median bioswale</u> • Direction of cross-slope on gutter <u>-6%</u> %	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
h. Type of curb and gutter used along outside edges of pavement _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Two Way Left Turn Lane (TWLTL) width: • Flush type _____ feet (meters) • Traversable type _____ feet (meters)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
j. Median widths: • Urban _____ feet (meters) • Suburban _____ feet (meters) • Rural <u>30' Typ. 18' Min</u> feet (meters)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
k. Shoulder cross slopes <u>4</u> %	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Fill slopes <u>3:1</u> (V:H)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
m. Outside roadway ditch:			
• Slopes <u>3:1</u> • Depth <u>1' min</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Widths <u>4'</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Median ditch:			
• Slopes _____ • Depth _____ :	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Width _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
n. Cross-section transitions into bridges/ underpasses N.C. at Blackberry Creek Bridge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Use of mountable curbs (V > 45 mph (70 km/h))	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Cross-section transition details (e.g., four-lane to two-lane)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Intersections (Chapter 36)			
a. Accommodation of design vehicle (identify vehicle) <u>WB-67</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Level of service:			
• Through lanes <u>C</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Turn lanes <u>C</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Skew angle 66 degree at Finley Road.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Profiles 4% max. away approaching II 47 on Seavey Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Volume guidelines for turn-lanes:			
• Right-turns	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Left turns	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Design of right-turn lanes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design of left-turn lanes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)			Does the proposed design meet the criteria?		
			Yes	No	N/A
g. Turn-lane tapers	Approach taper		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Departure taper		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Bay taper		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Turning roadway widths 12 feet			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Turn-lane lengths	Deceleration (rural)	265 typ. 211 min	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Storage (urban)	235 typ. 170' min	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Intersection sight distance: List criteria and type <u>Stop control on minor road - Case B</u>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Median opening length _____ feet (meters)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Minimum corner island size <u>415</u> sq. ft (sq. m)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Does right-turn radius accommodate design vehicle without encroachment?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Driveway widths 26' Max _____ feet (meters)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Type of traffic control:			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Two-way stop			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• All-way stop			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Traffic signals			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
p. Is maximum grade exceeded on any approach? 2% max at Seavey Road			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Max. superelevation "e" (in percent) for intersections on curve 4.8%			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Interchanges (Chapter 37)					
a. Exit terminal	Standard type	Parallel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Design speed of first curve	50 mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Are any exit terminals located on mainline horizontal curve?	Both	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)		Does the proposed design meet the criteria?		
		Yes	No	N/A
b. Entrance terminal	Standard type Parallel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Length of tangent after the entering curve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Design speed of entering curve 60 mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Design speed of ramp proper 30 mph for loop ramp _____ mph (km/h)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Design speed of crossroad 60 mph _____ mph (km/h)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Maximum ramp grades:		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Exit ramp 2 _____ %				
• Entrance ramp 4.75 _____ %		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Ramp pavement width 16' typ. 18' for loop ramp _____ feet (meters)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Ramp shoulder widths:		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Left 4' _____ feet (meters)				
• Right 10' _____ feet (meters)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Horizontal ramp curvature in conjunction with selected design speeds		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Superelevation development on ramps	Superelevation rate 8%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Transition length	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Distribution between tangent & curve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Vertical curvature compliance with selected design speed on ramp		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Length of access control at crossroad 440' to Finley		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
l. Type of traffic control at crossroad:		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Stop signs		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Traffic signals		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Free flow		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
m. Is length of crest vertical curve used on crossroad \geq that required by the selected design speed of crossroad? 1750' vertical curve at N. ramp intersection		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)		Does the proposed design meet the criteria?			
		Yes	No	N/A	
n. Are crossroad approach grades through ramp/ crossroad intersections $\leq 2\%$?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o. Are ramp/crossroad intersections located on a tangent section of crossroad alignment? South ramp intersection located at end of 2250 curve		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
p. Is decision sight distance available in advance of exit gore?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
q. Is clear recovery area available beyond gore nose?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
r. Level of service:					
• Exit terminal <u> C </u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Entrance terminal <u> C </u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Ramp proper <u> C </u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Weaving area <u> C </u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Ramp/crossroad intersection		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
s. Freeway lane drops	Location	Upgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Downgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Inside lane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Outside lane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		At exit terminal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Beyond exit terminal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Taper length	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Roadside Safety (Chapter 38)					
a. Horizontal clearances:					
• Clear zones on tangent sections 44'		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Clear zones on outside of horizontal curves 44' (No crash history that would warrant widened CZ)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Barrier warrants		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Barrier length of need		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
d. Deceleration criteria for impact attenuators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Structure Planning/Geometrics (Chapter 39)			
a. Clear roadway bridge widths = 78' total at I-88 (including 1 turn lane); 38' each way at Trib. C Culvert; and 40' each way at Blackberry Creek feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Structural capacity of bridges = HS20 at I-88; HS20 at Tributary C Culvert; and HL93 at Blackberry Creek.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Vertical clearances 17'-4" Min on I-88 feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Pavement Design (Chapter 54)			
a. Structural capacity of roadway	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Use multiple forms for each roadway within the project.

Prepared by: Peter Johnston Date: 10-4-18
 Designer (IDOT or Consultant) Signature

1. BICYCLE CHECKLIST

1. CHECKLIST FOR BICYCLE TRAVEL GENERATORS IN PROJECT VICINITY

Review and record the potential bicycle travel generators in the vicinity of the project, such as those shown in the checklist. Note on the checklist the types of generators within 1 mile of the project corridor.

Generators	Yes	N/A	Generators	Yes	N/A
Residential Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Shopping Centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hospitals	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Recreation Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Employment Center	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Churches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Government Offices	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Local Businesses	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Libraries	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Industrial Plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Existing Bicycle Trails	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Public Transportation Facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Planned Bicycle Trails	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other (Forest Preserves, etc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Attach a map of the project area showing the general location of these generators. Sections of Municipal or Township maps are acceptable, as well as photocopies of aerial photos. The map will serve to indicate where bicyclists will cross or ride along the corridor.

2. CHECKLIST FOR ORGANIZATIONS AND PUBLIC COORDINATION

The organizations presented in the checklist have been contacted to assess any nearby bicycle travel or planned development of recreational trails or other generators. Documentation of coordination, if any, is included in the Phase I report.

Organization	Yes	N/A	Organization	Yes	N/A
Chicago Metropolitan Agency for Planning (CMAP)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	League of Illinois Bicyclists ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Local Municipalities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Illinois Department of Natural Resources ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Park or Forest Preserve Districts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Illinois Trails Conservancy ³	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sub-Regional Planning Council	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active Transportation Alliance ⁴	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Local Bicycle Clubs, Advocacy Groups	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

¹ League of Illinois Bicyclists, 2550 Cheshire Drive, Aurora, IL 60504

² Illinois Department of Natural Resources – Office of Planning & Realty, One Natural Resources Way, Springfield, IL 62702

³ Illinois Trails Conservancy – 142 West Main Street, PO Box 10, Capron, IL 61012

⁴ Active Transportation Alliance – 9 W. Hubbard Street, Suite 402, Chicago, IL 60654-6545

FORM FOR BICYCLE TRAVEL ASSESSMENT

ROUTE: IL 47
 SECTION: 14-00028-00-CH
 COUNTY: Kane

1) Where would bicyclists cross the project?
<p>A shared use path will be constructed along the north bank at Blackberry Creek beneath the IL 47 bridge. This will allow bicyclists to cross to the opposite side of IL 47 uninterrupted by vehicular traffic.</p> <p>By the Year 2040, it is anticipated that signals would be warranted at the following IL 47 intersections within the project limits: Merrill Rd., Scott Rd., EB ramp termini, WB ramp termini, and Seavey Rd. Once these signals are installed, bicyclists can cross IL 47 with signal control.</p>
2) Where would bicyclists need to ride parallel to the project ⁵ ?
<p>A sidewalk and shared use path will be constructed parallel to IL 47 on both the west and east sides of IL 47, respectively. These paths would essentially run the length of the project. Construction of the paths are subject to local funding being available.</p>
3) Does the project provide unique or primary access ⁶ across a river, railroad, highway corridor or other natural or man-made barrier?
<p>Not specifically, but a path will be constructed underneath IL 47 at Blackberry Creek and will connect the east and west sides of Hannaford Woods/Nickels Farm Forest Preserve.</p>
4) Will the highway project negatively affect the recreational or transportation utility of an independent bikeway or trail? Highway projects will negatively affect at-grade paths and trails when they are severed, when the projected roadway traffic volumes increase to a level that prohibits safe crossings at-grade, or when the widening of the roadway prohibits sufficient time for safe crossing.
<p>No, there are no existing designated bikeways within the project limits.</p>
5) Does the route provide primary access to a park, recreational area, school, or other significant destination?
<p>The constructed paths would allow access to the Hannaford Woods/Nickels Farm Forest Preserve located near the south limit of the project.</p>

⁵ Secondary roads that could be used as alternate routes are usually within 2-3 blocks of projects in urban areas, within 0.5 miles (1 km) in suburban areas, and within 1 mile (2 km) in rural areas.

⁶ Unique or primary access is defined as access which is not otherwise available within a reasonable riding distance of 1 mile (2 km).

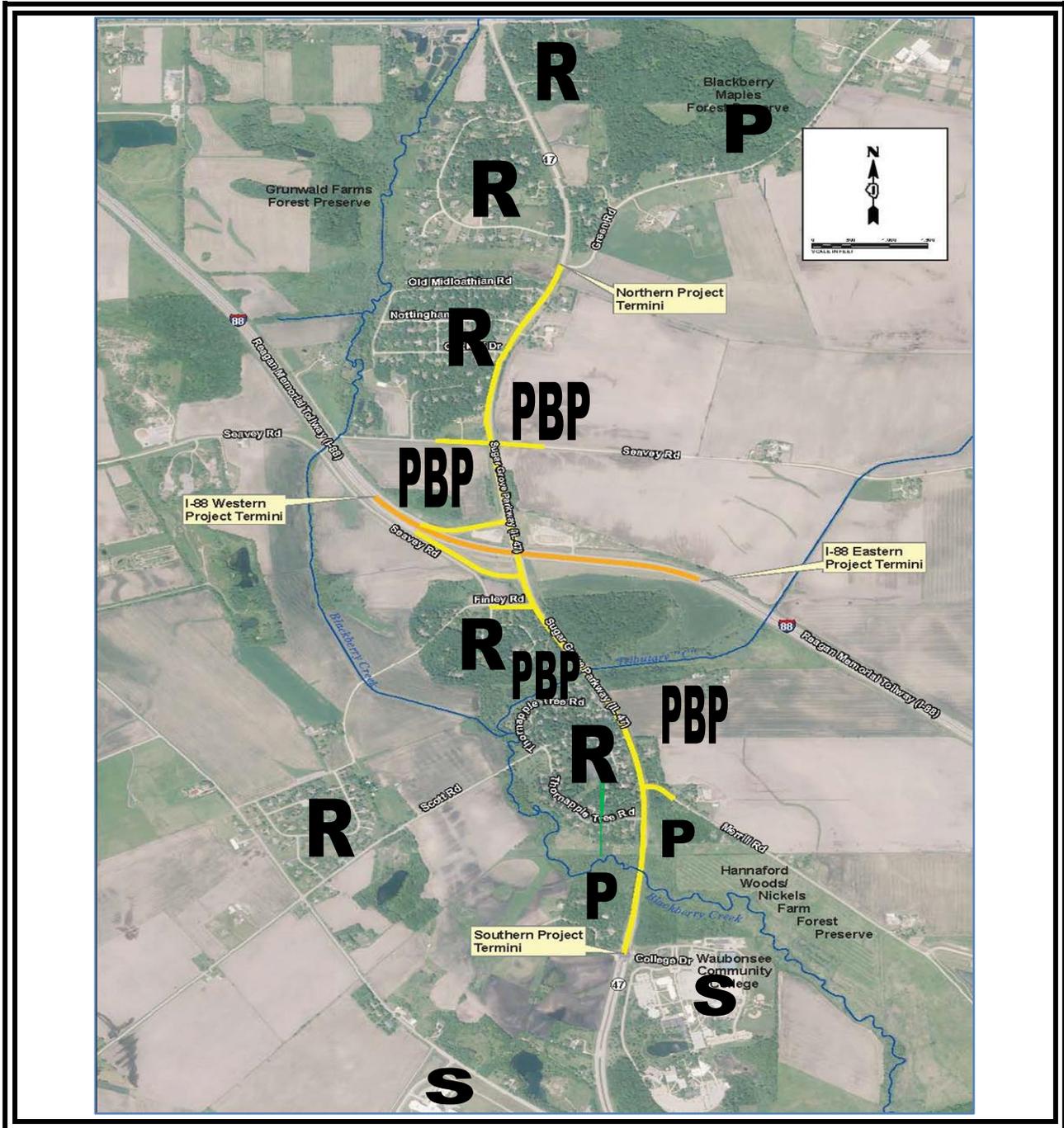
6) Is the highway or street designated as a bikeway in a regionally or locally adopted bike plan or is published in a regionally or locally adopted map as a recommended bike route?

Kane County's bicycle map (2009-2010) rates significant roadways for BLOS (Bicycle Level of Service). IL 47 is rated on their map as average. IL 47 is not designated as a sanctioned "bike route".

7) Will the projected two-way bicycle traffic volume (see Section 17-1.04) approximate 25 ADT or more during the peak three months of the bicycling season at a highway or street location where the current vehicular traffic volume will exceed 1000 ADT?. Estimate the bicycle ADT projection based on a five-year time frame from completion of the project.

Yes, it is anticipated that the constructed paths would meet the 25 ADT threshold for bicyclists and IL 47 ADT would exceed 1,000 ADT.

BICYCLE TRAVEL MAP CHECKLIST



LEGEND:

R	Residential Areas	BP	Existing Bicycle Trails	G.	Government Offices
P	Parks	PBP	Planned Bicycle Trails	B	Local Businesses
P	Recreation Areas	M	Shopping Centers	I	Industrial Plants
C	Churches	H	Hospitals	T	Public Transportation Facilities
S	Schools	E	Employment Centers	O	Other