

Categorical Exclusion
Appendix F
Water Resources

INFIP Find an address
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Adams
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Map
FEMA Flood Insurance Study
Floodplain Layers
Frequently Asked Questions

Profile Chart
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Help

Follow instructions under "How to navigate the map" to select a Point of Interest.

What does INFIP do?

The Indiana Floodplain Information Portal, INFIP, is a mapping application that provides floodplain information for waterways to help citizens determine flood risk in an effort to minimize flood damage. INFIP utilizes FEMA published floodplain data and floodplain data from various, IDNR approved resources in order to provide the most available, comprehensive coverage of floodplain information for the State of Indiana.

The main functions of INFIP enables you to:

- select a Point of Interest (i.e. residence or tract of land) to view floodplain mapping and the Base Flood Elevations (BFE)
- print a floodplain map for a Point of Interest
- submit a request for a Floodplain Analysis / Regulatory Assessment (FARA) from the Division of Water using the eFARA (electronic

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▶ Click to learn about Special Flood Hazard Areas (SFHA) and Base Flood Elevations (BFE)

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SR 66 INTERSECTION IMPROVEMENT AT EPWORTH ROAD VANDERBURGH & WARRICK COUNTY, IN

*December 29, 2021
Waters of the U.S. Report
Prepared by: Peter Putzier*

**Des. No.: 1400195
Contract No.: R-39921**

Approved 12.30.2021 by:
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Waters of the U.S. Report
SR 66 Intersection Improvement at Epworth Road
Des. No. 1400195

Date(s) of Field Reconnaissance

August 10 and 11, 2021

Location

The project is located along State Road (SR) 66 in Vanderburgh and Warrick County, Indiana approximately 6.5 miles east of downtown Evansville (Page A1).

- Knight Township, Vanderburgh County and Ohio Township, Warrick County, Indiana
- Sections 19, 20, 29 and 30, Township 6 South, Range 9 West
- Newburgh 1:24,000 United States Geological Survey (USGS) Quadrangle (Pages A2 & A3)
- Latitude / Longitude: 37.976823° N / -87.444323° W

Project Description

The proposed project is located along SR 66 between the I-69 and SR 66 interchange and Grimm Road. The proposed project will eliminate left turning movements from the mainline (SR 66) to increase the capacity of the intersection. Designs under consideration include using displaced left turns in both directions or a hybrid displaced left turn (westbound) and boulevard left (eastbound). Approximately 0.02 acre of tree clearing is anticipated.

The Waters of the U.S. (WOTUS) investigation survey area limits were defined as approximately 1.03 miles in length along SR 66 including the east half of the I-69 / SR 66 cloverleaf interchange and extending nearly to the west side of Grimm Rd. The survey area limits extend 993 feet north and 886 feet south of SR 66 on Epworth Road and 133 feet north and south of the SR 66 centerline along SR 66. The landscape surrounding the survey area is predominantly commercial properties, residential apartments, and agricultural fields.

Soils

According to the Soil Survey Geographic (SSURGO) Database dated June 2020 for Warrick and Vanderburgh Counties, Indiana, the survey area contains nationally listed hydric soils (Page A4). The Evansville silt loam is listed as 100% hydric.

Soil Name	Map Abbreviation	Hydric Range
Alford silt loam, 2 to 5 percent slopes, eroded	AfB2	Nonhydric (0%)
Alford silt loam, 5 to 10 percent slopes, severely eroded	AfC3	Nonhydric (0%)
Evansville silt loam	Ev	Hydric (100%)
Henshaw silt loam	He	Hydric (1 to 32%)
Henshaw silt loam, 0 to 2 percent slopes, rarely flooded	HeA	Predominantly Nonhydric (1 to 32%)



Muren silt loam, 2 to 6 percent slopes, eroded	MuB2	Nonhydic (0%)
Patton silty clay loam, 0 to 2 percent slopes	Pa	Predominantly Hydic (66 to 99%)
Uniontown silt loam, 2 to 6 percent slopes, eroded	UnB2	Nonhydic (0%)
Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	Wa	Predominantly Nonhydic (1 to 32%)

National Wetlands Inventory (NWI) Information

There are three linear, riverine, water features (R2UBHx, R4SBC, and R5UBFx) identified within the survey area (Page A5). The nearest U.S. Fish and Wildlife Service (USFWS) mapped NWI feature beyond the survey area limits is an unconsolidated bottom pond (PUBGx) located 46 feet west of the survey area south of SR 66 on Epworth Road.

Wetland Type	Description	Location
R2UBHx	Riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated	Within survey area near cloverleaf. Not associated with any water features identified within survey area (Photo 34, 35, 118, 120).
R4SBC	Riverine, intermittent streambed, seasonally flooded	Within survey area along Epworth Road. Associated with UNT 1 to Howard Ditch (Photos 67, 68, 71).
R5UBFx	Riverine, unknown perennial, unconsolidated bottom, semi permanently flooded, excavated	Mapped within survey area near cloverleaf. Associated with Relocated Howard Ditch (Photo 10, 49, 119).
PUBGx	Palustrine, unconsolidated bottom, intermittently exposed, excavated	Open Water Area located 46 feet west of survey area on Epworth Road (Photo 88).

12-Digit HUC (Hydrologic Unit Code)

The SR 66 Intersection Improvement at Epworth Road is within the 051402020204 12-Digit HUC (Barnes Ditch-Pigeon Creek) (Page A2). The watershed for UNT 1 to Howard Ditch was determined to be 0.10 square mile using USGS *StreamStats* (<https://water.usgs.gov/osw/streamstats>). The watershed area for UNT 2 to Howard Ditch is within the watershed for UNT 1 to Howard Ditch. (Page A6).

FEMA Floodway/Floodplain

The Federal Emergency Management (FEMA) Flood Map Service Center (<https://msc.fema.gov/portal/home>) and the Indiana Floodplain Information Portal (<https://dnrm.dnr.in.gov/appsphp/fdms/>) Best Available Flood Zone data indicates portions of the survey area are mapped within IDNR Zone A/AE and IDNR Additional Floodplain Area (Page A7).

Attached Documents

- ~~Location Map~~
- ~~USGS Topographic Map (1:24,000)~~
- ~~USGS Topographic Map (1:12,000)~~
- USDA SSURGO Soils Map

Note: A portion of the attachments have been removed to avoid duplication and reduce file size.



- USFWS NWI Project Map
- StreamStats Watershed Map
- Best Available Flood Hazard Map
- Water Resources Maps
- ~~Photo Location Maps and Project Survey Photos~~
- ~~U.S. Army Corps of Engineers (USACE) Wetland Determination Data Forms~~
- USACE Pre-Jurisdictional Determination Form
- ~~State Regulated Wetland Class Determination Worksheets~~ **Note: These worksheets were removed during the review process and were not included in the final approved Waters of the U.S. Report.**

Field Reconnaissance

This field survey was conducted within the growing season. Wetland boundaries were determined using aerial photography and field mapping. For those linear features that displayed bed and bank, the ordinary high-water mark (OHWM) width and depth were measured at the maximum dimension observed beyond the influence of bridge and culvert structures. OHWM measurements were also documented for any stream features observed in the field that were not included as blue-line or NHD features.

Stream Feature(s)

The USGS Newburgh 1:24,000 topographic quadrangle includes two blue-line stream features within the survey area for the SR 66 Intersection Improvement at Epworth Road (Pages A2 and A3). Howard Ditch has been relocated from its original position, as it appears on the USGS map, into a new channel and two 12.5-foot diameter culverts located approximately 375 feet east as identified on Water Resource Map 1 (Page A8; Photo 10 and 49 on Pages A20 and A27). Photographs 32, 34, 35, 118, and 120 (Pages A24, A38) indicate surface conditions at the USGS mapped location of Howard Ditch showing that no surface features are present. The perennial blue-line stream feature, Howard Ditch, flows south to north through the survey area. The intermittent blue-line stream feature, associated with UNT 1 to Howard Ditch, starts at the northeast corner of the intersection of SR 66 and Epworth Road and flows north along the east side of Epworth Road until it exits the survey area.

The NHD GIS dataset includes twenty-six flow line features within the survey area (Page A7). Several NHD flow line features overlap with more than one mapped water resource. Eleven of the NHD features meet the USACE wetland criteria and are designated as Wetland B, Wetland C, Wetland D, Wetland G, Wetland J, Wetland I, and Wetland L. Six of the NHD features exhibit bed and bank with OHWM and are associated with UNT 2 to Howard Ditch and UNT 1 to Howard Ditch, and Howard Ditch. Three NHD features are associated with RSD2 and RSD3. Four NHD features are associated with either underground connectors (existing culverts) or under existing pavement and were determined not to be water features (Photos 31, 70, 74, 87; Pages A24, A30, A31, A33). Two NHD features are associated with underground connectors (culverts) associated with Howard Creek (Photos 10 and 49, Pages A20 and A27).

Howard Ditch

Howard Ditch is a perennial stream feature that begins south of the survey area and flows north through the survey area. Within the survey area, Howard Ditch is entirely contained within two 12.5-foot diameter culverts. Howard ditch contains water throughout the year and is groundwater fed; therefore,



it is a perennial stream. Approximately 512 linear feet of Howard Ditch is within the survey area; 485 feet of which is within a culvert. The drainage area for Howard Ditch is 1.37 square miles according to USGS *StreamStats*. (<https://water.usgs.gov/osw/streamstats/>) (Page A6). According to the Indiana Floodplain Information Portal (<http://dnrmapping.dnr.in.gov/appsphp/fdms/>), there is an “Additional IDNR Floodplain Area; .2 Percent Flood Hazard”, associated with the northern end of Howard Ditch in the survey area (Page A7).

Howard Ditch has a medium width streambed with no defined riffles or pools and a silt substrate. The stream is channelized, does not display sinuosity, and has a flat gradient. The OHWM was measured at 24 feet wide and 3.3 feet deep. Photos 10 and 49 (Pages A20 and A27) indicate stream conditions for Howard Ditch. Howard Ditch is considered to exhibit poor quality based on substrate composition and channelization.

Howard Ditch is considered to be a relatively permanent waterway (RPW) with a connection to the Ohio River, a traditionally navigable waterway (TNW), via Pigeon Creek and Brandies Ditch. Howard Ditch meets the definition of a Waters of the U.S. under Section 404 of the Clean Water Act due to its designation as a perennial channel and connection to a traditionally navigable water, the Ohio River. This stream is not subject to USACE jurisdiction under Section 10 of the Rivers and Harbors Act.

UNT 1 to Howard Ditch

UNT 1 to Howard Ditch is an intermittent stream feature that begins in the survey area north of SR 66 and flows east towards Epworth Road and then turns and flows north along the east side of Epworth Road beyond the survey area (Page A9). UNT 1 to Howard Ditch is fed, through UNT 2 to Howard Ditch, by overflow from the open water feature south of the survey area and flows for significant periods after rainfall; therefore, it is an intermittent stream. Approximately 1,342 linear feet of UNT 1 to Howard Ditch is within the survey area, 87 linear feet of which is contained within a culvert. The drainage area for UNT 1 to Howard Ditch is 0.10 square miles according to USGS *StreamStats* (<https://water.usgs.gov/osw/streamstats/>) (Page A6). According to the Indiana Floodplain Information Portal (<http://dnrmapping.dnr.in.gov/appsphp/fdms/>), there is an “Additional IDNR Floodplain Area; .2 Percent Flood Hazard”, associated with the northern with Howard Ditch in the survey area (Page A7).

UNT 1 to Howard Ditch has a narrow width streambed with no defined riffles or pools and a silt substrate. The stream is channelized, does not display sinuosity, and has a flat gradient. Riparian vegetation is comprised primarily of floating willow primrose (*Ludwigia peploides*, OBL), tall false rye grass (*Schedonorus arundinaceus*, FACU), common rush (*Juncus effusus*, OBL), and narrow leaf cattail (*Typha angustifolia*, OBL). The OHWM was measured at 2.6 feet wide and 0.2 feet deep. Photos 67 through 73 (Pages A30 and A31) indicate stream and bank conditions for UNT 1 to Howard Ditch. UNT 1 to Howard Ditch is considered to exhibit poor quality based on substrate composition, bankfull width, and channelization.

UNT 1 to Howard Ditch is considered to be a RPW with a connection to the Ohio River, a TNW, via Pigeon Creek, Brandies Ditch, Lockwood Ditch, and Howard Ditch. UNT 1 to Howard Ditch meets the definition of a Waters of the U.S. under Section 404 of the Clean Water Act due to its designation as an



intermittent channel and connection to a traditionally navigable water, the Ohio River. This stream is not subject to USACE jurisdiction under Section 10 of the Rivers and Harbors Act.

UNT 2 to Howard Ditch

UNT 2 to Howard Ditch is an intermittent stream feature that begins south of SR 66 and west of Epworth Road at an open water pond outside the survey area and flows north through two culverts under SR 66 and Epworth Road into UNT 1 to Howard Ditch. UNT 2 to Howard Ditch is fed by overflow from the open water feature south of the survey area and flows for significant periods after rainfall; therefore, it is an intermittent stream. Approximately 728 linear feet of the stream is within the survey area, 223 feet of UNT 2 to Howard Ditch is contained within the two culverts. The drainage area for UNT 2 to Howard Ditch is included within the drainage area for UNT 1 to Howard Ditch according to USGS *StreamStats* (<https://water.usgs.gov/osw/streamstats/>) (Page A6). According to the Indiana Floodplain Information Portal (<http://dnrmmaps.dnr.in.gov/appsphp/fdms/>), there are no mapped floodways or floodplains associated with UNT 2 to Howard Ditch (Page A7).

UNT 2 to Howard Ditch has a narrow width streambed that is predominantly run habitat. The substrate is dominated by silt (80%) and sand (20%). The stream is channelized with a flat gradient and does not display sinuosity. Riparian vegetation is comprised primarily of white clover (*Trifolium repens*, FACU), bermuda grass (*Cynodon dactylon*, FACU), johnson grass (*Sorghum halepense*, FACU), and crab grass (*Digitaria sanguinalis*, FACU). Riprap was observed within the stream and on the banks at the culvert inlet under Epworth Road. The OHWM was measured at 2.58 feet wide and 0.21 feet deep. Photos 58 through 62, and 93 (Page A28, A29, A34) indicate stream and bank conditions for UNT 2 to Howard Ditch. UNT 2 to Howard Ditch is considered to exhibit poor quality based on channelization, substrate composition, and bankfull width.

UNT 2 to Howard Ditch is considered to be a RPW with a connection to the Ohio River, a TNW, via Pigeon Creek, Brandies Ditch, Lockwood Ditch, and Howard Ditch, and UNT 1 to Howard Ditch. UNT 2 to Howard Ditch meets the definition of a Waters of the U.S. under Section 404 of the Clean Water Act due to its designation as an intermittent channel and connection to the Ohio River. This stream is not subject to USACE jurisdiction under Section 10 of the Rivers and Harbors Act.

UNT 3 to Howard Ditch

UNT 3 to Howard Ditch is an ephemeral stream feature that begins north of the SR 66 west to I-69 north ramp and flows east beyond the survey area into Howard Ditch. UNT 3 to Howard Ditch receives runoff from the roadway and after rainfall; therefore, it is ephemeral. Approximately 68 linear feet of the stream is within the survey area. The drainage area for UNT 3 to Howard Ditch is within the drainage area of Howard Ditch according to USGS *StreamStats* (<http://water.usgs.gov/osw/streamstats/>) (Page A6). According to the Indiana Floodplain Information Portal (<http://dnrmmaps.dnr.in.gov/appsphp/fdms/>), there are no mapped floodways or floodplains associated with UNT 3 to Howard Ditch (Page A7).

UNT 3 to Howard Ditch has a narrow width streambed that is predominantly run habitat with silt substrate. The stream displays low sinuosity, and has a flat to moderate gradient. Riparian vegetation is comprised of eastern poison ivy (*Toxicodendron radicans*, FAC), broadleaf cattail (*Typha latifolia*, OBL), Johnson grass (*Sorghum halepense*, FACU), green bristlegrass (*Setaria viridis*, UPL), and narrowleaf



plantain (*Plantago lanceolata*, FACU). The OHWM was measured at 3.08 feet wide and 0.17 feet deep. Photos 7 and 8 (Page A20) indicate stream and bank conditions for UNT 3 to Howard Ditch. UNT 3 to Howard Ditch is considered to exhibit poor quality based on ephemeral stream flow, substrate composition, and bankfull width.

UNT 3 to Howard Ditch is considered to be a non-relatively permanent waterway (non-RPW) with a connection to the Ohio River, a TNW, via Pigeon Creek, Brandies Ditch, Lockwood Ditch, and Howard Ditch. UNT 3 to Howard Ditch meets the definition of a Waters of the U.S. under Section 404 of the Clean Water Act due to its designation as an ephemeral channel and connection to the Ohio River. This stream is not subject to USACE jurisdiction under Section 10 of the Rivers and Harbors Act.

Stream Summary Table

Water Feature Name	Photo	Lat/Long	OHW Width (ft)	OHW Depth (ft)	USGS Blue-line? Type?	Riffles? Pools?	Substrate	Quality	Likely Waters of U.S.?
Howard Ditch	10, 49	37.976860 / -87.448804	24	3.3	Yes, Perennial	No	Silt	Poor	Yes
UNT 1 to Howard Ditch	67-73	37.978467 / -87.441131	2.6	0.2	Yes, Intermittent	No	Silt	Poor	Yes
UNT 2 to Howard Ditch	58-62, 94	37.977303 / -87.441440	2.58	0.21	No, Intermittent	No	Silt, Sand	Poor	Yes
UNT 3 to Howard Ditch	7, 8	37.977512 / -87.448992	3.08	0.17	No, Ephemeral	No	Silt	Poor	Yes

Wetlands

The field investigation identified twelve (12) wetland features (Wetland A through L) within the SR 66 intersection improvement at Epworth Road survey area (Page A8-A10). Non-wetland data points (Neg1 and Neg2) were sampled within the two Evansville silt loam (100% Hydric) polygons on the SSURGO database to field verify the presence of hydric soils within the survey area.

Wetland A

Wetland A is a 0.14-acre emergent wetland within a roadside ditch located 70 feet northeast of the SR 66 W to I-69 N ramp. Wetland A does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland A is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of a Waters of the US. However, INDOT is requesting that the USACE take jurisdiction of the wetland. As defined by *Cowardin et al.* (1979), this wetland would be classified as a palustrine, emergent, persistent (PEM1) wetland. Based on a qualitative assessment of Wetland A, this wetland is of poor quality as indicated by its size and quality



of vegetation. Photographs 3, 4, and 5 (Page A19) shows the conditions of Wetland A at the time of field review. Two soil data points defining Wetland A (AW1 and AU1) are discussed below.

Data Point (AW1) represents wetland conditions within Wetland A (Page A39-A41). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of valley redstem (*Ammannia coccinea*, OBL). The non-dominant species within the herbaceous stratum consist of rough barnyardgrass (*Echinochloa muricata*, OBL) and shallow sedge (*Carex lurida*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Primary indicators of hydrology are surface water (A1), high water table (A2), and saturation (A3); therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 4/2 (90%) silty clay with 7.5YR 6/8 (10%) redox features from 0 to 8 inches and 10YR 4/1 (95%) silty clay with 7.5YR 4/6 (5%) redox features from 8 to 16 inches. The soil profile at this location meets the depleted matrix (F3) indicator; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The Data Point (AU1) represents upland conditions adjacent to Wetland A (Page A42-A44). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of narrowleaf plantain (*Plantago lanceolata*, FACU), tall rye grass (*Schedonorus arundinaceus*, FACU), and Queen Anne's lace (*Daucus carota*, UPL). The non-dominant species within the herbaceous stratum is silver beard grass (*Borhriochloa laguroides*, UPL). Hydrophytic vegetation is not present since none of the dominant species are FAC or wetter. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 3/2 (100%) silty clay from 0 to 9 inches and 10YR 5/6 (100%) silt from 9 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland B

Wetland B is a 0.04-acre wetland within the I-69 N to SR 66 W cloverleaf located 133 feet north of the SR 66 centerline. Wetland B does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland B is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of a Waters of the US. However, INDOT is requesting that the USACE take jurisdiction of the wetland. As defined by *Cowardin et al.* (1979), this wetland would be classified as a PEM1 wetland. Based on a qualitative assessment of Wetland B, this wetland is of poor quality based on its size and quality of vegetation. Photographs 19 and 20 (Page A22) shows the conditions of Wetland B at the time of field review. Two soil data points defining Wetland B (BW1 and BU1) are discussed below.

The Data Point (BW1) represents wetland conditions within Wetland B (Page A45-A47). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the



herbaceous stratum is rough barnyardgrass (*Echinochloa muricata*, OBL). The non-dominant species within the herbaceous stratum consist of softstem bullrush (*Schoenoplectus tabernaemontani*, OBL) and narrowleaf cattail (*Typha angustifolia*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Primary indicators of hydrology are surface water (A1), high water table (A2), and saturation (A3). Therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 4/1 (90%) with 10YR 5/8 (10%) redox features from 0 to 17 inches. The soil profile at this location meets the depleted matrix (F3) indicator; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

Data Point (BU1) represents upland conditions adjacent to Wetland B (Page A48-A50). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of narrow leaf plantain (*Plantago lanceolata*, FACU) and dallisgrass (*Paspalum dilatatum*, FAC). Hydrophytic vegetation is not present since more than 50% of species are not FAC or wetter and the prevalence index is greater than three. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 3/1 (80%) clayey silt with 10YR 6/8 (20%) redox features from 0 to 16 inches. The soil profile at this location meets the depleted dark surface (F7) indicator; therefore, hydric soil is present. This data point meets the requirement for hydric soil and does not meet the requirements for hydrophytic vegetation and hydrology; therefore, this data point is not within a wetland.

Wetland C

Wetland C is a 0.02-acre wetland east of the I-69 N to SR 66 W cloverleaf and 144 feet north of the SR 66 centerline. Wetland C does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland C is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of a Waters of the U.S. However, INDOT is requesting that the USACE take jurisdiction of the wetland. As defined by *Cowardin et al.* (1979), this wetland would be classified as a PEM1 wetland. Wetland C has formed within an excavated drainage feature for transportation purposes. Based on a qualitative assessment of Wetland C, this wetland is of poor quality based on its size and quality of vegetation. Photographs 17 and 18 (Page A21) show the conditions of Wetland C at the time of field review. Two soil data points defining Wetland C (CW1 and CU1) are discussed below.

The data point (CW1) represents wetland conditions within Wetland C (Page A51-A53). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is rough barnyardgrass (*Echinochloa muricata*, OBL). The non-dominant species within the herbaceous stratum are shallow sedge (*Carex lurida*, OBL), and softstem bullrush (*Schoenoplectus tabernaemontani*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis



is required. Two secondary indicators of wetland hydrology, crayfish burrows (C8) and FAC-neutral test (D5) are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Henshaw silt loam (HeA, 1-32% predominantly nonhydryc). The soil profile consists of 10Y 3/1 (90%) silty clay with 5YR 3/6 (10%) redox features from 0 to 6 inches and 10YR 5/1 (60%) silty clay with 10YR 5/8 (40%) redox features from 6 to 16 inches. The hydric soil indicator, a loamy leied matrix (F2) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (CU1) represents upland conditions adjacent to Wetland C (Page A54-A56). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of narrow leaf plantain (*Plantago lanceolata*, FACU), tall false rye grass (*Schedonorus arundinaceus*, FACU), green bristlegrass (*Setaria viridis*, UPL), and bermudagrass (*Cynodon dactylon*, FACU). Hydrophytic vegetation is not present since 50% of species are not FAC and the prevalence index is greater than three. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that the data point is within the Henshaw silt loam (1-32% predominantly nonhydryc). The soil profile consists of 10YR 4/2 (100%) silty clay from 0 to 2 inches and 10YR 6/1 (55%) clayey silt with 10YR 5/8 (45%) redox features from 2 to 16 inches. The hydric soil indicator, depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirement for hydric soil but does not meet the requirements for hydrophytic vegetation and hydrology; therefore, this data point is not within a wetland.

Wetland D

Wetland D is a 0.06-acre wetland within the SR 66 E to I-69 N cloverleaf and 95 feet south of the SR 66 centerline. Wetland D does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland D is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of a Waters of the U.S. However, INDOT is requesting that the USACE take jurisdiction of Wetland D. As defined by *Cowardin et al.* (1979), this wetland would be classified as a PEM1 wetland. Based on a qualitative assessment of Wetland D, this wetland is of poor quality based on its size and quality of vegetation. Photographs 25 through 28 (Page A23) show the conditions of Wetland D at the time of field review. Two soil data points defining Wetland D (DW1 and DU1) are discussed below.

The data point (DW1) represents wetland conditions within Wetland D (Page A57-A59). There are no sapling/shrub or woody vine stratum within the plot area. The dominant species within the tree stratum is bur oak (*Quercus macrocarpa*, FAC). The dominant species within the herbaceous stratum are rough banyardgrass (*Echinochloa muricata*, OBL) and path rush (*Juncus tenuis*, FAC). The non-dominant species within the herbaceous stratum is softstem bullrush (*Schoenoplectus tabernaemontani*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. A primary indicator of hydrology, saturation (A3) is present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Patton silty clay loam (Pa, 66-99% predominantly hydric). The



soil profile consists of 10YR 3/2 (100%) silty clay from 0 to 4 inches, 10YR 4/1 (60%) silty clay with 10YR 5/8 (40%) redox features from 4 to 10 inches, and 10YR 5/1 (80%) clayey silt with 10YR 5/8 (20%) redox features from 10 to 17 inches. The hydric soil indicator depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (DU1) represents upland conditions adjacent to Wetland D (Page A60-A62). There are no tree, sapling / shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of narrow leaf plantain (*Plantago lanceolata*, FACU), and Bermuda grass (*Cynodon dactylon*, FACU). The non-dominant species consist of silver beard grass (*Bothriochloa laguroides*, UPL). Hydrophytic vegetation is not present since more than 50% of species are not FAC or wetter and the prevalence index is greater than three. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 3/2 (100%) silty clay from 0 to 5 inches and 10YR 4/3 (80%) clayey silt with 10YR 5/8 (20%) redox features from 5 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland E

Wetland E is a 0.003-acre wetland located 60 feet southeast of the I-69 N to SR 66 E ramp centerline. Wetland E does not directly abut or directly connect to any jurisdictional feature Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland C is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of a Waters of the U.S. However, INDOT is requesting that the USACE take jurisdiction of Wetland E. As defined by Cowardin *et al.* (1979), this wetland would be classified as a PEM1 wetland. Wetland E has formed within a scour hole at the outlet of a roadway culvert. Based on a qualitative assessment of Wetland E, this wetland is of poor quality based on its size and quality of vegetation. Photographs 41 and 43 (Page A25) show the conditions of Wetland E at the time of field review. Two soil data points defining Wetland E (EW1 and EU1) are discussed below.

The data point (EW1) represents wetland conditions within Wetland E (Page A63-A65). There are no sapling/shrub or woody vine stratum within the plot area. The dominant species within the tree stratum are black willow (*Salix nigra*, OBL), and callery pear (*Pyrus calleryana*, UPL). The dominant species within the herbaceous stratum are rough barnyardgrass (*Echinochloa muricata*, OBL), yellow nutsedge (*Cyperus esculentus*, FACW), and shallow sedge (*Carex lurida*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Primary indicators of hydrology, surface water table (A1), high water table (A2), and saturation (A3) are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Patton silty clay loam (Pa, 66-99% predominantly hydric). The soil profile consists of 10YR 5/1 (70%) silty clay with 10YR 6/8 (30%) redox features from 0 to 12 inches and 10YR 5/1 (85%) silty clay with 10YR 6/8 (15%) redox features from 12 to 16 inches. The hydric soil indicator depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the



requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (EU1) represents upland conditions adjacent to Wetland E (Page A66-A68). There are no sapling/shrub or woody vine stratum within the plot area. The dominant species within the tree stratum are black willow (*Salix nigra*, OBL), and callery pear (*Pyrus calleryana*, UPL). The dominant species within the herbaceous stratum consists of narrow leaf plantain (*Plantago lanceolata*, FACU), purpletop tridens (*Tridens flavus*, FACU), tall false rye grass (*Schedonorus arundinaceus*, FACU), and Japanese bristlegrass (*Setaria faberi*, FACU). Hydrophytic vegetation is not present since more than 50% of species are not FAC or wetter and the prevalence index is greater than 3. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 3/2 (100%) silty clay from 0 to 3 inches and 10YR 4/4 (80%) silty clay with 10YR 5/8 (20%) redox features from 3 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland F

Wetland F is a 0.20-acre wetland located west of Epworth Road and 80 feet north of the SR 66 centerline. Wetland F does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland C is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of a Waters of the U.S. However, INDOT is requesting that the USACE take jurisdiction of Wetland F. As defined by Cowardin *et al.* (1979), this wetland would be classified as a PEM1 wetland. Wetland F has formed within an excavated drainage feature for transportation purposes. Hydrology indicators, vegetation, and elevation were used to determine boundaries of Wetland F, in addition to wetland data points. Because this wetland is contained within the roadside ditch, the boundaries were clearly defined by abrupt change in elevation. Based on a qualitative assessment of Wetland F, this wetland is of poor quality based on its size and quality of vegetation. Photographs 54 through 56 (Page A27-A28) show the conditions of Wetland F at the time of field review. Two soil data points defining Wetland F (FW1 and FU1) are discussed below.

The data point (FW1) represents wetland conditions within Wetland F (Page A69-A71). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum are rough barnyardgrass (*Echinochloa muricata*, OBL) and shallow sedge (*Carex lurida*, OBL). The non-dominant species consist of yellow nutsedge (*Cyperus esculentus*, FACW). The plant community passes the dominance test for hydrophytic vegetation; therefore, hydrophytic vegetation is present and no further vegetation analysis is required. A primary indicator of hydrology, saturation (A3), is present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 5G 4/1 (95%) silty clay with 7.5YR 5/8 (5%) redox features from 0 to 9 inches and 10YR 5/1 (90%) silty clay with 10YR 6/8 (10%) redox features from 9 to 16 inches. The hydric soil indicator, loamy leied matrix (F2) is present; therefore, hydric soil is present. This data point meets the



requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (FU1) represents upland conditions adjacent to Wetland F (Page A72-A74). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of Bermuda grass (*Cynodon dactylon*, FACU), and purpletop tridens (*Tridens flavus*, FACU). Non-dominant species consists of narrow leaf plantain (*Plantago lanceolata*, FACU) and (*Paspalum dilatatum*, FAC). Hydrophytic vegetation is not present since no dominant species are FAC or wetter. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 4/3 (100%) silty clay from 0 to 6 inches and 10YR 5/6 (85%) clayey silt with 10YR 5/1 (15%) redox features from 6 to 14 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland G

Wetland G is a 0.37-acre wetland located west of Epworth Road and 89 feet south of the SR 66 centerline. Wetland G provides surface flow to UNT 2 to Howard Ditch which has connection to a TNW the Ohio River via UNT 1 to Howard Ditch, Howard Ditch, Lockwood Ditch, Brandies Ditch and Pigeon Creek and therefore is considered a jurisdictional water of the U.S subject to Section 404 regulation under the Clean Water Act. As defined by *Cowardin et al.* (1979), this wetland would be classified as a PEM1 wetland. Based on a qualitative assessment of Wetland G, this wetland is of poor quality based on its size and quality of vegetation. Photographs 51, 52, 53, 94, and 95 (Page A27 and A34) show the conditions of Wetland G at the time of field review. Four (4) soil data points defining Wetland G (GW1, GU1, GW2, GW2) are discussed below.

The data point (GW1) represents wetland conditions within the east portion of Wetland G (Page A75-A77). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is yellow nutsedge (*Cyperus esculentus*, FACW). The non-dominant species consist of rough barnyardgrass (*Echinochloa muricata*, OBL) and shallow sedge (*Carex lurida*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Three primary indicators of hydrology, high water table (A2), saturation (A3), and oxidized rhizospheres on living roots (C3), are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Patton silty clay loam which is considered a hydric soil (Pa, 66%-99% predominantly hydric). The soil profile consists of 10GY 3/1 (100%) silty clay from 0 to 9 inches and 5Y 4/2 (90%) silt with 5Y 5/6 (10%) redox features from 9 to 17 inches. The hydric soil indicator, loamy leied matrix (F2) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (GU1) represents upland conditions adjacent to the east side of Wetland G (Page A78-A80). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of bermuda grass (*Cynodon dactylon*, FACU), johnson



grass (*Sorghum halepense*, FACU), tall false rye grass (*Schedonorus arundinaceus*, FACU), and carpetgrass (*Arthraxon hispidus*, FACW). Non dominant species consist of field bindweed (*Convolvulus arvensis*, UPL). Hydrophytic vegetation is not present since less than 50% of dominant species are FAC or wetter. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Patton silty clay loam (Pa, 66%-99% predominantly hydric). The soil profile consists of 10YR 4/2 (95%) silt from 0 to 17 inches with 10YR 4/6 (5%) redox features. The hydric soil indicator, depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirement for hydric soil but does not meet the requirements for hydrophytic vegetation and hydrology; therefore, this data point is not within a wetland.

The data point (GW2) represents wetland conditions within west portion of Wetland G (Page A81-A83). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is rough barnyardgrass (*Echinochloa muricata*, OBL). The non-dominant species consist of yellow nutsedge (*Cyperus esculentus*, FACW) and shallow sedge (*Carex lurida*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Three secondary indicators of hydrology, surface soil cracks (B6), crayfish burrows (C8), and FAC-neutral test are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Uniontown silt loam (UnB2, 0% nonhydric). The soil profile consists of 10YR 4/1 (90%) clayey silt with 10YR 5/8 (10%) redox features from 0 to 4 inches, 10YR 6/3 (60%) clayey silt with 10YR 6/8 (40%) redox features from 4 to 12 inches, and 10YR 7/1 (80%) clayey silt with 10YR 6/8 (20%) redox features from 12 to 16 inches. The hydric soil indicator, depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (GU2) represents upland conditions adjacent to the west portion of Wetland G (Page A84-A86). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of narrow leaf plantain (*Plantago lanceolata*, FACU), and carpetgrass (*Arthraxon hispidus*, FACW). The non-dominant species consist of tall false rye grass (*Schedonorus arundinaceus*, FACU), and johnson grass (*Sorghum halepense*, FACU). Hydrophytic vegetation is not present since 50% of dominant species are FACU or drier and the prevalence index is greater than three. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Uniontown silt loam (UnB2, 0% nonhydric). The soil profile consists of 10YR 4/3 (100%) clayey silt from 0 to 6 inches and 10YR 6/1 (70%) silt with 10YR 5/8 (30%) redox features from 6 to 16 inches. The hydric soil indicator, depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirement for hydric soil but does not meet the requirements for hydrophytic vegetation and hydrology; therefore, this data point is not within a wetland.

Wetland H

Wetland H is a 0.04-acre wetland located along the west side of Epworth Road. Wetland H provides surface flow to UNT 2 to Howard Ditch which has connection to a TNW, the Ohio River, via UNT 1 to



Howard Ditch, Howard Ditch, Lockwood Ditch, Brandies Ditch and Pigeon Creek. Therefore, Wetland H is considered a jurisdictional water of the U.S subject to Section 404 regulation under the Clean Water Act. As defined by *Cowardin et al.* (1979), this wetland would be classified as a (PEM1) wetland. Based on a qualitative assessment of Wetland H, this wetland is of poor quality due to its size and quality of vegetation. Photographs 90-92 (Page A34) show the conditions of Wetland G at the time of field review. Two (2) soil data points defining Wetland H (HW1, HU1) are discussed below.

The data point (HW1) represents wetland conditions within Wetland H (Page A87-A89). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is broadleaf cattail (*Typha latifolia*, OBL). The non-dominant species consist of rice cutgrass (*Leersia oryzoides*, OBL) and shallow sedge (*Carex lurida*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Primary indicators of hydrology including high water table (A2), saturation (A3), and oxidized rhizospheres on living roots (C3) are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Alford silt loam (Afb2, 0% nonhydric). The soil profile consists of 10YR 4/1 (95%) silty clay with 10YR 4/6 (5%) redox features from 0 to 17 inches. The hydric soil indicator, depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (HU1) represents upland conditions adjacent to Wetland H (Page A90-A92). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of tall false rye grass (*Festuca arundinacea*, FACU), white clover (*Trifolium repens*, FACU), and Kentucky bluegrass (*Poa pratensis*, FAC). The prevalence index is greater than three (3); therefore, hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Alford silt loam (Afb2, 0% nonhydric). The soil profile consists of 10YR 4/2 (100%) silty clay from 0 to 5 inches and 10YR 4/2 (70%) silty clay with 10YR 6/8 (30%) redox features from 5 to 16 inches. The hydric soil indicator, depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirement for hydric soil but does not meet the requirements for hydrophytic vegetation and hydrology; therefore, this data point is not within a wetland.

Wetland I

Wetland I is a 0.03-acre wetland located along the east side of Epworth Road. Wetland I does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland I is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of the Waters of the U.S. However, INDOT is requesting that the USACE take jurisdiction of Wetland I. As defined by *Cowardin et al.* (1979), this wetland would be classified as a PEM1 wetland. Wetland I has formed within an excavated drainage feature for transportation purposes. Based on a qualitative assessment of Wetland I, this wetland is of poor quality due to its size and quality of vegetation. Photographs 75 and 78 through 80 (Page A31) show the conditions of Wetland I at the time of field review. Two soil data points defining Wetland I (IW1 and IU1) are discussed below.



The data point (IW1) represents wetland conditions inside Wetland I (Page A93-A95). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is rice cutgrass (*Leersia oryzoides*, OBL) and shallow sedge (*Carex lurida*, OBL). The non-dominant species consist of swamp milkweed (*Asclepias incarnata*, OBL) and broadleaf cattail (*Typha latifolia*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Primary indicators of hydrology including saturation (A3) and oxidized rhizospheres on living roots (C3) are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Alford silt loam (Afb2, 0% nonhydryc). The soil profile consists of 10YR 4/1 (90%) silt with 5YR 4/6 (10%) redox features from 0 to 5 inches, 10YR 6/1 (80%) silt with 10YR 5/8 (20%) redox features from 5 to 11 inches, and 10YR 6/1 (70%) silt with 10YR 5/6 (30%) redox features from 11 to 17 inches. The hydric soil indicator, depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (IU1) represents upland conditions adjacent to Wetland I (Page A96-A98). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum consists of tall false rye grass (*Festuca arundinacea*, FACU), Johnson grass (*sorghum halepense*, FACU) and small carpetgrass (*Arthaxon hispidus*, FACW). Non-dominant species include narrowleaf plantain (*Plantago lanceolata*, FACU). The prevalence index is greater than three (3); therefore, hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Alford silt loam (Afb2, 0% nonhydryc). The soil profile consists of 10YR 4/3 (100%) clayey silt from 0 to 4 inches and 10YR 4/6 (100%) silt from 4 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland J

Wetland J is a 0.18-acre wetland located south of and parallel to SR 66, east of Epworth Road. Wetland J provides surface flow to UNT 1 to Howard Ditch which has connection to a TNW, the Ohio River, Howard Ditch, Lockwood Ditch, Brandies Ditch and Pigeon Creek. Therefore, Wetland J is considered a jurisdictional water of the U.S. subject to Section 404 regulation under the Clean Water Act. As defined by Cowardin *et al.* (1979), this wetland would be classified as a PEM1 wetland. Wetland J has formed within a drainage feature excavated for transportation purposes. Based on a qualitative assessment of Wetland J, this wetland is of poor quality due to its size and quality of vegetation. Photographs 77 and 96 through 99 (Page A31, A34, and A35) show the conditions of Wetland J at the time of field review. Four (4) soil data points defining Wetland J (JW1, JU1, JW2, JU2) are discussed below.

The data point (JW1) represents wetland conditions inside the east portion of Wetland J (Page A99-A101). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is rough barnyardgrass (*Echinochloa muricata*, OBL), floating willow primrose (*Ludwigia peploides*, OBL), path rush (*Juncus tenuis*, FAC). The plant community passes



the dominance test for hydrophytic vegetation; therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Primary indicators of hydrology including surface water (A1), high water table (A2), saturation (A3), and oxidized rhizospheres on living roots (C3) are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Alford silt loam (AfB2, 0% nonhydric). The soil profile consists of 10YR 4/1 (90%) silty clay with 7.5YR 4/6 (10%) redox features from 0 to 10 inches and 10YR 4/1 (70%) silty clay with 10YR 6/8 (30%) redox features from 10 to 17 inches. The hydric soil indicator depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (JU1) represents upland conditions adjacent to the east portion of Wetland J (Page A102-A104). There are no tree or woody vine stratum within the plot area. The dominant species within the sapling/shrub stratum is red mulberry (*Morus rubra*, FACU). The non-dominant species within the sapling/shrub stratum is callery pear (*Pyrus calleryana*, UPL). The dominant species within the herbaceous stratum consist of tall false rye grass (*Festuca arundinacea*, FACU) and white clover (*Trifolium repens*, FACU). The non-dominant species within the herbaceous stratum consist of small carpetgrass (*Arthaxon hispidus*, FACW), Japanese honeysuckle (*Lonicera japonica*, FACU), and ground ivy (*Glechoma hederacea*, FACU). The prevalence index is greater than three (3); therefore, hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Alford silt loam (AfB2, 0% nonhydric). The soil profile consists of 10YR 2/2 (100%) silt from 0 to 3 inches and 10YR 4/1 (95%) silt with 10YR 4/6 (5%) redox features from 3 to 16 inches. The hydric soil indicator depleted matrix (F3), is present; therefore, hydric soil is present. This data point meets the requirements for hydric soils and does not meet the requirements for hydrology or hydrophytic vegetation; therefore, this data point is not within a wetland.

The data point (JW2) represents wetland conditions within the west portion of Wetland J (Page A105-A107). There are no tree, sapling / shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum are softstem bullrush (*Schoenoplectus tabernaemontani*, OBL) and floating willow primrose (*Ludwigia peploides*, OBL). The non-dominant species consist of rough barnyardgrass (*Echinochloa muricata*, OBL) and rice cutgrass (*Leersia oryzoides*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. Primary indicators of hydrology including surface water table (A1), high water table (A2), and saturation (A3) are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Patton silty clay loam (Pa, 66% to 99% predominantly hydric). The soil profile consists of Gley1 3/10Y (95%) silty clay with 10YR 6/8 (5%) redox features from 0 to 12 inches and 10YR 6/1 (60%) clayey silt with 10YR 6/8 (40%) redox features from 12 to 17 inches. The hydric soil indicators, loamy leied matrix (F2) and depleted matrix (F3) are present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (JU2) represents upland conditions for the west portion of Wetland J (Page A108-A110). There are no tree or woody vine stratum within the plot area. The dominant species within the sapling/shrub stratum is red mulberry (*Morus rubra*, FACU). The dominant species within the



herbaceous stratum consists of tall false rye grass (*Festuca arundinacea*, FACU), and white clover (*Trifolium repens*, FACU). Non-dominant species include Kentucky bluegrass (*Poa pratensis*, FAC), small carpetgrass (*Arthaxon hispidus*, FACW), Johnson grass (*sorghum halepense*, FACU), and Virginia creeper (*Parthenocissus quinquefolia*, FACU). None of the dominant species are FAC or wetter; therefore, hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that this data point is within the Patton silty clay loam (Pa, 66% to 99% predominantly hydric). The soil profile consists of 10YR 3/1 (80%) silty clay with 10YR 6/8 (20%) from 0 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland K

Wetland K is a 0.01-acre wetland located north of and parallel to SR 66 west of Grimm Road. Wetland K does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland K is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of Water of the U.S. However, INDOT is requesting that the USACE take jurisdiction of Wetland K. As defined by Cowardin *et al.* (1979), this wetland would be classified as a PEM1 wetland. Wetland K has formed within a drainage feature that was excavated for transportation purposes. Based on a qualitative assessment of Wetland K, this wetland is of poor quality due to its size and quality of vegetation. Photographs 110, 111, and 112 (Page A37) show the conditions of Wetland K at the time of field review. Two soil data points defining Wetland K (KW1 and KU1) are discussed below.

The data point (KW1) represents wetland conditions for Wetland K (Page A111-A113). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum are rough barnyardgrass (*Echinochloa muricata*, OBL) and shallow sedge (*Carex lurida*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. The primary indicator of hydrology includes an algal mat (B4) and secondary indicators of wetland hydrology includes crayfish burrows (C8) and FAC-neutral test are present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Wakeland silt loam (Wa, 1% to 32% predominantly nonhydric). The soil profile consists of 10YR 4/1 (80%) silty clay with 10YR 5/8 (15%) redox features from 0 to 7 inches and 10YR 3/1 (100%) silty clay from 7 to 17 inches. The hydric soil indicator depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

The data point (KU1) represents upland conditions for Wetland K (Page A114-A116). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is tall false rye grass (*Festuca arundinacea*, FACU) and Kentucky bluegrass (*Poa pratensis*, FAC). The non-dominant species within the herbaceous stratum is green bristlegrass (*Setaria viridis*, UPL). The prevalence index is greater than three (3); therefore, hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that the data point is within the Wakeland silt loam



(Wa, 1% to 32% predominantly nonhydryc). The soil profile consists of 10YR 3/1 (80%) silty clay with 10YR 5/8 (20%) redox features from 0 to 6 inches and 2.5Y 5/4 (100%) silt from 6 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland L

Wetland L is a 0.06-acre wetland located south of and parallel to SR 66 west of Grimm Road. Wetland L does not directly abut or directly connect to any jurisdictional Waters of the U.S. Therefore, in accordance with the Navigable Waters Protection Rule, Wetland L is not considered a jurisdictional feature subject to Section 404 regulation under the Clean Water Act. INDOT acknowledges that the wetland would likely not meet the definition of a Waters of the U.S. However, INDOT is requesting that the USACE take jurisdiction of Wetland L. As defined by *Cowardin et al.* (1979), this wetland would be classified as a PEM1 wetland. Wetland L has formed within a drainage feature that was excavated for transportation purposes. Based on a qualitative assessment of Wetland L, this wetland is of poor quality due to its size and quality of vegetation. Photographs 113 through 117 (A37-A38) show the conditions of Wetland L at the time of field review. Two soil data points defining Wetland L (Page LW1 and LU1) are discussed below.

The data point (LW1) represents wetland conditions for Wetland L (Page A117-A119). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is narrow leaf cattail (*Typha angustifolia*, OBL). The non-dominant species within the herbaceous stratum is shallow sedge (*Carex lurida*, OBL). The plant community passes the dominance test for hydrophytic vegetation, therefore, hydrophytic vegetation is present and no further vegetation analysis is required. A primary indicator of hydrology, saturation (A3) is present; therefore, wetland hydrology is present. The USDA NRCS Web Soil Survey indicates that the data point is within the Wakeland silt loam (Wa, 1% to 32% predominantly nonhydryc). The soil profile consists of 10YR 4/1 (80%) silty clay with 10YR 5/6 (20%) redox features from 0 to 14 inches and 10YR 5/1 (50%) clay with 10YR 5/6 (50%) redox features from 14 to 16 inches. The hydric soil indicator depleted matrix (F3) is present; therefore, hydric soil is present. This data point meets the requirements for wetland vegetation, wetland hydrology, and hydric soils; therefore, this data point is within a wetland.

Data point LU1

The data point (LU1) represents upland conditions for Wetland L (Page A120-A122). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is tall false rye grass (*Festuca arundinacea*, FACU) and Kentucky bluegrass (*Poa pratensis*, FAC). The non-dominant species within the herbaceous stratum is Johnson grass (*Sorghum halepense*, FACU). The prevalence index is greater than three (3); therefore, hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that the data point is within the Wakeland silt loam (Wa, 1% to 32% predominantly nonhydryc). The soil profile consists of 10YR 3/2 (100%) silty clay from 0 to 10 inches and 10YR 3/2 (65%) silty clay with 10YR 6/6 (35%) redox features from 10 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did



not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Neg1

Negative data point 1 (Neg1) was collected to investigate a potential wetland located north of SR 66 and west of Grimm Road. Neg1 represents upland conditions north of SR 66 and west of RSD 10 (Page A123-A125). There are no tree, sapling/shrub, or woody vine stratum within the plot area. The dominant species within the herbaceous stratum is dallisgrass (*Paspalum dilatatum*, FAC). The non-dominant species within the herbaceous stratum are purpletop tridens (*Tridens flavus*, FACU), and silver beard grass (*Borhriochloa laguroides*, UPL). The prevalence index is greater than three (3); therefore, hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that the data point is within the Alford silt loam which is not considered a hydric soil (AfB2, 1% to 32% predominantly nonhydric). The soil profile consists of 10YR 3/3 (70%) silty clay from 0 to 6 inches with 10YR 4/6 (30%) mottling and 10YR 4/6 silt from 6 to 16 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Neg2

Negative data point 2 (Neg2) was collected to investigate the Evansville silt loam (100% hydric), a nationally listed hydric soil on the SSURGO database, that is mapped in the vicinity of the SR 66 and I-69 interchange. Negative data point (Neg2) represents upland conditions in a mapped hydric soil on the north side of the SR 66 west to I-69 north ramp embankment (Page A126-A128). There are no tree or woody vine stratum within the plot area. The dominant species within the sapling/shrub stratum is callery pear (*Pyrus calleryana*, UPL). The non-dominant species within the sapling/shrub stratum are red mulberry (*Morus rubra*, FACU) and common hackberry (*Celtis occidentalis*, FACU). The dominant species within the herbaceous stratum are Johnson grass (*Sorghum halapense*, FACU), purpletop tridens (*Tridens flavus*, UPL), and narrowleaf plantain (*Plantago lanceolata*, FACU). Non-dominant species within the herbaceous stratum are purple crownvetch (*Securigera varia*, UPL) and Japanese honeysuckle (*Lonicera japonica*, FACU). None of the dominant species are FAC or wetter, therefore; hydrophytic vegetation is not present. No primary or secondary indicators of wetland hydrology were observed; therefore, wetland hydrology is not present. The USDA NRCS Web Soil Survey indicates that the data point is within the Evansville silt loam which is considered a hydric soil (Ev, 100% hydric). The soil profile consists of 7.5YR 4/2 (100%) silty clay from 0 to 9 inches and 10YR 4/2 (100%) silt 9 to 14 inches. No hydric soil indicators were observed, therefore; no hydric soil is present. This data point did not meet the requirements for hydrophytic vegetation, hydrology, or hydric soils; therefore, this data point is not within a wetland.

Wetland Name	Photo(s)	Lat/Long	Type	Total Area (acres)	Quality	Likely Waters of the U.S.?
Wetland A	3-5	37.978397/ -87.450592	PEM1	0.14	Poor	No



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Wetland B	19, 20	37.977261/ -87.450884	PEM1	0.04	Poor	No
Wetland C	17, 18	37.977238/ -87.449994	PEM1	0.02	Poor	No
Wetland D	25-28	37.976459/ -87.450270	PEM1	0.06	Poor	No
Wetland E	41, 43	37.975023/ -87.449691	PEM1	0.003	Poor	No
Wetland F	53-56	37.977041/ -87.444002	PEM1	0.20	Poor	No
Wetland G	51, 52, 94, 95	37.976538/ -87.442235	PEM1	0.37	Poor	Yes
Wetland H	90-92	37.976264/ -87.441466	PEM1	0.04	Poor	Yes
Wetland I	75, 78-80	37.975804/ -87.441055	PEM1	0.03	Poor	No
Wetland J	77, 96-99	37.976530/ -87.436697	PEM1	0.18	Poor	Yes
Wetland K	110- 112	37.977030/ -87.433172	PEM1	0.01	Poor	No
Wetland L	113-117	37.976529/ -87.432576	PEM1	0.06	Poor	No

Data Point	Vegetation	Soils	Hydrology	Wetland
AW1	Yes	Yes	Yes	Yes
AU1	No	No	No	No
BW1	Yes	Yes	Yes	Yes
BU1	No	Yes	No	No
CW1	Yes	Yes	Yes	Yes
CU1	No	Yes	No	No
DW1	Yes	Yes	Yes	Yes
DU1	No	No	No	No
EW1	Yes	Yes	Yes	Yes
Data Point	Vegetation	Soils	Hydrology	Wetland
EU1	No	No	No	No
FW1	Yes	Yes	Yes	Yes
FU1	No	No	No	No
GW1	Yes	Yes	Yes	Yes
GU1	No	Yes	No	No
GW2	Yes	Yes	Yes	Yes
GU2	No	Yes	No	No
HW1	Yes	Yes	Yes	Yes



HU1	No	Yes	No	No
IW1	Yes	Yes	Yes	Yes
IU1	No	No	No	No
JW1	Yes	Yes	Yes	Yes
JU1	No	Yes	No	No
JW2	Yes	Yes	Yes	Yes
JU2	No	No	No	No
KW1	Yes	Yes	Yes	Yes
KU1	No	No	No	No
LW1	Yes	Yes	Yes	Yes
LU1	No	No	No	No
Neg1	No	No	No	No
Neg2	No	No	No	No

Open Water

There are no open water areas for consideration as WOTUS or non-WOTUS features within the survey area.

Roadside Ditch

Eleven (11) roadside ditch (RSD) features within the survey area limits were evaluated and documented.

RSD 1

RSD 1 is a 245-foot long grass lined ditch along the north side of the SR 66 east to I-69 north ramp that receives drainage from the roadway which drains southeast toward Wetland A. Photos 1 and 2 (Page A19) indicate conditions along RSD 1. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 1 is not considered a jurisdictional feature.

RSD 2

RSD 2 is a 378-foot long grass lined ditch along the north side of the SR 66 east to I-69 north ramp that receives drainage from the roadway which drains northwest beyond the survey area into Howard Ditch. Photos 12 and 13 (Page A20 and A21) indicate conditions along RSD 2. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD2 is not considered a jurisdictional feature.

RSD 3

RSD 3 is a 152-foot-long grass lined ditch along the west side of Epworth Road and north of SR 66 that receives drainage from the roadway and adjacent commercial property. RSD 3 drains south before entering a culvert under Venetian Drive into UNT 1 to Howard Ditch. Photos 65 and 66 (Page A29) indicate conditions along RSD 3. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 3 is not considered a jurisdictional feature.



RSD 4

RSD 4 is a 171-foot long grass lined ditch along the east side of Epworth Road and south of SR 66 that receives drainage from the roadway and adjacent residential property. RSD 4 is split into two parts by a 48-foot-long culvert beneath a residential driveway and drains north before entering a culvert beneath SR 66 Frontage Road that leads to Wetland I. Photographs 84, 85 and 86 (Page A32 and A33) indicate conditions along RSD 4. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 4 is not considered a jurisdictional feature.

RSD 5

RSD 5 is a 142-foot-long grass lined ditch on the south side of SR 66 Frontage Road South that receives drainage from the roadway and adjacent residential property. RSD 5 drains west to a culvert that leads to Wetland I. Photographs 82 and 83 (Page A32) indicate conditions along RSD 5. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 5 is not considered a jurisdictional feature.

RSD 6

RSD 6 is a 129-foot-long grass lined ditch on the north side of SR 66 Frontage Road South that receives drainage from the roadway and grassy median. RSD 6 drains west into Wetland I. Photographs 80 and 81 (Page A32) indicate conditions along RSD 6. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 6 is not considered a jurisdictional feature.

RSD 7

RSD 7 is a 170-foot-long grass lined ditch located south of SR 66 and east of Epworth Road which receives drainage from the roadway. RSD 7 drains west into Wetland J. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 7 is not considered a jurisdictional feature.

RSD 8

RSD 8 is a 289-foot long grass lined ditch located south of SR 66 and east of Epworth Road that receives drainage from the roadway. RSD 8 drains to the east. Photographs 107 and 108 (Pages A36) indicate conditions along RSD 8. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 8 is not considered a jurisdictional feature.

RSD 9

RSD 9 is a 447-foot long grass and riprap lined ditch located north of SR 66 and east of Epworth Road that receives drainage from the roadway. RSD 9 drains to the east and is divided by a 92-foot-long culvert below an access drive. Photographs 101 through 106 (Pages A35 and A36) indicate conditions along RSD 9. The roadside ditch does not exhibit bed and bank with OHWM and is not a realigned segment of a natural stream. RSD 9 is not considered a jurisdictional feature.



Conclusions

The Waters of the U.S. investigation conducted for the SR 66 Intersection Improvement at Epworth Road concludes that there are twelve (12) wetland features and no WOTUS or non-WOTUS open water features identified within the survey area. Three (3) wetland features (wetland G, J, and I) have significant nexus to Waters of the U.S. and are considered a jurisdictional water of the U.S. subject to Section 404 regulation under the Clean Water Act. The nine (9) remaining wetlands would not be considered jurisdictional features subject to Section 404 regulation in accordance with the Navigable Waters Protection Rule. INDOT acknowledges that the wetland would likely not meet the definition of Water of the U.S. However, INDOT is requesting that the USACE take jurisdiction these nine (9) wetlands (wetlands A-F, H, K-L). The nine (9) roadside ditches in the survey area lacked bed, bank and OHWM and were identified as non-jurisdictional flow line features. One perennial stream feature (Howard Ditch) was identified within the survey area, two intermittent stream features (UNT 1 to Howard Ditch and UNT 2 to Howard Ditch) and one ephemeral stream feature (UNT 3 to Howard Ditch) were identified within the survey area. Howard Ditch, UNT 1 to Howard Ditch, UNT 2 to Howard Ditch, and UNT 3 to Howard Ditch are likely to be considered under USACE jurisdiction per Section 404 of the CWA. There are no water resources under USACE jurisdiction per Section 10 of the Rivers and Harbors Act within the survey area limits.


Every effort should be taken to avoid and minimize impact to the waterways. If impacts are necessary, then mitigation may be required. The INDOT Environmental Services Division should be contacted immediately if impacts will occur. The final determination of jurisdictional waters is ultimately made by the U.S. Army Corps of Engineers. This report is our best judgment based on the guidelines set forth by the Corps.

Drainage structures within the survey area were examined on August 10 and 11, 2021 for the presence of bat and bird species. No direct or indirect signs of bat species were documented within any structures during the field survey.

Acknowledgement

This waters determination has been prepared based on the best available information, interpreted in the light of the investigator's training, experience and professional judgement in conformance with the 1987 *Corps of Engineers Wetlands Delineation Manual*, the appropriate regional supplement, the USACE *Jurisdictional Determination Form Instructional Guidebook*, and other appropriate agency guidelines.

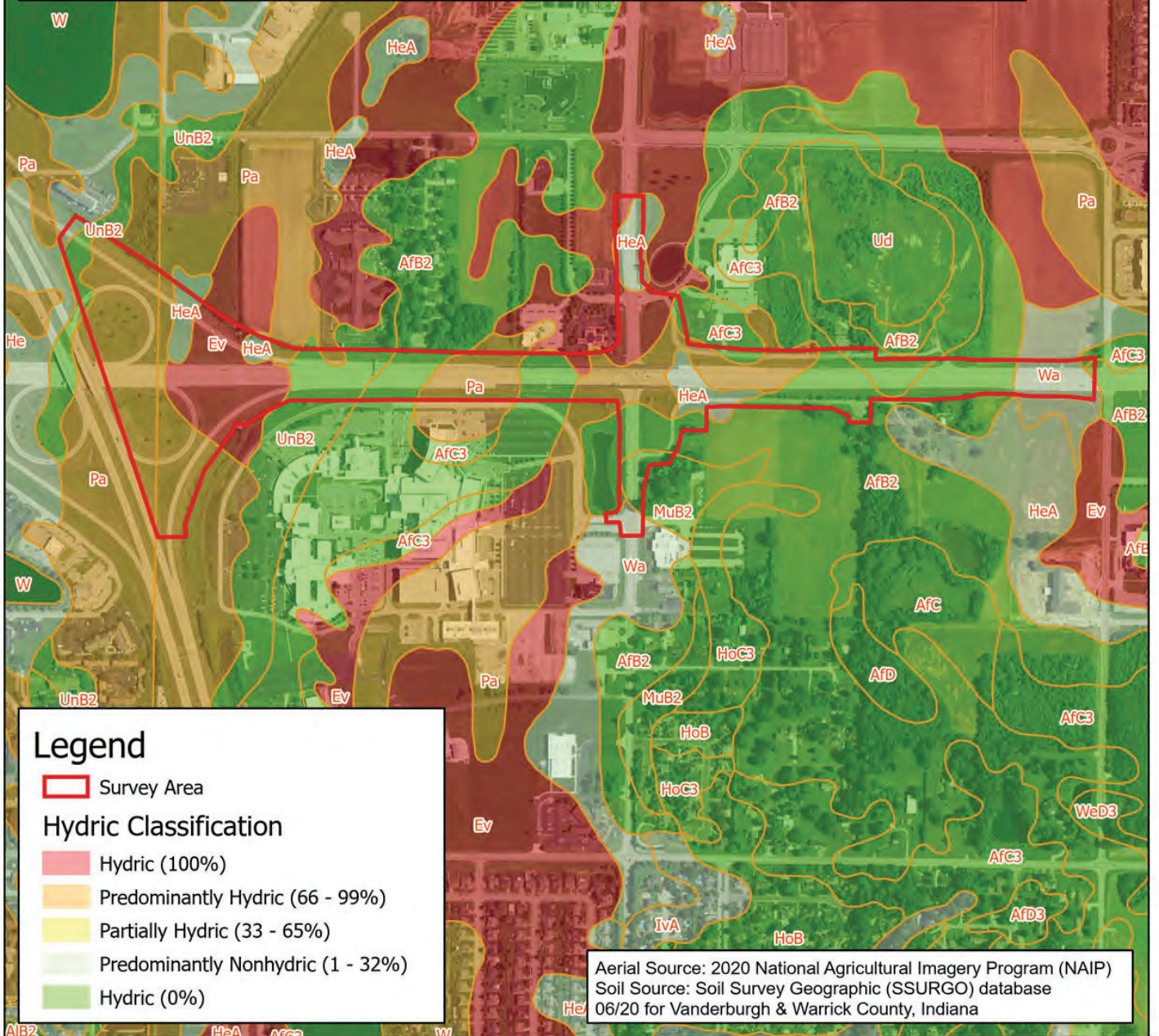
Peter Putzier



Environmental Geologist, LPG
Lochmueller Group, Inc.



AfB2	Alford silt loam, 2 to 5 percent slopes, eroded	0% Nonhydic
AfC3	Alford silt loam, 5 to 10 percent slopes, severely eroded	0% Nonhydic
Ev	Evansville silt loam	100% Hydic
He	Henshaw silt loam	1-32% Predominantly Nonhydic
HeA	Henshaw silt loam, 0 to 2 percent slopes, rarely flooded	1-32% Predominantly Nonhydic
MuB2	Muren silt loam, 2 to 6 percent slopes, eroded	0% Nonhydic
Pa	Patton silty clay loam, 0 to 2 percent slopes	66-99% Predominantly Hydic
UnB2	Uniontown silt loam, 2 to 6 percent slopes, eroded	0% Hydic
Wa	Wakeland silt loam, 0 to 2 percent slopes, eroded	1-32% Predominantly Nonhydic



Aerial Source: 2020 National Agricultural Imagery Program (NAIP)
 Soil Source: Soil Survey Geographic (SSURGO) database
 06/20 for Vanderburgh & Warrick County, Indiana

Legend

Survey Area

Hydic Classification


- Hydic (100%)
- Predominantly Hydic (66 - 99%)
- Partially Hydic (33 - 65%)
- Predominantly Nonhydic (1 - 32%)
- Hydic (0%)



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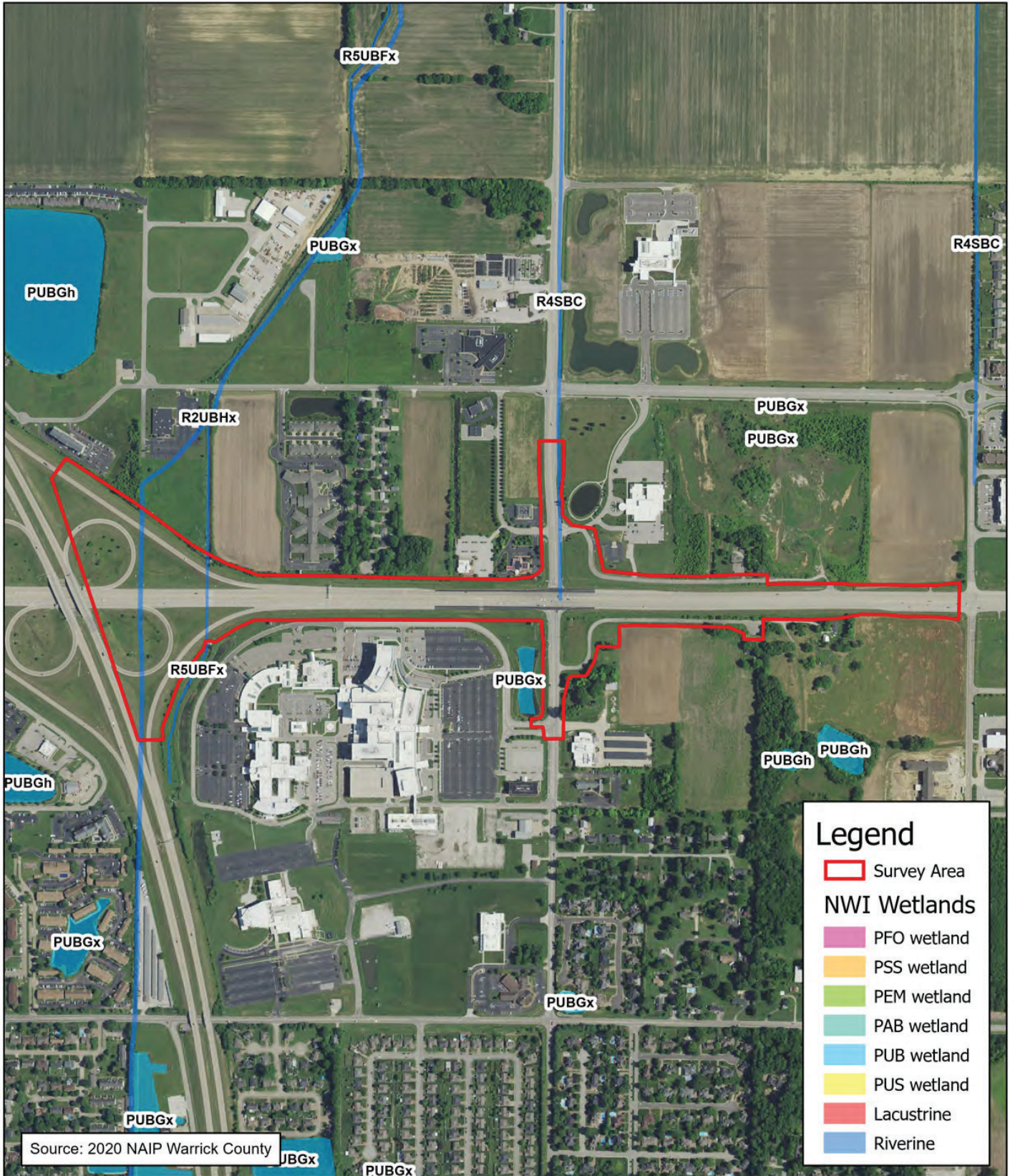
USDA SSURGO Soils Map
 Des. No. 1400195
 Waters of the U.S. Report

0 500 1,000
 Feet



County: Vanderburgh & Warrick
 Township: Knight & Ohio
 State: Indiana

SR 66 Intersection Improvement at Epworth Road
 Created: 12/29/2021, P. Putzier



Legend

- Survey Area
- NWI Wetlands**
- PFO wetland
- PSS wetland
- PEM wetland
- PAB wetland
- PUB wetland
- PUS wetland
- Lacustrine
- Riverine


Source: 2020 NAIP Warrick County



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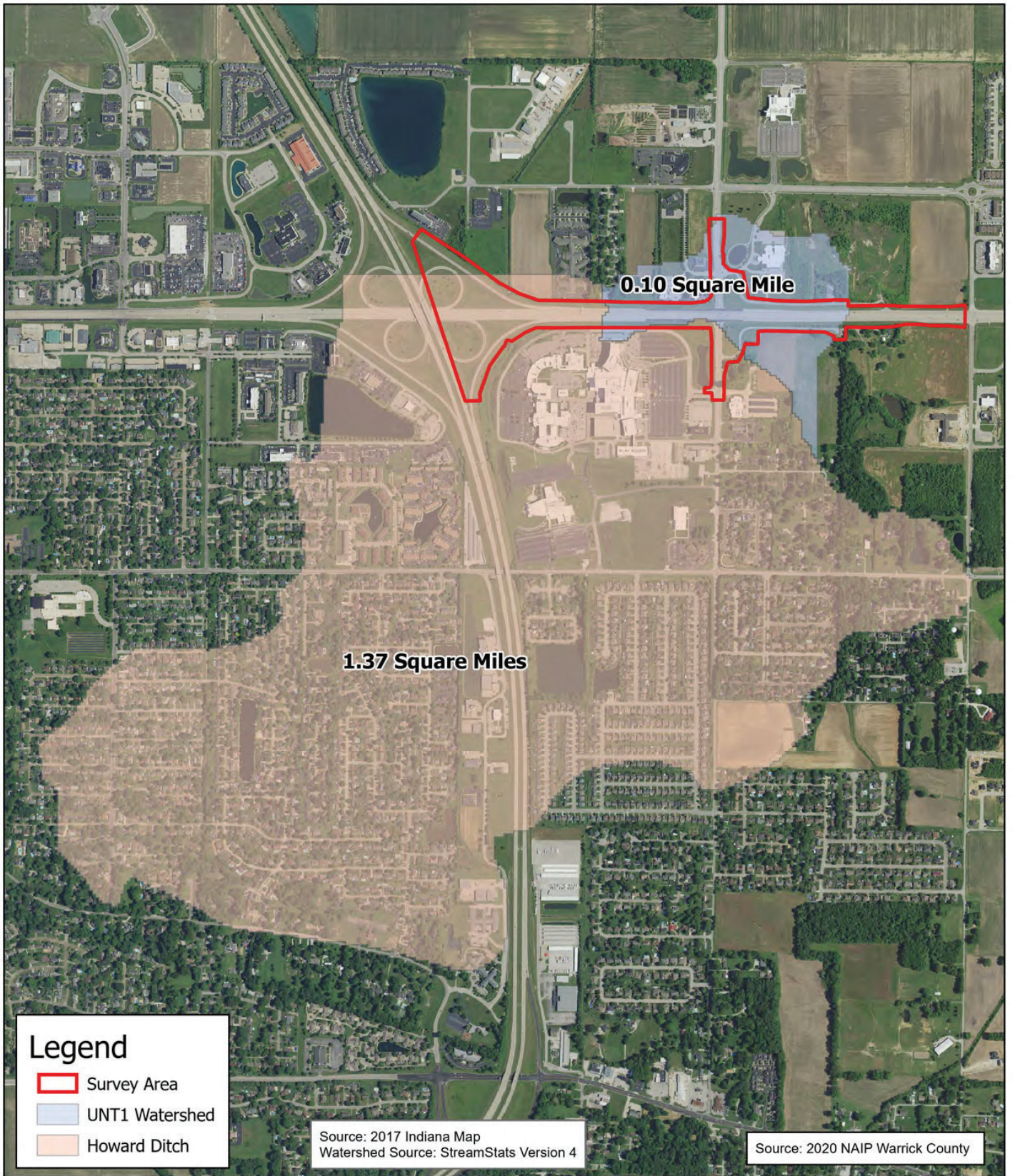
USFWS NWI Project Map
 Des. No. 1400195
 Waters of the U.S. Report



0 500 1,000
 Feet

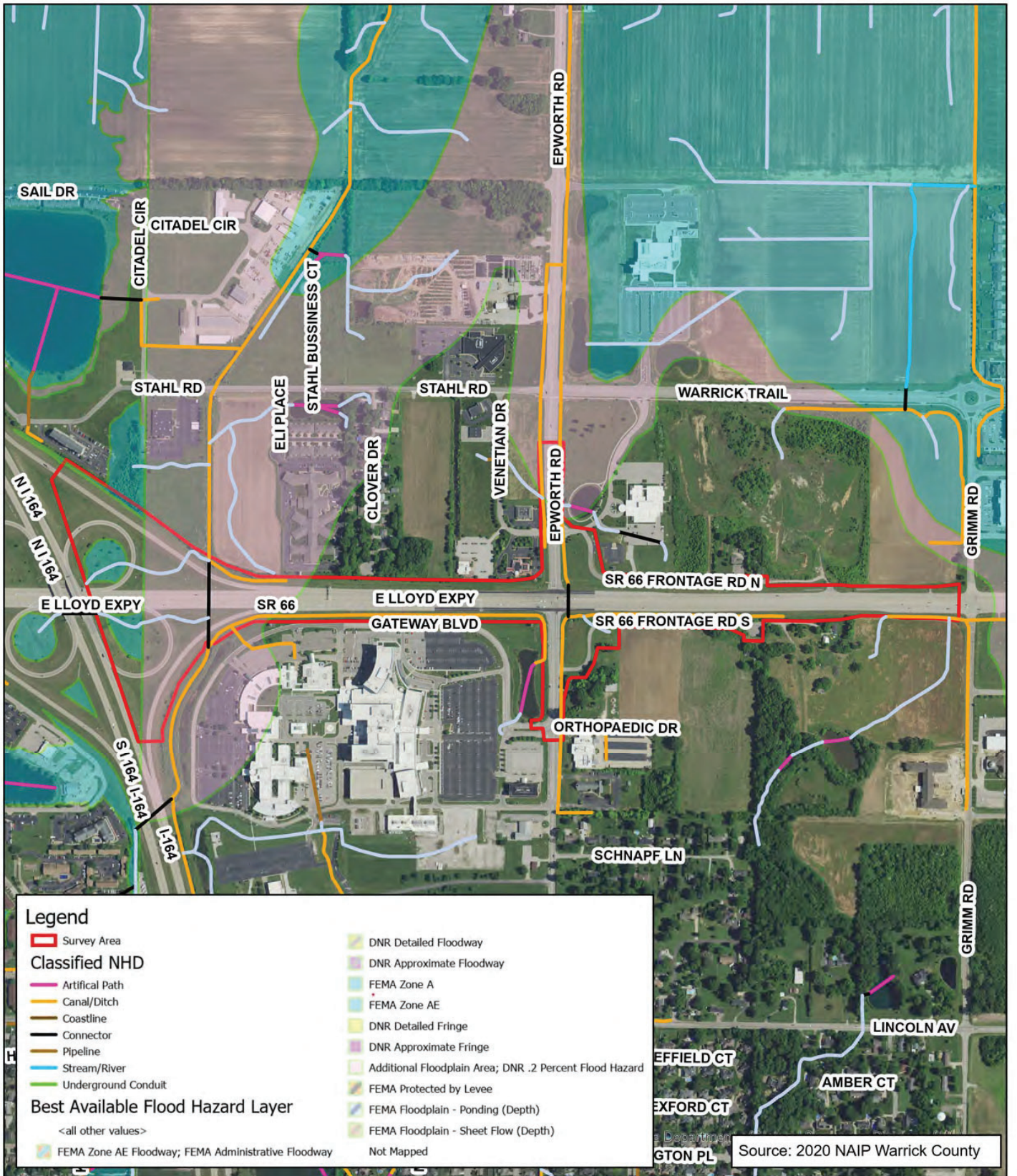


County: Vanderburgh & Warrick
 Township: Knight & Ohio
 State: Indiana

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 <p>6200 Vogel Road Evansville IN, 47715 Phone: (812) 479-6200 Toll Free: (800) 423-7411</p>	<p>StreamStats Watershed Map</p> <p>Des. No. 1400195</p> <p>Waters of the U.S. Report</p>		<p>County: Vanderburgh & Warrick</p> <p>Township: Knight & Ohio</p> <p>State: Indiana</p>
	<p>0 1,000 2,000</p> <p>Feet</p> 		<p>SR 66 Intersection Improvement at Epworth Road</p> <p>Created: 12/29/2021, P. Putzier</p>



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Best Available Flood Hazard Map

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0 500 1,000
 Feet



County: Vanderburgh & Warrick
 Township: Knight & Ohio
 State: Indiana

SR 66 Intersection Improvement at Epworth Road
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Legend

- ▭ Survey Area
- ▭ Wetland

Data Points

- OHWM
- Soil

Flow Lines

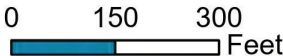
- ➔ RSD
- culvert
- ➔ stream

Source: 2020 NAIP Warrick County



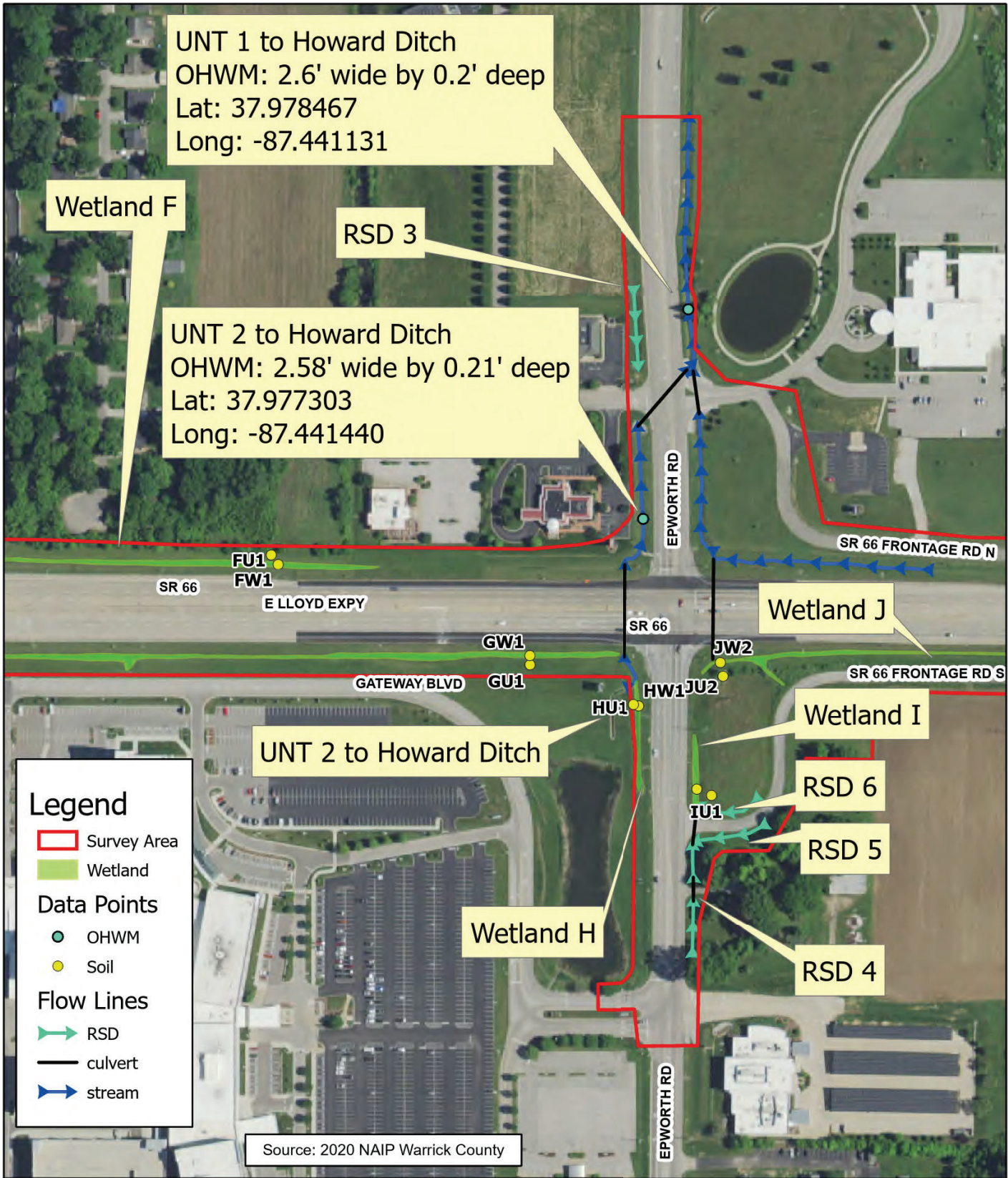
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Water Resources Map 1
Des. No. 1400195
Waters of the U.S. Report

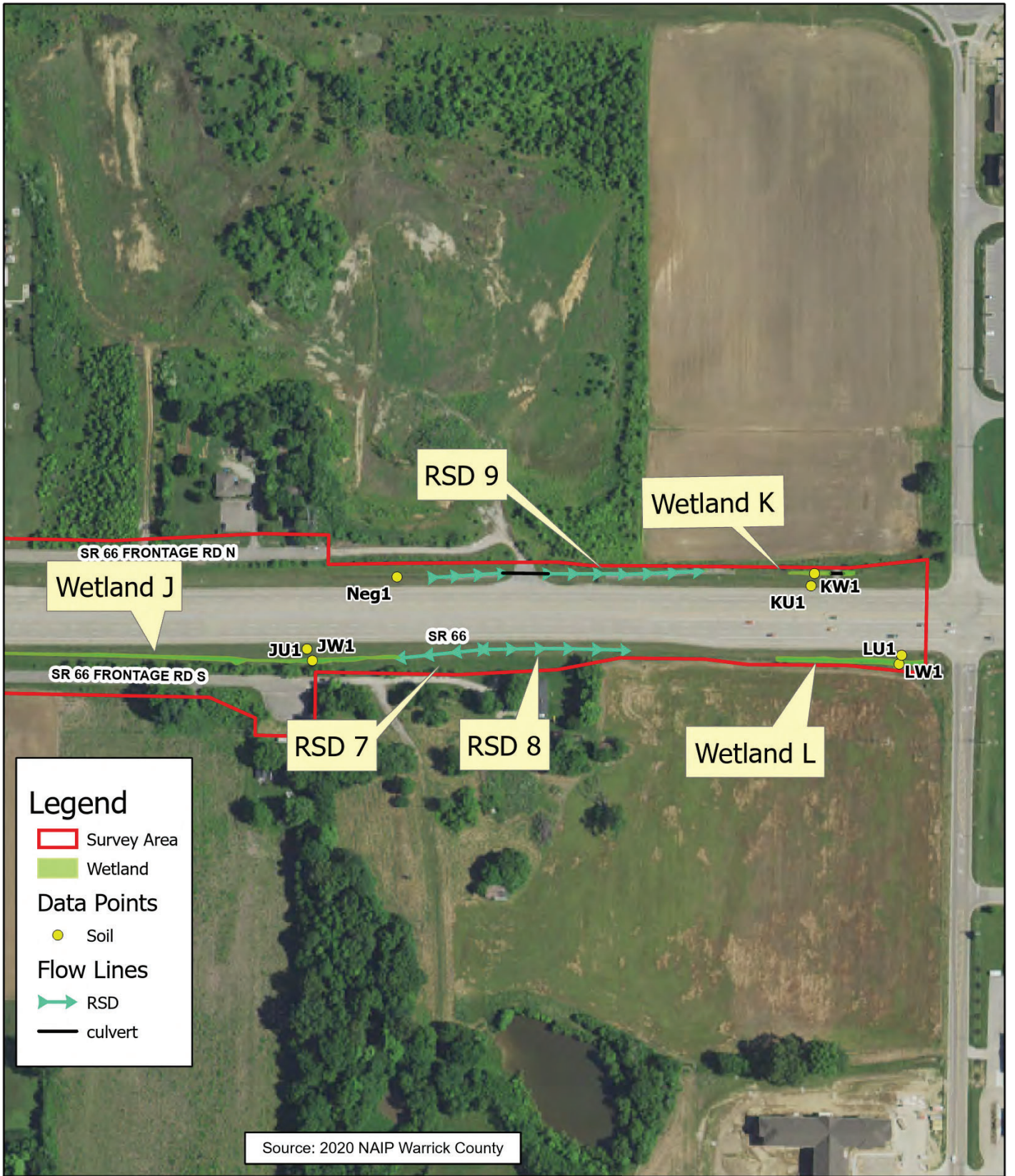



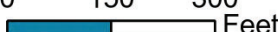
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Township: Knight & Ohio
State: Indiana

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<p>6200 Vogel Road Evansville IN, 47715 Phone: (812) 479-6200 Toll Free: (800) 423-7411</p>	<p>Water Resources Map 2 Des. No. 1400195 Waters of the U.S. Report</p>	<p>County: Vanderburgh & Warrick Township: Knight & Ohio State: Indiana</p>
	<p>0 150 300 Feet</p>	



 <p>6200 Vogel Road Evansville IN, 47715 Phone: (812) 479-6200 Toll Free: (800) 423-7411</p>	<p>Water Resources Map 3 Des. No. 1400195 Waters of the U.S. Report</p>		<p>County: Vanderburgh & Warrick Township: Knight & Ohio State: Indiana</p>
	<p>0 150 300 Feet</p> 		<p>SR 66 Intersection Improvement at Epworth Road Created: 10/18/2021, P. Putzier</p>

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: December 29, 2021

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Peter Putzier, Lochmueller Group, 6200 Vogel Road, Evansville, IN 47715

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

The proposed project (Des. No. 1400195) is located along SR 66 between the I-69 and SR 66 interchange and Grimm Road. The proposed project will eliminate left turning movements from the mainline (SR 66) to increase the capacity of the intersection. Designs under consideration include using displaced left turns in both directions or a hybrid displaced left turn (westbound) and boulevard left (eastbound). The Waters of the U.S. investigation conducted for the SR 66 Intersection Improvement at Epworth Road concludes that there are twelve wetland features and no WOTUS or non-WOTUS open water features identified within the survey area. One perennial stream feature (Howard Ditch), Two intermittent stream features (UNT 1 to Howard Ditch and UNT 2 to Howard Ditch) one ephemeral stream feature (UNT 3 to Howard Ditch) are in the survey area.

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: **Indiana** County/parish/borough: **Vanderburgh and Warrick Counties** City: **Evansville & Newburgh**

Center coordinates of site (lat/long in degree decimal format):

Lat.: **37.976823** Long.: **-87.444323**

Universal Transverse Mercator: **16S 548802.49E 4203389.11N**

Name of nearest waterbody: **Howard Ditch**

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH “MAY BE” SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource “may be” subject (i.e., Section 404 or Section 10/404)
UNT 1 to Howard Ditch	37.978467	-87.441131	1,342 linear feet	non-wetland waters	Section 404
UNT 2 to Howard Ditch	37.977303	-87.441440	728 linear feet	non-wetland waters	Section 404
UNT 3 to Howard Ditch	37.977513	-87.448992	68 linear feet	non-wetland waters	Section 404
Wetland A	37.978397	87.450592	0.14 Acre	wetland	Section 404
Wetland B	37.977261 ⁺	-87.450884	0.04 Acre	wetland	Section 404
Wetland C	37.977238	-87.449994	0.02 Acre	wetland	Section 404

Wetland D	37.976459	-87.450270	0.06 Acre	Wetland	Section 404
Wetland E	37.975023	-87.449691	0.003 Acre	Wetland	Section 404
Wetland F	37.977041	-87.444002	0.20 Acre	Wetland	Section 404
Wetland G	37.976538	-87.442235	0.37 Acre	Wetland	Section 404
Wetland H	37.976264	-87.441466	0.04 Acre	Wetland	Section 404
Wetland I	37.975804	-87.441055	0.03 Acre	Wetland	Section 404
Wetland J	37.97653	-87.436697	0.18 Acre	Wetland	Section 404
Wetland K	37.977030	-87.433172	0.009 Acre	Wetland	Section 404
Wetland L	37.976529	-87.432576	0.06 Acre	Wetland	Section 404
Howard Ditch	37.976860	-87.448804	512 linear feet	non-wetland waters	Section 404

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring “pre-construction notification” (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant’s acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there “*may be*” waters of the U.S. and/or that there “*may be*” navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: Location map, topographic, soils, NWI, floodplain, aerial.
- Data sheets prepared/submitted by or on behalf of the PJD requestor.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report. Rationale: _____.
- Data sheets prepared by the Corps: _____.
- Corps navigable waters' study: _____.
- U.S. Geological Survey Hydrologic Atlas: _____.
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: Newburgh 1:24,000.
- Natural Resources Conservation Service Soil Survey. Citation: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- National wetlands inventory map(s). Cite name: <https://www.fws.gov/wetlands/Data/Mapper.html>.
- State/local wetland inventory map(s): _____.
- FEMA/FIRM maps: FIRM Map Numbers 18163C0205E, 18173C0202D.
- 100-year Floodplain Elevation is: _____.(National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): National Agricultural Imagery Program 2020
or Other (Name & Date): Ground photos
- Previous determination(s). File no. and date of response letter: _____.
- Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and date of
Regulatory staff member
completing PJD

Peter Putzier Digitally signed by Peter Putzier
Date: 2021.12.29 14:17:33 -06'00'

Signature and date of
person requesting PJD
(REQUIRED, unless obtaining
the signature is impracticable)¹

¹ Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Categorical Exclusion
Appendix G
Public Involvement



VS ENGINEERING, INC.

Civil • Structural • Transportation • Environmental

NOTICE OF SURVEY

February 21, 2018

RE: SR 66 & Epworth Road Improvement
Warrick County, Indiana

Sample Notice of Survey

Dear Property Owner:

Our information indicates that you own or occupy property near this proposed highway project. Our employees will be doing a survey of the project area in the near future. It may be necessary for them to come onto your property to complete this work. This is allowed by law by Indiana Code IC 8-23-7-26. They will show you their identification, if you are available, before coming onto your property. If you have sold this property, or it is occupied by someone else, please let us know the name and address of the new owner or current occupant so we can contact them about the survey.

At this stage we generally do not know what effect, if any, our project may eventually have on your property. If we determine later that your property is involved, we will contact you with additional information.

The survey work will include mapping the location of features such as trees, buildings, fences and drives, and obtaining ground elevations. The survey work may also include the identification and mapping of wetlands, archaeological investigations (which may include excavation of small shovel test probes), and various other environmental studies. The survey is needed for the proper planning and design of this highway project. Please be assured of our sincere desire to cause you as little inconvenience as possible during this survey. If any problems do occur, please contact our field crew or contact me at the phone number or address shown herein.

Sincerely,

VS Engineering, Inc.
Alex J Daugherty, PS
812-401-0303

Des. No. 1400195

4275 North High School Road Indianapolis, Indiana 46254
(317) 293-3542 Tel (317) 293-4737 Fax
www.vsengineering.com

Categorical Exclusion
Appendix H
Air Quality

**Table 5.4:
TIP Projects Listing Cont.**

Sponsor: Indiana Department of Transportation												
Route Des# Length: Description:	Project Limits Planning Reference Federal Funding Source	Map ID Amendment/ Modification Date	Phase	All amounts in thousands					Planning/ Cost to Complete	Federal Share	State Share	
				2020	2021	2022	2023	2024				
Warrick County												
SR 68	0.08 mi. W of SR 61		PE						\$	-	\$	-
1400157			RW	\$134					\$	107	\$	27
n/a	STBG, NHPP	9/12/2019	CN	\$310					\$	248	\$	62
Contract 38721; Small structure replacement.												
SR 68	Over Mill Creek, 0.26 mi E of SR 61		PE			\$181			\$	145	\$	36
2002063			RW					\$50	\$	40	\$	10
n/a	STBG	1/14/2021	CN						\$1,613	\$	-	-
Contract 43235; Bridge construction												
I-64	Over Plum Creek, 3.92 mi W of SR 61, EBL & WBL		PE	\$289					\$	231	\$	58
1593068			RW						\$	-	\$	-
n/a	NHPP	10/10/2019	CN				\$3,646		\$	2,917	\$	729
Contract 39367; Replace Superstructure.												
SR 61	From 0.17 mi E of W Jct SR-62 to E Jct SR-62		PE						\$	-	\$	-
1592969			RW						\$	-	\$	-
n/a	STBG		CN	\$1,762					\$	1,410	\$	352
Contract 39377; HMA Overlay, preventative maintenance.												
SR 161	From E jct with SR 62 to W jct with SR 68		PE						\$	-	\$	-
1592941			RW	\$40					\$	32	\$	8
10.129 mi.	STBG	11/14/2019	CN	\$4,047					\$	3,238	\$	809
Contract 39380; Pavement HMA Overlay, structural.												
SR 68	Over Pigeon Creek Overflow, 2.08 mi. E of SR 57		PE						\$	-	\$	-
1593067			RW						\$	-	\$	-
n/a	STBG	7/30/2021	CN			\$50	\$1,990		\$	1,632	\$	408
Contract 39418; Bridge replacement, other construction; Includes Des# 1593066												
SR 66	0.16 mi. E of I-69 at Epworth Rd.		PE						\$	-	\$	-
1400195			RW						\$	-	\$	-
1.081 mi.	NHPP/HSIP	7/30/2021	CN	\$175			\$4,144		\$	3,887	\$	432
Contract 39921; Other intersection improvement												
SR 68	Over Old Pigeon Creek, 1.56 mi. E of SR 57		PE						\$	-	\$	-
1602256			RW						\$	-	\$	-
n/a	STBG		CN	\$3,286					\$	2,629	\$	657
Contract 40051; Bridge thin deck overlay.												
SR 68	Over Wallace Creek, 0.95 mi E of SR 161		PE						\$	-	\$	-
1700167			RW	\$30					\$	24	\$	6
n/a	STBG		CN			\$829			\$	663	\$	166
Contract 40541; Bridge replacement												
SR 161	10.46 mi. N Jct. SR 66		PE						\$	-	\$	-
1700170			RW	\$18					\$	14	\$	4
n/a	STBG		CN			\$2,025			\$	1,620	\$	405
Contract 40551; Small structure replacement.												
SR 662	From I-69 to Ellerbusch Rd.		PE						\$	-	\$	-
1701206			RW						\$	-	\$	-
1.55 mi.	STBG		CN	\$877					\$	702	\$	175
Contract 40626; HMA Overlay, preventative maintenance.												
SR 61	From 0.14 mi S of I-64 to 0.88 mi N of SR-68		PE	\$565					\$	452	\$	113
1800176			RW						\$	-	\$	-
0.88	STBG	4/9/2020, 9/10/20	CN						\$	-	\$	-
Contract 41407; HMA Overlay, preventative maintenance.												
I-64	CCTV Cameras/Detection from SR 69 to Lanesville		PE				\$155		\$	140	\$	16
1802047			RW						\$	-	\$	-
n/a	NHPP		CN					\$1,725	\$	1,553	\$	173
Contract 41768; ITS Traffic management systems.												
SR 61 & SR 68	Various locations		PE						\$	-	\$	-
Various			RW						\$	-	\$	-
n/a	STBG		CN		\$1,438				\$	1,150	\$	288
Contract 41048. Bridge Thin Deck Overlays. Includes locations outside MPO TIP area.												
I-64 & SR 68	Various locations		PE						\$	-	\$	-
Various			RW						\$	-	\$	-
n/a	NHPP, STBG		CN		\$3,258				\$	2,606	\$	652
Contract 41059; Bridge Deck Overlays. Includes locations outside MPO TIP area.												
SR 66	From 2.2 mi. E of SR 61 to US 231		PE						\$	-	\$	-
1592783			RW						\$	-	\$	-
15.91 mi.	NHPP		CN	\$6,279					\$	5,023	\$	1,256
Contract 39357; Pavement HMA Overlay, preventive maintenance. Includes locations outside EMPO TIP area.												

Indiana Department of Transportation (INDOT)
 State Preservation and Local Initiated Projects FY 2020 - 2024

SPONSOR	CONTR ACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	LOCATION	DISTRICT	MILES	FEDERAL CATEGORY	Total Cost of Project*	PROGRAM	PHASE	FEDERAL	MATCH	2020	2021	2022	2023	2024
Boonville	39840 / 1600891	M 12	ST 1025	Road Rehabilitation (3 R/4R Standards)	3rd Street (formerly SR 61)	Vincennes	1	STBG	\$3,184,109.82	Group III Program	RW	\$0.00	\$0.00	(\$438,600.00)	\$438,600.00			
										Local Funds	RW	\$0.00	\$0.00	(\$109,650.00)	\$109,650.00			
Comments: Move RW Phase from FY20 to FY21. Per EMPO TIP Letter 6/25/2020. AQC Exempt 7/2/2019.																		
Indiana Department of Transportation	39921 / 1400195	Init.	SR 66	Other Intersection Improvement	At Epworth Road, 0.16 mile E I-69	Vincennes	1.081	NHPP		Mobility Construction	CN	\$3,268,456.80	\$817,114.20	\$175,000.00	\$3,910,571.00			
Performance Measure Impacted: Safety																		
Indiana Department of Transportation	39921 / 1400195	M 33	SR 66	Other Intersection Improvement	At Epworth Road, 0.16 mile E I-69	Vincennes	1.081	NHPP	\$5,078,812.00	Mobility Construction	CN	\$186,732.80	\$46,683.20		(\$3,910,571.00)		\$4,143,987.00	
Performance Measure Impacted: Safety																		
Comments: MOVE FY 2021 CN funds of \$3,910,571.00 to FY 2023 and INCREASE to \$4,143,987.00. EMPO Modification letter 7/30/2021.																		
Indiana Department of Transportation	40051 / 1602256	Init.	SR 68	Bridge Thin Deck Overlay	Over Old Pigeon Creek, 1.56 miles E SR-57	Vincennes	0	STBG		Bridge Construction	CN	\$2,629,128.80	\$657,282.20	\$3,286,411.00				
Performance Measure Impacted: Bridge Condition																		
Indiana Department of Transportation	40541 / 1700167	Init.	SR 68	Bridge Replacement, Concrete	Over Wallace Creek, 00.95 miles E SR-161	Vincennes	0	STBG		Bridge Construction	CN	\$682,916.80	\$165,729.20			\$828,646.00		
										Bridge ROW	RW	\$24,000.00	\$6,000.00	\$30,000.00				
Indiana Department of Transportation	40551 / 1700170	Init.	SR 161	Small Structure Replacement	10.46 miles N Jct SR-66	Vincennes	0	STBG		Bridge Construction	CN	\$1,619,550.40	\$404,887.60			\$2,024,438.00		
										Bridge ROW	RW	\$14,400.00	\$3,600.00	\$18,000.00				
Performance Measure Impacted: Bridge Condition																		
Indiana Department of Transportation	40626 / 1701206	Init.	SR 662	HMA Overlay, Preventive Maintenance	From I-69 to Ellerbush Road, 1 .51 miles East of I-69	Vincennes	1.555	STBG		Road Construction	CN	\$701,681.60	\$175,420.40	\$877,102.00				
Performance Measure Impacted: Pavement Condition																		
Indiana Department of Transportation	41407 / 1800176	Init.	SR 61	HMA Overlay, Preventive Maintenance	From 0.14 mi S of I-64 to 0.88 mi N of SR-68 (Lynnville)	Vincennes	1.156	STBG		Road Construction	CN	\$576,800.00	\$144,200.00				\$721,000.00	
										Road ROW	RW	\$24,000.00	\$6,000.00			\$30,000.00		
Performance Measure Impacted: Pavement Condition																		
Indiana Department of Transportation	41407 / 1800176	A 22	SR 61	HMA Overlay, Preventive Maintenance	From 0.14 mi S of I-64 to 0.88 mi N of SR-68 (Lynnville)	Vincennes	1.156	STBG	\$6,578,000.00	Road Consulting	PE	\$451,600.00	\$112,900.00	\$564,500.00				
										Road ROW	RW	\$22,000.00	\$5,500.00				\$27,500.00	

*Estimated Costs left to Complete Project column is for costs that may extend beyond the four years of a STIP. This column is not fiscally constrained and is for information purposes.

Categorical Exclusion
Appendix I
Other Information



Lloyd Expressway (SR 62/66) Corridor Study

Des. No. 1592406
October 1, 2018



AECOM

 **Stantec**

Executive Summary

Introduction

The Lloyd Expressway (SR 62/SR 66) Corridor study was conducted by the Indiana Department of Transportation (INDOT) and the Evansville Metropolitan Planning Organization (EMPO). The study examines the need for and types of improvements necessary along the corridor, focusing on the area beginning in the west at St. Phillips Road in Posey County, passing through Vanderburgh County, and ending in the east at the SR 261 intersection in Warrick County. **Figure A** below provides an overview of the study area. Through a collaborative effort with the public, local government agencies, and the business community, this study will recommend a set of alternatives aimed at accommodating access in a responsible manner and will ultimately result in a plan that can be implemented to facilitate future access management opportunities.

The purpose of the study is to develop a plan to address current and projected traffic demands as well as safety concerns for both motorists and pedestrians to ensure future mobility along and around the corridor.

Activities performed included:

- Compiling an inventory of existing conditions
- Preparing a red flag summary, conducting traffic data counts
- Traffic forecasting (short-term 10-year forecasts as well as long-term, 20-year forecasts)
- Traffic simulation modeling
- Analyzing and proposing alternatives as well as cost estimates
- Conducting stakeholder involvement activities
- Producing a compilation of the findings

Figure A - Study Area



Existing Conditions

For the purpose of this study, the Lloyd Expressway Corridor has been categorized into four distinct sections based on the existing road and area conditions. The four sections include:

- Suburban Development from St. Phillips Road to Barker Avenue (5.5 miles)
- Downtown City Street from Barker Avenue to Fulton Avenue (1.5 miles)
- Expressway from Fulton Avenue to Vann Avenue (4.0 miles)
- Signalized Arterial from Vann Avenue to SR 261 (8.0 miles)

Several intersections have approach levels of service (LOS) of E or worse. These included Schutte Road, Rosenberger Avenue, Joseph Avenue, Burkhardt Road, Green River Road, and Cross Pointe Boulevard. The approaches where LOS values are less than desirable are mainly the side streets since they are typically penalized to keep the traffic flow on the Lloyd Expressway moving during the peak periods. No other intersections or segments are currently operating below LOS D. However, there are intersections operating at LOS D as well as specific movements that are at or below LOS D.

A three-year crash analysis was performed with crash data provided by the EMPO for the years 2014 through 2016. The data was viewed spatially in GIS, where crashes were attributed to appropriate intersections. Next, the crashes were separated in relation to various conditions, most importantly, by the following severity categories: fatal and incapacitating injury, injury, and property damage only. The data was analyzed with RoadHAT version 3.0, which produced an Index of Crash Frequency measure as well as an Index of Crash Severity measure. For intersections which exceeded a value of 1.00 for both measures, detailed crash diagrams were created for further analysis. After completion of the existing conditions inventory, the following intersections warranted further investigation based on their statistical crash analysis and/or LOS results:

- SR 62 / Schutte Road
- SR 62 / Boehne Camp Road
- SR 62 / Middle Mount Vernon Road
- SR 62 / Red Bank Road
- SR 62 / Rosenberger Avenue
- SR 62 / Igleheart Avenue Entrance Ramp
- SR 62 / Wabash Avenue
- SR 62 / St. Joseph Avenue
- SR 66 / Vann Avenue
- SR 66 / Stockwell Road
- SR 66 / Green River Road
- SR 66 / Fielding Road
- SR 66 / Brentwood Drive
- SR 66 / Burkhardt Road
- SR 66 / Cross Pointe Boulevard
- SR 66 / Epworth Road
- SR 66 / Country Place Drive
- SR 66 / Bell Road

University Parkway and Grimm Road were also investigated based on feedback in the initial stakeholder meetings. No roadway segments of SR 62 / 66 showed substandard crash or level of service performance warranting additional investigation.

Future Conditions

The EMPO Regional Travel Demand Model served as the basis for development of traffic forecasts and evaluation of alternatives. A set of microscopic traffic simulation models was developed for the purpose of evaluating the improvement alternatives. The TransModeler® traffic simulation software by Caliper® Corporation was used to examine AM and PM peak period traffic conditions for the following scenarios:

- Existing (year 2017) conditions
- Future (year 2025/2045) No Build conditions (where “No Build” means no additional projects beyond those that are already committed)
- Future (year 2025/2045) anticipated conditions associated with the various improvement alternatives that were considered

The EMPO Regional Travel Demand Model estimates two growth rates for the study area. The growth rates for both the Suburban Development and the Downtown City Street sections on the Lloyd Expressway were calculated to be 0.5% per year which represents lower growth portions of the corridor. The growth rates for both the Expressway and Signalized Arterial sections on the Lloyd Expressway were calculated to be 1.0% per year which represents higher growth portions of the corridor.

Recommendations

The Lloyd Expressway study resulted in several improvement alternatives recommended for future implementation. These improvement concepts focus on areas with existing safety concerns and other transportation deficiencies identified by the study team. The nature and likely causes of problems identified over the course of the study were examined through field reconnaissance, and improvement concepts were developed to address the identified problems. This study focused on short-term improvements (concepts that can be quickly and effectively implemented and that address current mobility and safety issues) and long-term improvements (concepts requiring more significant resources to implement or concepts that address future mobility issues). Improving safety throughout the corridor by providing greater visibility for left-turn vehicles, additional warning signage, providing pedestrian signals and a crosswalk at signalized intersections, eliminating weave movements, and alternative intersection design will improve both vehicular and pedestrian safety.

A range of concepts was developed based on the existing conditions analysis (i.e. traffic, crash history, and environmental overview) and input received from the study team and stakeholders/ local officials. It should be noted that these improvements are purely conceptual and that further details must be

examined in subsequent project phases. The various alternatives have not completed the full National Environmental Policy Act (NEPA) process. **Table A** below presents the short-term and long-term recommendations:

Table A – Short and Long-Term Recommendations

Intersection	Priority	Short Term (S) Long Term (L)	Recommendations	Crash Reduction Factor	2018 Estimated Cost
SR 62 / Schutte Rd	Medium	S	Signal Warning Signs/ Flashing Beacons	36.0%	\$65,000
SR 62 / Schutte Rd	Medium	L	Positive Offset Left Turn Lanes with Flashing Yellow Arrows	33.8%	\$910,000
SR 62 / Middle Mt. Vernon Rd	Low	S	Add Flashing Beacons	N/A	\$15,000
SR 62 / Middle Mt. Vernon Rd	Low	L	Right-in / Right-out	72.0%	\$200,000
SR 62 / Boehne Camp Rd	Medium	S	Signal Warning Signs/ Flashing Beacons	36.0%	\$65,000
SR 62 / Boehne Camp Rd	Medium	L	Positive Offset Left Turn Lanes with Flashing Yellow Arrows	33.8%	\$910,000
SR 62 / Red Bank Rd	Medium	S	Signal Warning Signs/ Flashing Beacons	36.0%	\$65,000
SR 62 / Red Bank Rd	Medium	S	Reconfiguration of WB Left Turn Lanes	57.0%	\$45,000
SR 62 / Rosenberger Ave	Medium	L	Positive Offset Left Turn Lanes with Flashing Yellow Arrows	33.8%	\$910,000
SR 62 / Igleheart Ave. Ramp	Medium	S	Improve Exit Guide & Warning Signage	40.8%	\$25,000
SR 62 / Igleheart Ave. Ramp	Medium	L	Geometric Configuration of Ramps	25.0%	\$1,240,000
SR 62 / St. Joseph Ave	Low	L	Reconfigure southbound approach	20.0%	\$35,000
SR 62 / Wabash Ave	Low	L	Lengthen SR 62 left turn lanes	25.2%	\$240,000
SR 66 / Vann Ave	High	L	Construct Right-in/Right-out	72.0%	\$120,000
SR 66 / Stockwell Road	Medium	L	Construct Displaced Left Turn Intersection	36.0%	\$3,150,000
SR 66 / Green River Road	High	S	Include WB SR 66 Exit Ramp right – turn in interchange traffic signal	94.0%	\$230,000
SR 66 / Fielding Road	Medium	S	Flashing Beacons / Near-Side Signals	27.0%	\$75,000
SR 66 / Brentwood Drive	Low	S	Replace EB 3-section head signals with single green arrows	N/A	\$10,000
SR 66 / Burkhardt Road	High	L	Construct Displaced Left Turn Intersection	36.0%	\$3,250,000
SR 66 / Cross Pointe Blvd	High	L	Construct Hybrid Displaced Left Turn / Boulevard Left Turn Intersection	24.0%	\$2,900,000
SR 66 / Epworth Rd	High	L	Construct Hybrid Displaced Left Turn / Boulevard Left Turn Intersection	24.0%	\$3,000,000
SR 66 / Grimm Road	Low	L	Construct Right-in/Right-out	72.0%	\$120,000
SR 66 / Country Place Drive	Low	S	Add Warning Signs / Flashing Beacons	N/A	\$15,000
SR 66 / Country Place Drive	Low	L	Right-in / Right-out	72.0%	\$200,000
SR 66 / Bell Road	Low	S	Flashing Beacons / Near-Side Signals	27.0%	\$75,000

Green shading denotes projects that are already programmed.

In the AM and PM peak period for the near future, 2025, analysis of the concepts above results in all average approach delays operating at LOS D or better, except for the minor approach on Joseph Avenue. Average travel speed decreases by 1 or 2 mph in the AM and PM peak periods. Travel times

with alternative recommendations in 2025 remained less than 30 minutes per direction per peak period across the entire corridor.

Pedestrian indications and crosswalks are recommended at the signalized intersections where engineering judgement indicates the need for provisions for a given pedestrian movement, particularly those crossing the Lloyd Expressway.

Alternative sheets in **Appendix C** more fully outline each of the recommendations.

Next Steps

The Lloyd Expressway Study resulted in several alternatives recommended for future implementation. These improvement concepts focus on areas with existing safety concerns and other transportation deficiencies identified by the study team. The nature and likely causes of problems identified over the course of the study were examined through field reconnaissance, and improvement alternatives were developed to address the identified problems. This study focused on short-term improvements (projects that can be quickly and effectively implemented and that address current mobility and safety issues) and long-term improvements (projects requiring more significant resources to implement or concepts that address future mobility issues). Improving safety throughout the corridor by providing greater visibility for left-turn vehicles, additional warning signage, providing pedestrian signals and a crosswalk at signalized intersections, eliminating weave movements and alternative intersection design will improve both vehicular and pedestrian safety.

The next steps will be deliberating the recommended alternatives at each intersection in the future state-wide call for projects. The alternatives will be scored against all other project submitted in the call with the highest scoring projects receiving funding.

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REMOVED

Appendix A - Red Flag Investigation

Removed

Appendix B – Crash Analysis

Excerpt B-111

Appendix C – Alternative Recommendation Sheets

Excerpt C16

Table 5.24 Cross Pointe Boulevard Recommendation Analysis Results

Intersection Alternative	Intersection Leg	2017 Existing LOS				2045 Future LOS				CMF*	Estimated Cost
		AM Peak	Delay (s)	PM Peak	Delay (s)	AM Peak	Delay (s)	PM Peak	Delay (s)		
Cross Pointe Blvd. No Build	NB	D	37	D	38	D	41	D	37	0.00	\$0
	SB	D	37	E	62	D	41	E	70		
	EB	C	25	D	40	C	35	F	30		
	WB	D	51	F	83	F	81	F	174		
	Total Intersection	D	41	E	59	E	59	C	91		
Cross Pointe Blvd. Hybrid Boulevard Lt / DLT	NB					C	23	C	27	0.76 ¹	\$3,100,000
	SB					C	26	B	14		
	EB					A	5	A	5		
	WB					A	4	A	6		
	Total Intersection					A	9	A	9		
Cross Pointe Blvd. Boulevard Left	NB					D	47	D	45	0.49 ²	\$2,750,000
	SB					D	37	E	79		
	EB					D	40	A	8		
	WB					B	16	B	17		
	Total Intersection					C	28	C	20		
Cross Pointe Blvd. WB Dual Left-Turn Lanes	NB					D	50	D	39	0.748 ₃	\$900,000
	SB					D	49	F	92		
	EB					D	24	C	31		
	WB					C	44	D	40		
	Total Intersection					D	39	D	43		

* Crash Modification Factor from Federal Highway Administration Clearinghouse

1. FHWA-HRT-09-060 Alternative Intersections/Interchanges: Informational Report (AIIR)
2. Create Directional Median Openings to Allow Left-Turns and U-Turns
3. Install Left-Turn Lane

Table 5.25 shows the cost-effectiveness of each alternative versus reduction in delay and reduction in crashes.

Table 5.25 Cross Pointe Boulevard Recommendation Cost Effectiveness

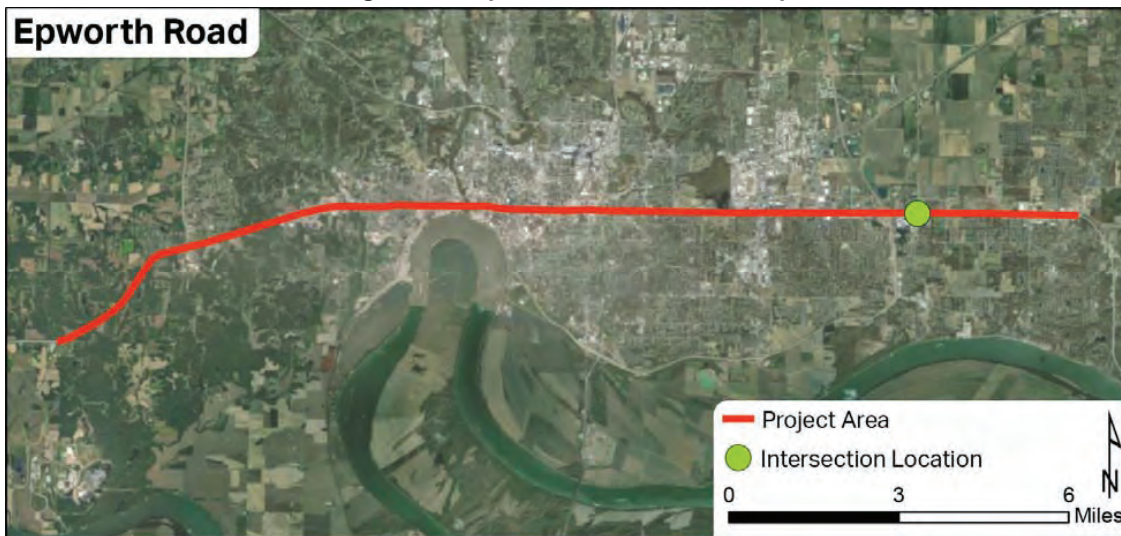
Intersection Alternative	Avg. Delay 2045 (s)	Delay Reduction (s)	Delay Cost Effectiveness	Crash Reduction %	Crash Cost Effectiveness \$ / % Reduction
Hybrid Boulevard Lt / DLT	9.0	66.0	\$46,970/s	24.0	\$129,167
Boulevard Left	24.0	51.0	\$53,922/s	51.0	\$53,922
WB Dual Left Turn Lanes	41.0	34.0	\$26,471/s	25.2	\$35,714

Although the westbound dual left-turn lanes alternative is more cost-effective than the hybrid boulevard left / DLT, the dual left-turn lanes did not resolve all LOS problems in the future. In addition, the crash analysis indicated mostly rear-end crashes on the mainline. Additionally, the hybrid boulevard left / DLT option moves the westbound left turn movement further from the I-69 interchange, which requires less weaving to make the left turn. Therefore, the hybrid boulevard left / DLT is the recommended alternative. The recommended alternative should also consider the side path planned for Cross Pointe in the Evansville Bicycle and Pedestrian Plan.

SR 66 / Epworth Road

The need for improvements at the intersection of SR 66 and Epworth Road is evidenced by a high number of crashes along SR 66. The crashes are predominantly rear-end with a considerable amount of eastbound and westbound left turn crashes. The I_{CF} is 2.89 while the I_{CC} is 3.31. Higher crash indexes are likely related to congestion. There were approximately 141 crashes at the intersection between 2014 and 2016. Approximately 76% of the crashes occurred along SR 66. The intersection is located approximately 1,500 feet east of the exit ramp from northbound I-69, which results in a less than desirable weaving situation for vehicles exiting the interstate and wishing to turn left onto northbound Epworth. Environmental concerns in the vicinity of the intersection include open water in the southwest quadrant, a former mine site east of the intersection, nearby environmental justice population areas and potential wetlands on the south side of the roadway.

Figure 5.19 Epworth Road Location Map



The purpose of the improvement is to reduce the number of crashes within the intersection. Displaced left turns and a bow tie intersection are viable alternatives to reduce crashes at this location. Both options would eliminate left turning movements from the mainline. The bow tie intersection would require motorists to make a right turn and pass through a roundabout instead of making left turns from the mainline. **Table 5.26** shows the LOS results and crash modification factors for the alternatives.

Table 5.26 Epworth Road Recommendation Analysis Results

Intersection Alternative	Intersection Leg	2017 Existing LOS				2045 Future LOS				CMF*	Estimated Cost
		AM Peak	Delay (s)	PM Peak	Delay (s)	AM Peak	Delay (s)	PM Peak	Delay (s)		
Epworth Road No Build	NB	D	43	D	41	D	50	D	42	0.00	\$0
	SB	C	26	C	24	C	32	C	34		
	EB	B	17	C	22	C	21	C	27		
	WB	C	34	C	31	F	85	C	23		
	Total Intersection	C	28	C	26	E	56	C	27		
Epworth Road Hybrid Boulevard Lt / DLT	NB					D	43	C	32	0.76 ¹	\$3,000,000
	SB					D	38	D	55		
	EB					A	5	A	4		
	WB					A	9	A	8		
	Total Intersection					B	13	B	12		
Epworth Road Bow-Tie	NB					C	49	C	41	0.64 ²	\$2,400,000
	SB					C	46	C	37		
	EB					B	25	D	30		
	WB					C	43	C	23		
	Total Intersection					C	35	C	29		

* Crash Modification Factor from Federal Highway Administration Clearinghouse
 1. FHWA-HRT-09-060 Alternative Intersections/Interchanges: Informational Report (AIIR)
 2. Install Single Lane Roundabout

Table 5.27 shows the cost effectiveness of each alternative verses reduction in delay and reduction in crashes.

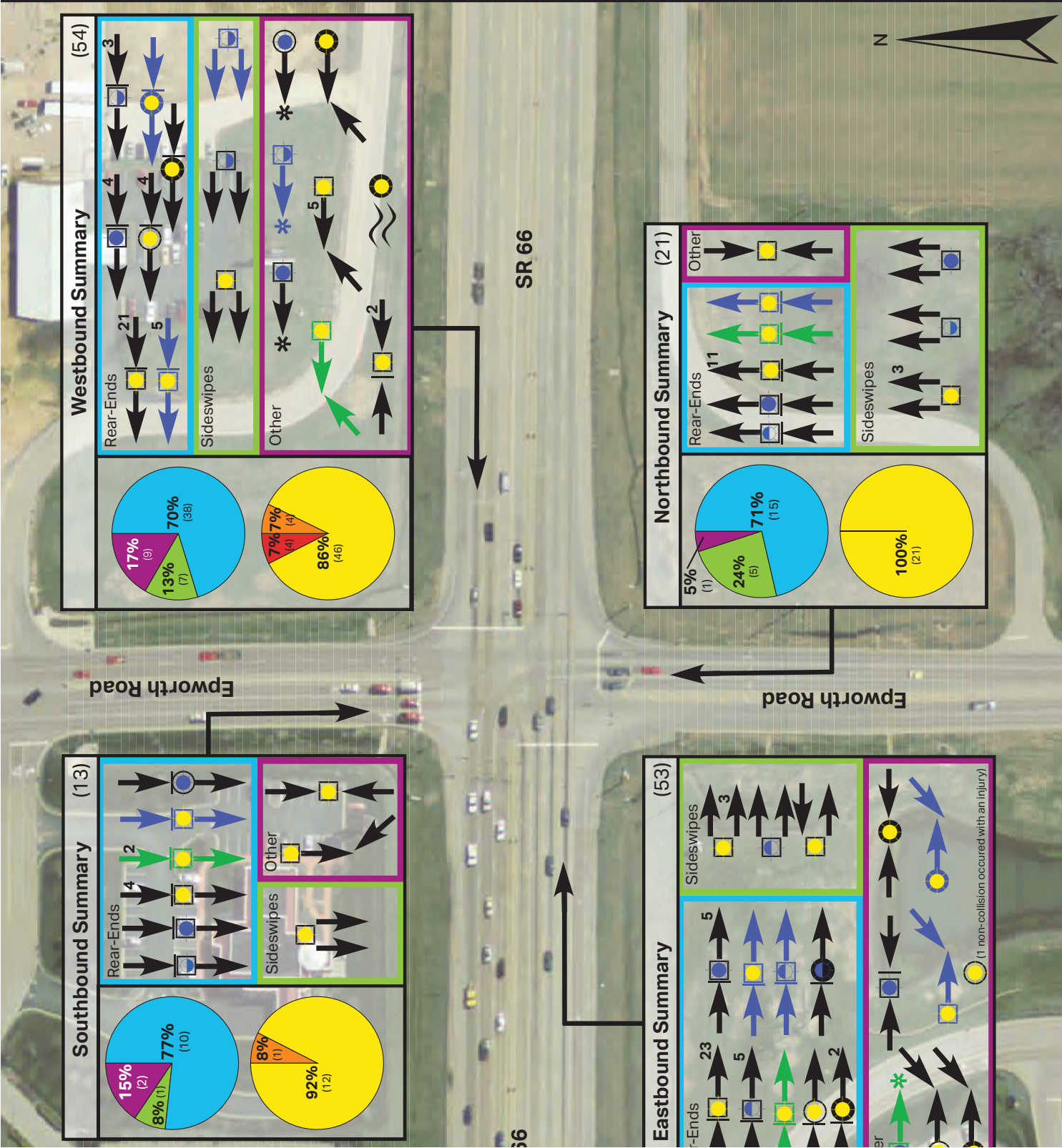
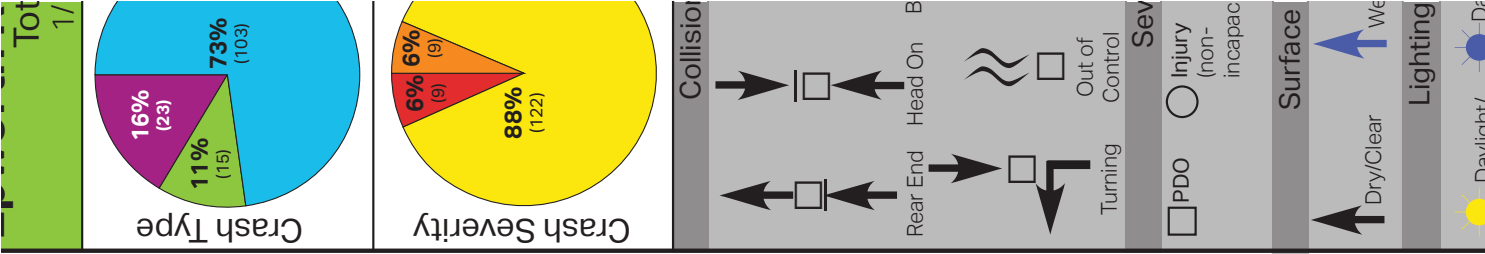
Table 5.27 Epworth Road Recommendation Cost Effectiveness

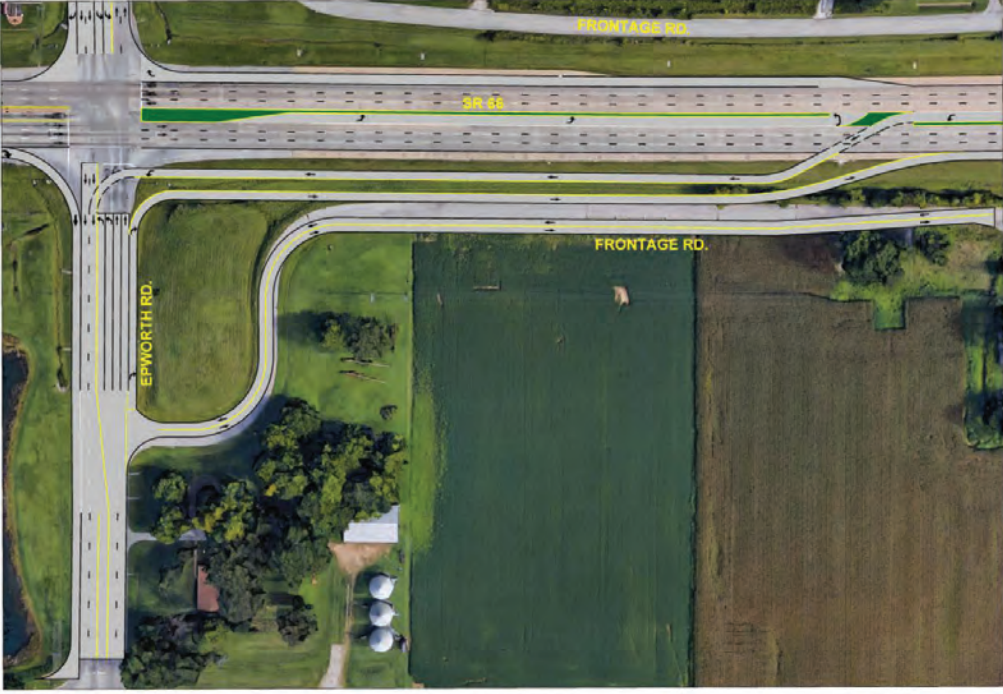
Intersection Alternative	Avg. Delay 2045 (s)	Delay Reduction (s)	Delay Cost Effectiveness	Crash Reduction %	Crash Cost Effectiveness \$ / % Reduction
Hybrid Boulevard Lt / DLT	12.5	29.0	\$103,448/s	24.0	\$125,000
Bow-Tie	32.0	9.5	\$252,632/s	36.0	\$66,667

The hybrid boulevard left / DLT is much more effective at reducing congestion on the mainline where the majority of crashes occur and also improves the weaving conditions between I-69 and the intersection. Therefore, the hybrid boulevard left / DLT is the recommended alternative. Ideally, improvements at Epworth would coincide with the implementation of improvements proposed at Grimm Road.

SR 66 / Grimm Road

Grimm Road is currently an unsignalized intersection with the minor roads stop controlled. The I_{CF} is 0.15 while the I_{CC} is 0.38, which indicates the intersection is statistically average from a safety perspective. Environmental concerns in the vicinity of the intersection include potential wetlands on the south side of the roadway.



P	LOCATION SR 66 at Epworth Road	PRIORITY: High	
DESCRIPTION P - Construct Hybrid Displaced Left Turn / Boulevard Left Turn Intersection at Epworth Road		COST ESTIMATE PE: \$600,000 ROW: \$100,000 Utilities: \$0 Construction: \$2,300,000 Total: \$3,000,000	
<p>This section of SR 66 carries about 40,000 vehicles per day (VPD). Traffic is expected to grow about 1.0% per year. The purpose of the improvement is to reduce the number of crashes within the intersection. There were approximately 141 collisions at the intersection between 2014 and 2016. Approximately 76% of the crashes occurred along SR 66.</p> <p>There are no short-term recommendations.</p> <p>The long-term recommendation P) is to construct a hybrid displaced left turn / boulevard left turn intersection for the SR 66 approaches. Westbound left turn would use the DLT configuration. Eastbound left turns would use the boulevard left configuration. The proposed recommendation will improve the LOS and reduce crashes as it will limit the number of conflict points.</p> 			

Land and Water Conservation Fund (LWCF) County Property List for Indiana (Last Updated July 2020)

ProjectNumber	SubProjectCode	County	Property
1800082	1800082	Warrick	Newburgh Community Park and Newburgh Community Pool
1800383	1800383	Warrick	Newburgh-Amax Athletic Park & Ed Gesser Soccer
1800405	1800405O	Warrick	Little Pigeon Creek Wetland Conservation Area

*Park names may have changed. If acquisition of publically owned land or impacts to publically owned land is anticipated, coordination with IDNR, Division of Outdoor Recreation, should occur.