

ENGINEERING ASSESSMENT REPORT

TILLMAN RD OVER HIGHLAND DRAIN 4
BRIDGE REPLACEMENT PROJECT
ALLEN COUNTY

BRIDGE FILE #:02-00550



PREPARED FOR:

CITY OF FORT WAYNE

PREPARED BY: BEAM, LONGEST & NEFF

NOVEMBER 2021



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ENGINEERING ASSESSMENT REPORT

BRIDGE FILE NUMBER: 02-00550

**ROUTE IDENTIFICATION AND FEATURE CROSSED:
Tillman Road over Highland Drain 4**

**PROJECT LOCATION: Wayne Township, Allen County,
Section 36, T 30N, R 12E and Section 25, T 30N, R 12E**

1. PURPOSE OF REPORT:

The purpose of this report is to provide an engineering assessment for the existing structure carrying Tillman Road over Highland Drain 4. This report provides background information on the project site and provides conclusions and recommendations for future improvements at this location. The report will guide the subsequent survey, design, environmental investigation, public involvement, right-of-way and other project elements leading to the proper course of construction.

2. PROJECT LOCATION:

The project is located along Tillman Road in Allen County. The existing bridge is located approximately 0.54 miles west of US 27, within Fort Wayne, Indiana. This project is anticipated to impact portions of Tillman Road and portions of the Rivergreenway Trail. The existing Rivergreenway Trail crosses Highland Drain 4 utilizing Allen 550. The existing bridge length is approximately 26 ft. A map of the project location is provided in Appendix A.

3. PROJECT NEED AND PURPOSE:

Due to the overall condition of the existing superstructure, there is a need for improvements to correct the existing deterioration. The existing superstructure was constructed in 1966. The superstructure is nearing the end of its design life. Currently, the superstructure is rated in Serious condition, the wearing surface and concrete deck are rated in Fair condition, and the substructure is rated in Satisfactory condition. Due to the condition of the structure, the structure is considered structurally deficient. The purpose of this project is to examine the best alternative for the existing structure and adjacent roads that will provide equivalent or better conditions and functionality over the current conditions.

4. EXISTING FACILITIES:

Tillman Road is classified as an Urban Minor Arterial. Tillman Road is not part of the National Highway System. The existing facility is not part of the 3R roadway network. The posted speed limit is 40 mph on Tillman Road. The existing paved clear roadway width on Tillman Road is approximately 48 ft.; providing four 12 ft. lanes with no curb offset. Photos of the existing roadway conditions are provided in Appendix A. Based on rehabilitation plans and a site visit, both approaches were constructed with asphalt pavement; however, due to reflecting cracking in the existing asphalt, it is assumed that there is concrete pavement under the asphalt. The asphalt pavement also exhibited transverse, longitudinal and map cracking throughout both approaches during the site visit. The existing pavement appears to be in satisfactory to good condition for Tillman Road.

The Rivergreenway Trail runs parallel to Tillman Road approximately 6 feet south of the roadway at the bridge. The Rivergreenway Trail crossing was built behind the Tillman Road bridge along the south coping. Based on a site visit, both approaches were constructed with asphalt pavement. The existing pavement of the trail appears to be in satisfactory to good condition. The asphalt pavement exhibited longitudinal, transverse, and map cracking along both approaches during the site visit.

Horizontal and Vertical Roadway Alignments:

The horizontal alignment of Tillman Road is tangent. The existing vertical alignment for Tillman Road is in a vertical sag curve. The PVI and grades for Tillman Road are unknown. Survey will be required to determine the vertical alignment of Tillman Road.

Bridge Structure 02-00550:

The existing structure is listed as being constructed in 1969. The existing bridge structure is a single span adjacent prestressed concrete box beam bridge 26 ft. in length. The bridge span is 25'-0" built square. The structure out-to-out coping width is 66'-0" per the current bridge inspection report. The clear roadway width is 48'-0" per the existing plans and the current bridge inspection report. The 48'-0" clear roadway does not meet the minimum for a curbed section, because there is no existing curb offset. The substructure consists of concrete abutments with an unknown foundation. The existing bridge deck has cracks over the beam edges and shrinkage cracks throughout the deck. The existing superstructure has large spalls on the bottom of the beams with many exposed strands, with some strands rusted through. The existing substructure has cracks with leaching. The bridge deck was rated in Fair condition, the superstructure was rated in Serious condition and the substructure was rated in Satisfactory condition. The last routine bridge inspection performed in 2021 (See Appendix C).

Existing Utilities:

During the site visit, various utilities were found to exist within the project limits. There are existing overhead power lines that are located along the south side of the project. Two manholes were noted along the south shoulder east of the bridge, and one manhole was noted along the south shoulder west of the bridge. Buried stormwater pipes are located east and west of the bridge and outlet at the south coping of the bridge through the wings. Light poles are located along the north side of the project. A watermain is located along the north side of the project.

Existing Right-of-Way:

Existing plans do not show the limits of the right-of-way (R/W) limits along Tillman Road. Based on the Allen County GIS website the R/W limits on the north side of the project is approximately 40 feet from the centerline of the roadway. Tillman Park is located along the south side of Tillman Road and is owned by the City of Fort Wayne. The R/W limits shall be investigated further during the survey and R/W engineering phases.

Environmental Conditions:Land Use and Infrastructure

The project site is located in the southwest quadrant of Allen County within the Fort Wayne urbanized area on Tillman Rd over Highland Drain 4. Primary land uses in the general project area consists of urbanized land development, such as commercial development, sports recreational facilities, and parks.

Wetlands

The USFWS National Wetland Inventory (NWI) map of the project area identifies no potential wetlands in the immediate project vicinity. One stream, Highland Drain 4, runs through the project area.

Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map revealed the project site is located within the 100-year floodplain of St. Mary's River.

Section 4(f) – Section 6(f)

One publicly owned park, Tillman Park, is located south of Allen County Bridge 550. Since Tillman Park is publicly owned it would be afforded protection under Section 4(f) of the US Department of Transportation Act of 1966.

One potential Section 6(f) site was identified within the project area. South of Allen County Bridge 550 is part of the St. Mary's Rivergreenway trail system, this trail has the potential to be listed as a Section 6(f) property. The National Park Service (NPS) Land and Water Conservation Fund (LWCF) was created through the Land and Water Conservation Fund Act of 1965. Section 6(f) of the Act prohibits the conversion of LWCF lands unless the NPS approves the conversion of property with reasonable equivalent usefulness and location and of at least equal fair market value.

Aviation

The Federal Aviation Agency website was checked, and one public airport, Fort Wayne International, was found within 3.8 miles (20,000 feet) of the project.

Records Review and Hazardous Materials

A preliminary red flag investigation of the project area and a half mile radius was completed. One (1) landfill boundary is located adjacent to the project area in the southwest quadrant. There is one (1) brownfield site approximately 0.16 miles east of the project area. There are two NPDES Facilities, the closest being approximately 0.19 miles southeast from the project area. There are two (2) leading underground storage tanks (LUSTs), the closest being approximately 0.33 miles west of the project area. There is one (1) underground storage tank (USTs) approximately 0.33 miles west of the project area. No hazardous material sites were identified in the project area. No impacts are expected.

Endangered, Threatened and Rare Species

The Allen County listing of the Indiana Natural Heritage Data Center information on endangered, threatened and rare (ETR) species and high-quality natural communities was reviewed. The county listing has numerous plant and animal species categorized as rare, endangered and/or threatened.

5. DISCUSSION OF ALTERNATIVES AND RECOMMENDATIONS:**Alternate No.1: Do Nothing**

This alternate would allow the existing roadway and bridge to remain in place with no improvements. However, the bridge would continue to deteriorate.

Alternate No. 2: Bridge Replacement

This alternate would remove the existing single span bridge and replace it with a three span (16'-0", 20'-0", 16'-0") reinforced cast-in-place concrete slab bridge. The bridge length would increase 26 feet. The proposed out-to-out width of the bridge is 47'-0", which would include a 10' trail and a 2' gore on the south coping of the bridge, a 5' sidewalk and a 2' gore on the north coping, two 11' lanes and 2' shoulders. This work will also include raising the grade by 1' to allow serviceability during a Q100 storm from the backwater of the Saint Mary's River. Approximately 500 feet of Tillman Road east and west of the existing bridge would be replaced. Removal of concrete pavement is assumed for Tillman Road. The water main north of the bridge will be relocated around the construction area. The sidewalk along the northwest quadrant will be reconstructed, for 500 feet, and new sidewalk will be placed along the northeast quadrant, for 500 feet. Approximately 500 feet of the trail, east and west of the bridge is anticipated to be reconstructed. Tillman Road will be closed for the construction of the road. The 2021 cost estimate for this work is estimated to be \$2,059,000 (\$2,387,000 in 2026 dollars)

Recommendation:

The recommendation for this report would be to build Alternate No. 2. The existing bridge will be replaced, which would include a 10' path for trail. Survey would be required for this project. All work is expected to be contained within the existing right-of-way. It is anticipated that the water main, stormwater sewer and overhead electric lines will need to be relocated. Coordination with the utilities is anticipated during design.

6. TRAFFIC MAINTENANCE DURING CONSTRUCTION:

Based on the recommended scope of work, the recommended alternative for maintenance of traffic would be phased construction for pedestrian traffic and a full closure for vehicular traffic. Phase 1 would divert pedestrian traffic to the north side of the bridge while the south half of the bridge is under construction. The north half of the bridge would be constructed under Phase 2, with the pedestrian traffic utilizing the new pedestrian trail. Vehicular traffic will be detoured utilizing Calhoun Street, Paulding Road and US 27. Calhoun Street is located approximately 0.3 miles west of the existing bridge and US 27 is located approximately 0.5 miles east of the existing bridge. The detour length is approximately 2.8 miles in length.

7. COST ESTIMATE (2026 dollars):

Alternate No. 2 is the preferred alternate. The estimated cost is \$2,387,000. A Preliminary Engineering Cost is estimated to be \$530,000. Please note that this estimate does not include any Right of Way acquisition or Construction Observation.

8. ENVIRONMENTAL ISSUES:**If Local Funds are Used:**Wetlands

A Waters of the U.S. Report (WOUSR) will be prepared as part of the project and any jurisdictional wetlands will be delineated therein; coordination with the Indiana Department of Environmental Management and Army Corps will confirm the presence of the jurisdictional wetlands. If any wetlands are located within the project area, additional coordination with the US Army Corps of Engineers, Detroit District (USACE) and the Indiana Department of Environmental Management (IDEM) will be required. Any identified wetlands will also be incorporated into the final design plans.

The USFWS NWI mapping identified one riverine wetland, Highland Drain 4, within the project area. To ensure that no wetlands will be impacted, it is recommended that a field investigation and a WOUSR be conducted to evaluate the project site. Additional coordination with the USACE and the IDEM would also be required.

Permits:

The following permits may be required:

IDEM Section 401 Water Quality Certification (WQC)

An IDEM Regional General Permit (RGP) may be required for the project if there are impacts to "Waters of the State", which includes streams and wetlands. The IDEM RGP is utilized for stream impacts less than 300 linear feet, wetland impacts less than 0.1 acre and no fill placed to restrict the existing low flow channel area. An individual Section 401 WQC may be required for project impacts greater than 0.1 acre of wetlands, impacts to streams greater than 300 linear feet or restrictions to the existing low flow waterway area. This determination will be made in consultation with IDEM.

US Army Corps of Engineers (USACE) Section 404 Permit for Discharge of Dredged Material

A Section 404 Permit may be required from the USACE, Detroit District. A Regional General Permit No. 1 or a Nationwide Permit will be required for project impacts to “Waters of the US” up to one acre. Impacts to “Waters of the US” greater than one acre will require an Individual Section 404 Permit. This determination will be made in consultation with the USACE.

The USACE 404 Permit review will initiate a federal action and a Section 106 evaluation of the project will be conducted by the USACE as part of the application process, if a formal evaluation was not conducted as part of the Federal Aid process (if applicable). The IDNR and IDEM will also review project impacts for wetlands and endangered species as part of the CIF and 401 permit application reviews. If riprap placement encroaches below the ordinary high-water mark, then a 401/404 permit may be required.

Construction in a Floodway Permit

An Indiana Department of Natural Resources (IDNR) Construction in a Floodway (CIF) permit is anticipated. This project is not anticipated to affect flood heights, increase flood risks, or otherwise negatively impact the beneficial qualities of the floodplain. Coordination with the IDNR will be necessary.

If Federal Funds are Used:Wetlands

A Waters of the U.S. Report (WOUSR) will be prepared as part of the project and any jurisdictional wetlands will be delineated therein; coordination with the Indiana Department of Environmental Management and Corps will confirm the presence of the jurisdictional wetlands. If any wetlands are located within the project area, additional coordination with the US Army Corps of Engineers, Detroit District (USACE) and the Indiana Department of Environmental Management (IDEM) will be required. Any identified wetlands will also be incorporated into the final design plans.

The USFWS NWI mapping identified one riverine wetland, Highland Drain 4, within the project area. To ensure that no wetlands will be impacted, it is recommended that a field investigation and a WOUSR be conducted to evaluate the project site. Additional coordination with the USACE and the IDEM would also be required.

Historic Structures and Archaeology

The Indiana State Register of Historic Sites and Structures and the Indiana State Historic Architectural and Archeological Research Database (SHAARD) were reviewed to determine the presence of potential historic properties listed on or eligible for inclusion on the National Register of Historic Places (NRHP). These databases did not identify any sites, structures, or historic districts that are listed on or eligible for the NRHP in the project vicinity. The Indiana Historic Bridge Inventory Report (Mead and Hunt, 2010) does not list Structure 02-00550.

If Federal Aid is utilized as funding for the project, an evaluation by a Qualified Professional meeting the Secretary of Interior’s Professional Qualification Standards is required for compliance with Section 106 for above ground resources. Additionally, an assessment of the area by a Professional Archaeologist will be necessary to identify and evaluate impacts to potential archaeological resources. Coordination with INDOT Cultural Resource Office (INDOT CRO) and the Indiana State Historic Preservation Officer (IN SHPO) will be required.

Section 4(f) – Section 6(f)

If Federal Aid is utilized as funding for the project, then an evaluation of Section 4(f) and 6(f) resources would be necessary. Section 4(f) of the US Department of Transportation Act prohibits the use of public parks, recreational facilities, wildlife refuges or historic sites listed on

the NRHP for federally funded transportation facilities unless there is no feasible and prudent alternative to such use.

Noise

If Federal Aid is utilized as funding for the project potential noise impacts must be evaluated. As proposed, the rehabilitation of the existing structure will be considered a Type III project. The project will not result in any added travel or auxiliary lanes and the roadway will not have a substantial horizontal or vertical alteration. In accordance with 23 CFR 772 and the (2017) INDOT Traffic Noise Policy, this action does not require a formal noise analysis.

All construction equipment will be required to comply with the Occupational Safety and Health Administration's (OSHA) regulations. Proper construction equipment maintenance with original exhaust equipment will help to mitigate these impacts. Additionally, the contractor will be required to follow best management practices to reduce noise impacts from construction equipment. These provisions will be incorporated into the project specifications.

Air Quality

If Federal Aid is utilized as funding for the project, potential air quality impacts must be evaluated. This project is located within the Northeastern Indiana Regional Coordinating Council (NIRCC) MPO. However, this project is not included within the 2018-2021 Transportation Improvement Program for NIRCC and it is not included within the Indiana State Transportation Improvement Program. Further coordination with NIRCC and other State entities will be needed to address the conformity with 23 CFR 771.117(c) or the Clean Air Act conformity rule under 40 CFR 93.126

Endangered, Threatened and Rare Species

If Federal Aid is utilized as funding for the project potential impacts to endangered, threatened and rare species must be evaluated. Due to the nature of the project activities, this project will likely fall under the guidelines set forth under the USFWS *Interim Policy for the Review of Transportation Projects in Indiana* (dated May 29, 2013). No further coordination is necessary, apart from the routine coordination with IDNR that will be done as part of the environmental document process.

A review of the USFWS database will be conducted to determine the presence of endangered bat species in or within 0.5 mile of the project area. The project area is located in an urban area with heavy residential components. Since the project falls within the range of the Indiana bat and the Northern Long Eared bat, the range-wide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to "Using the USFWS's Information for Planning and Consultation (IPaC) System for Listed Bat Consultation for INDOT Projects".

9. SURVEY REQUIREMENTS:

No survey has been performed for this project. Based on the recommended alternative, the survey should extend along Tillman Road 700 feet east and west of the bridge and along the Rivergreenway path 700 feet east and west of the bridge.

10. RIGHT-OF-WAY IMPACT (R/W):

Based on the R/W information available, it is anticipated that R/W will need to be acquired north and south of Tillman Road. R/W should be further investigated during the design.

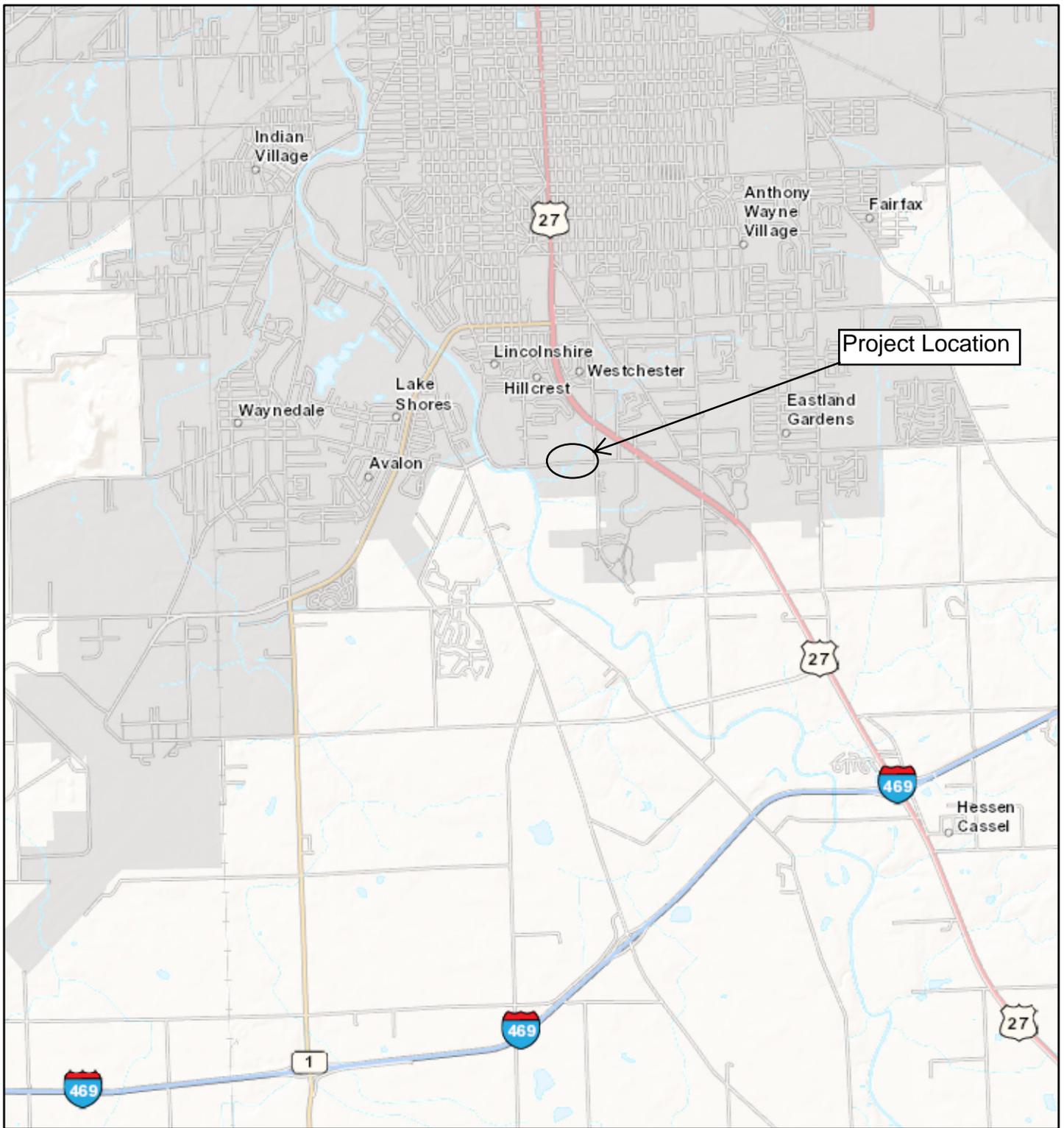
11. UTILITY IMPACTS:

Based on the site visit and information provided the water main and the stormwater sewer pipes, and the overhead electric lines will need to be relocated. The other utilities appear to be located near the existing R/W limits or are located beyond the toe of slope for the roadway

embankment. Additional discussions with the existing utilities will take place during the design phase.

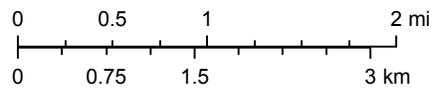
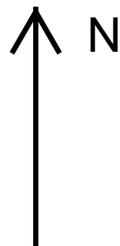
APPENDIX A

PROJECT LOCATION MAPS & PHOTOGRAPHS

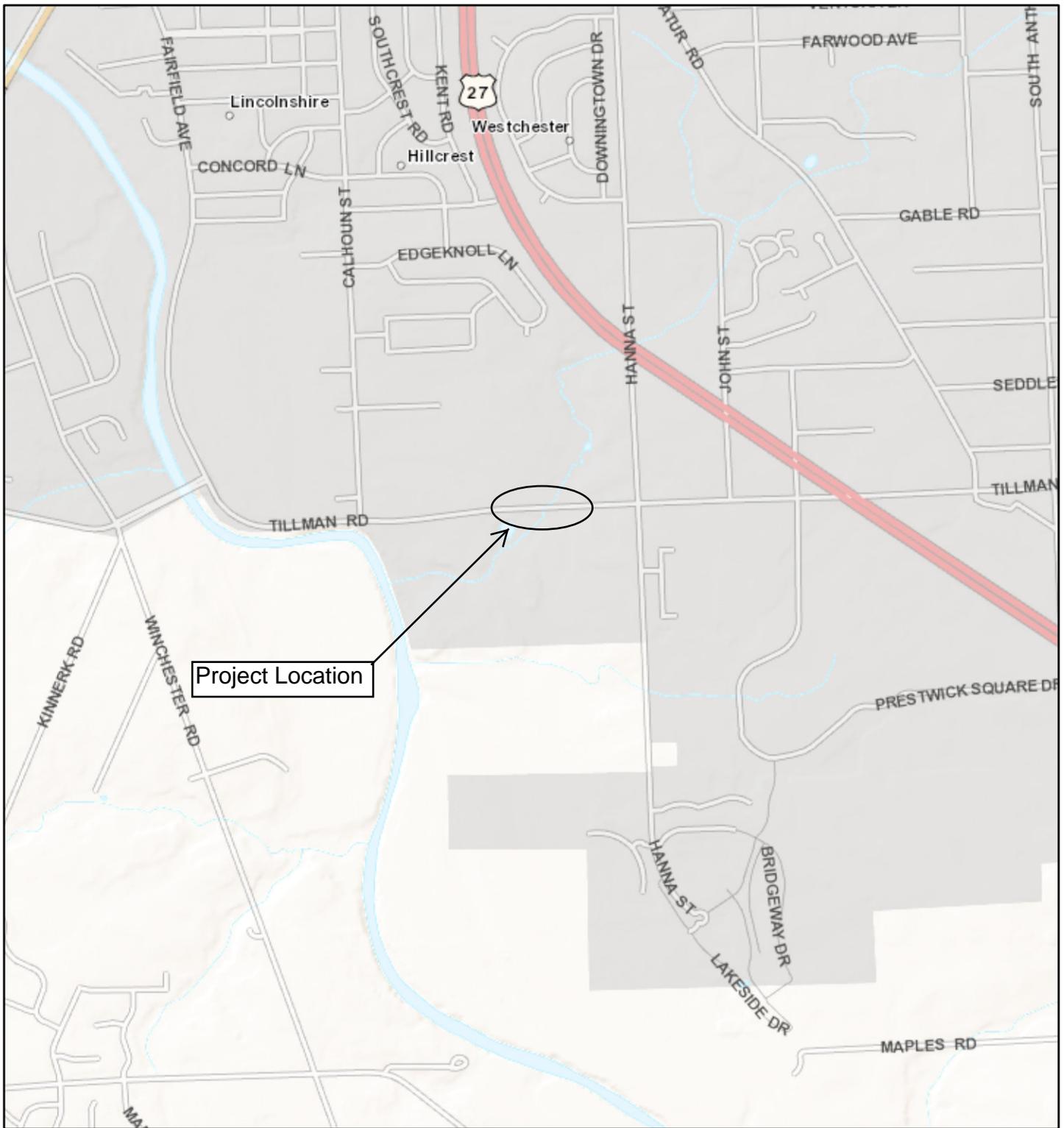


November 5, 2019

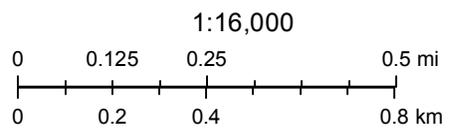
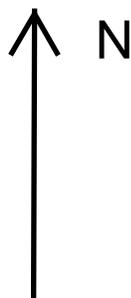
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Indiana Department of Transportation (INDOT), U.S. Census Bureau (USCB), Indiana Geographic Information Council (IGIC), UITS, Indiana Spatial Data Portal



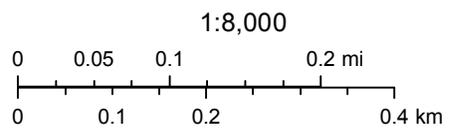
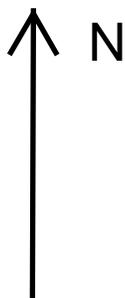
November 5, 2019



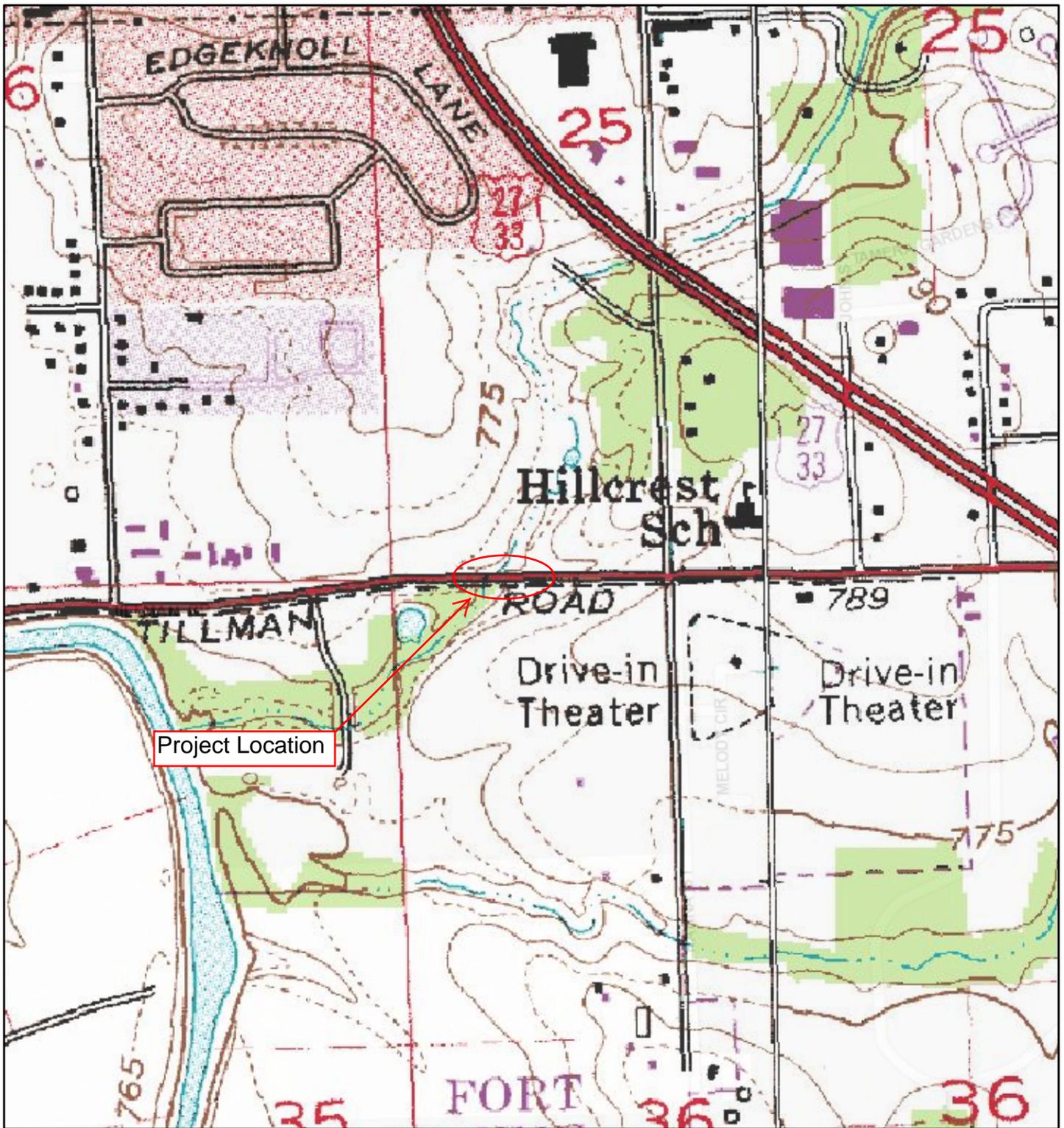
Indiana Department of Transportation (INDOT), U.S. Census Bureau (USCB),
 Indiana Geographic Information Council (IGIC), UITS, Indiana Spatial Data
 Portal



November 5, 2019



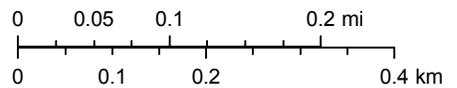
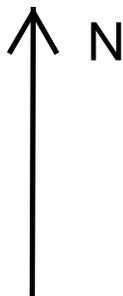
Indiana Spatial Data Portal, UITS, ESRI



November 5, 2019

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□ State Boundary



United States Geological Survey (USGS)
 Indiana Department of Transportation (INDOT), U.S. Census Bureau (USCB),
 Indiana Geographic Information Council (IGIC), UITS, Indiana Spatial Data
 Portal

**ALLEN COUNTY
BRIDGE NO. 00550**



APPROACH LOOKING EAST

APPROACH LOOKING WEST



ELEVATION LOOKING NORTH

**ALLEN COUNTY
BRIDGE NO. 00550**



**TYPICAL HEAVY SPALLING ON
UNDERSIDE OF BEAMS**

**TYPICAL HEAVY SPALLING ON
UNDERSIDE OF BEAMS**



**TYPICAL CONDITION OF ABUTMENT
NO. 1**

**ALLEN COUNTY
BRIDGE NO. 00550**



**TYPICAL CONDITION OF
ABUTMENT NO. 2**

**SIDEWALK AT NORTHWEST
QUADRANT**



**DOUBLE-TEE BEAM FOR SIDEWALK
ON SOUTH COPING**



**ALLEN COUNTY
BRIDGE NO. 00550**



**TYPICAL CONDITION OF
GUTTER**

**MANHOLE AT SOUTHEAST
QUADRANT OF BRIDGE**



**MANHOLE AT SOUTHEAST
QUADRANT OF BRIDGE**

**ALLEN COUNTY
BRIDGE NO. 00550**



**MANHOLE AT SOUTHWEST
QUADRANT OF BRIDGE**

**APPROACH LOOKING EAST OF
TRAIL**



**APPROACH LOOKING WEST OF
TRAIL**

**ALLEN COUNTY
BRIDGE NO. 00550**



**STORMWATER PIPE THROUGH
SOUTHEAST WING**

**STORMWATER PIPE THROUGH
SOUTHWEST WING**

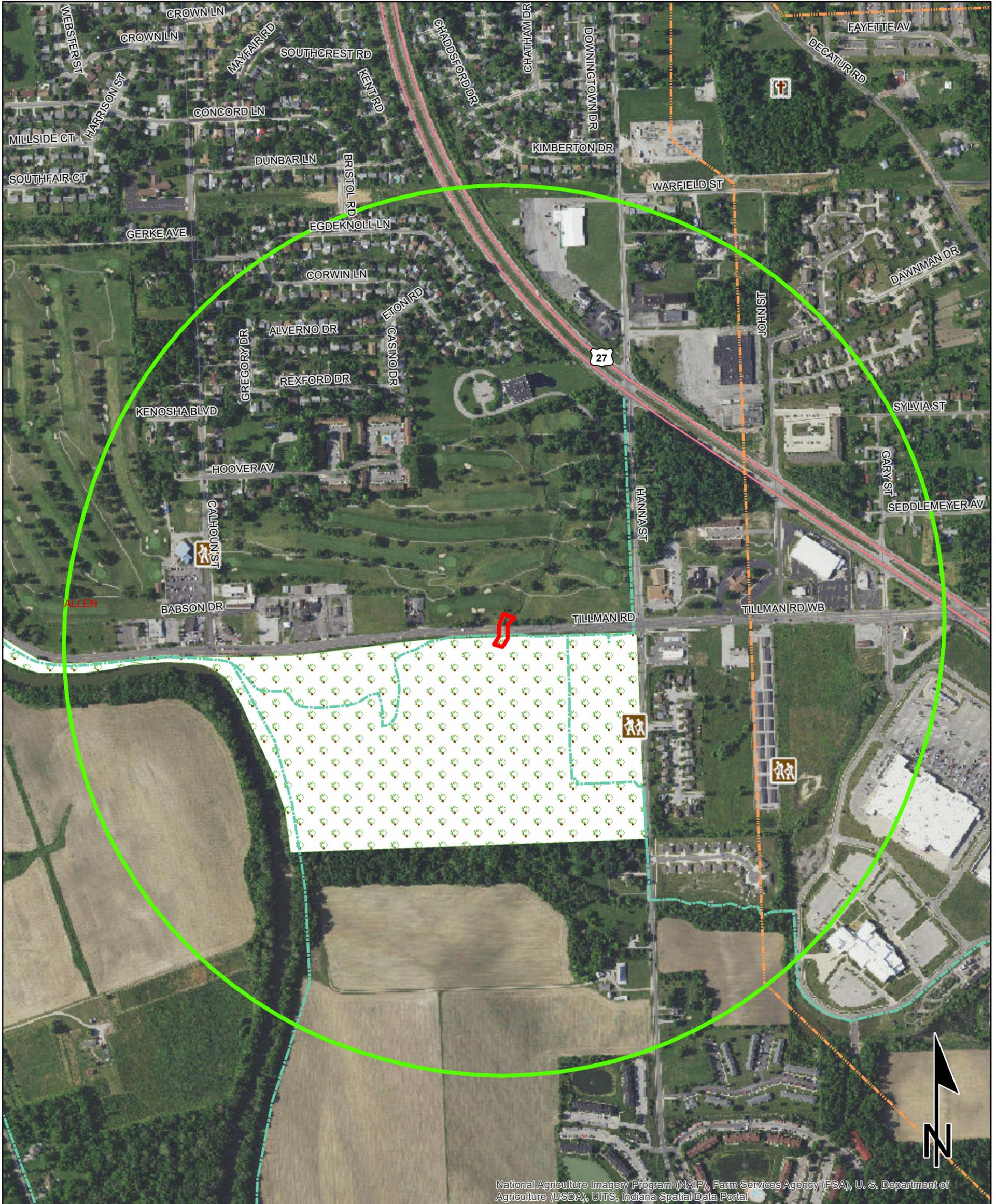


ELEVATION LOOKING SOUTH

APPENDIX B

RED FLAG SURVEY & SHAARD MAPS

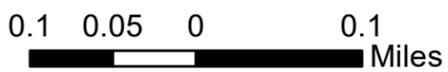
Red Flag Investigation - Infrastructure Tillman Rd. over UNT to St. Mary's River Allen County, Indiana



National Agriculture Imagery Program (NAIP), Farm Services Agency (FSA), U. S. Department of Agriculture (USDA), UITS, Indiana Spatial Data Portal

Sources:
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

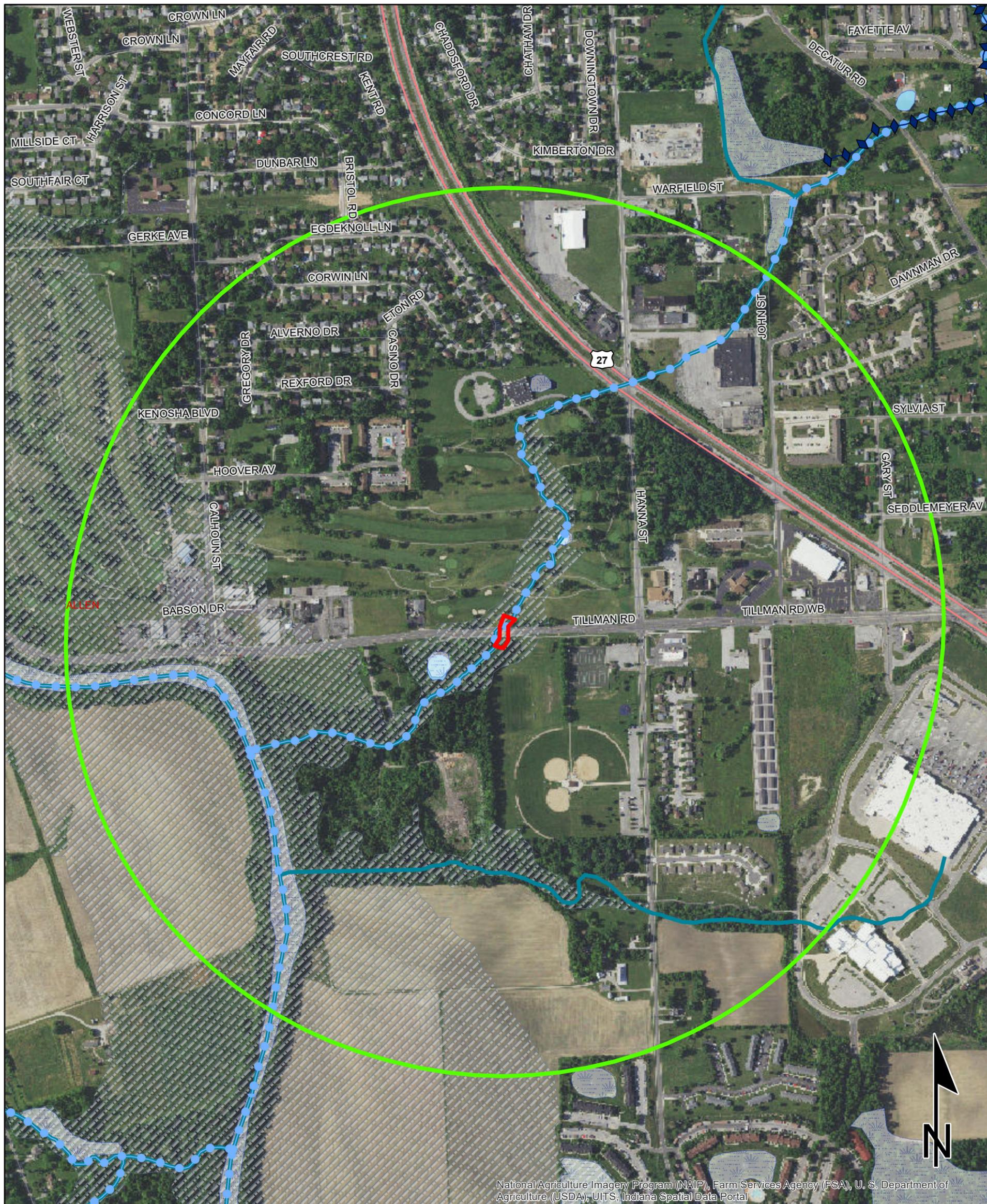


	Religious Facility		Recreation Facility		Project Area
	Airport		Pipeline		Half Mile Radius
	Cemeteries		Railroad		Toll
	Hospital		Trails		Interstate
	School		Managed Lands		State Route
			County Boundary		US Route
					Local Road

Red Flag Investigation - Water Resources

Tillman Rd. over UNT to St. Mary's River

Allen County, Indiana



Sources: 0.1 0.05 0 0.1 Miles

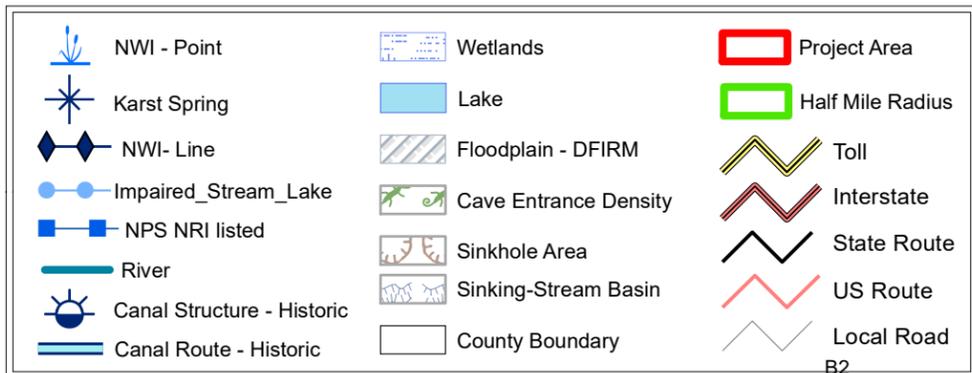
Non Orthophotography

Data - Obtained from the State of Indiana Geographical Information Office Library

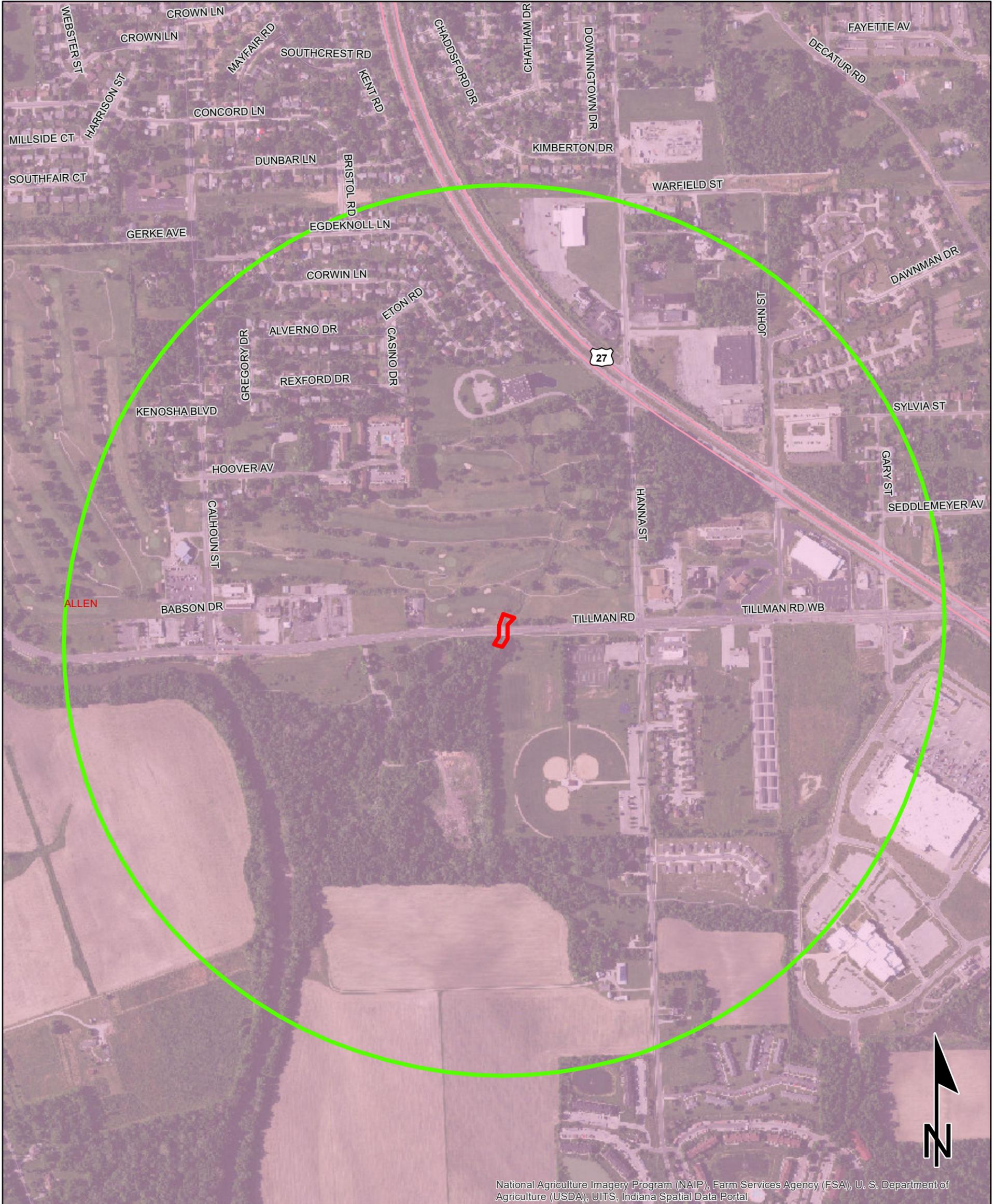
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)

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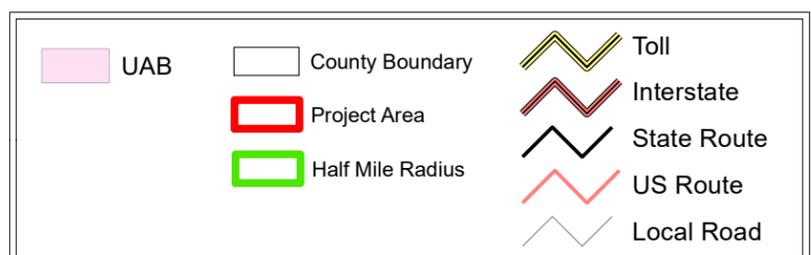
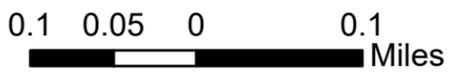


Red Flag Investigation - Urbanized Area Boundary Tillman Rd. over UNT to St. Mary's River Allen County, Indiana

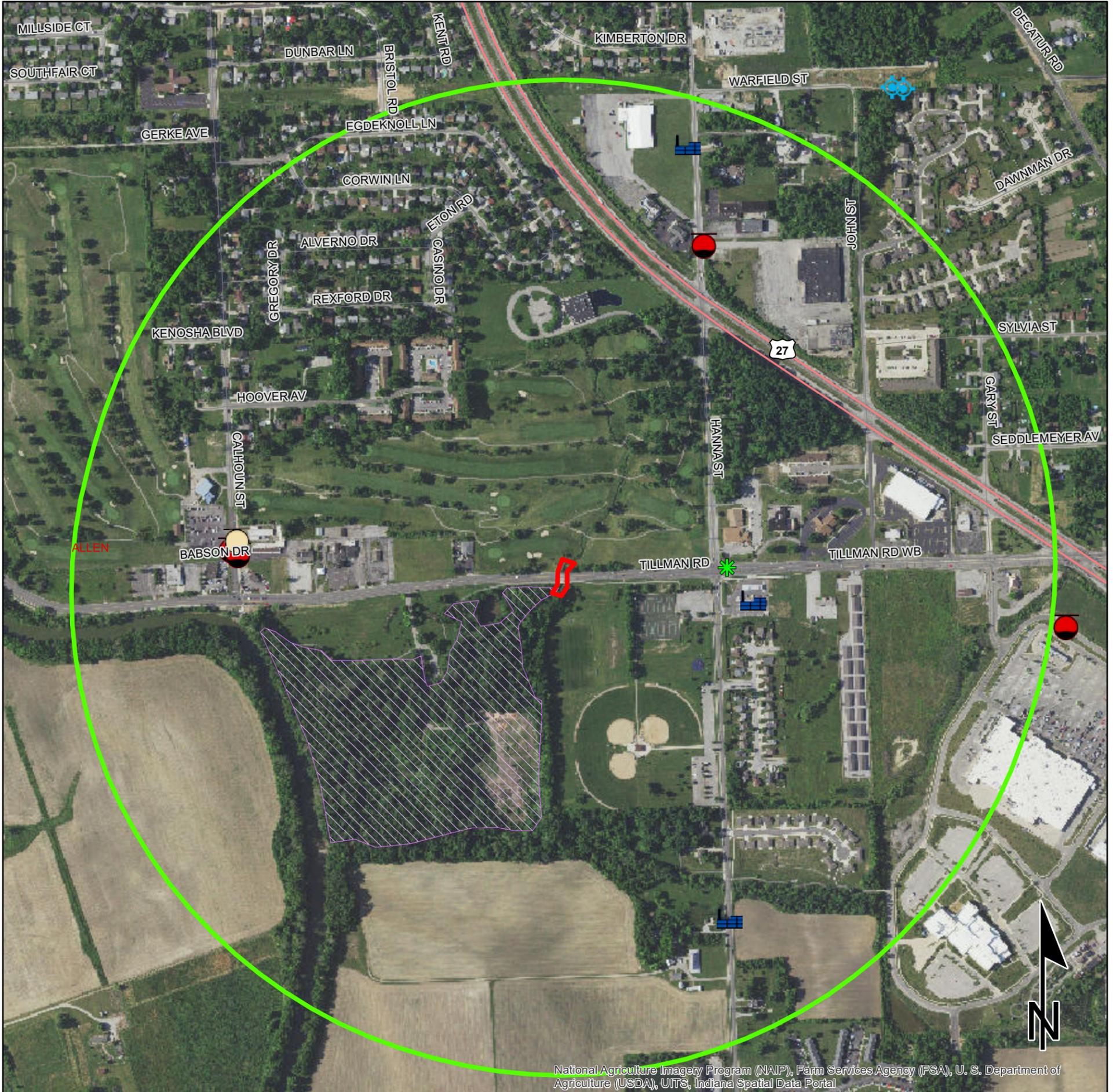


Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

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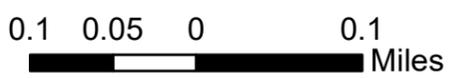


Red Flag Investigation - Hazardous Materials Concern Tillman Rd. over UNT to St. Mary's River Allen County, Indiana



National Agriculture Imagery Program (NAIP), Farm Services Agency (FSA), U. S. Department of Agriculture (USDA), UITS, Indiana Spatial Data Portal

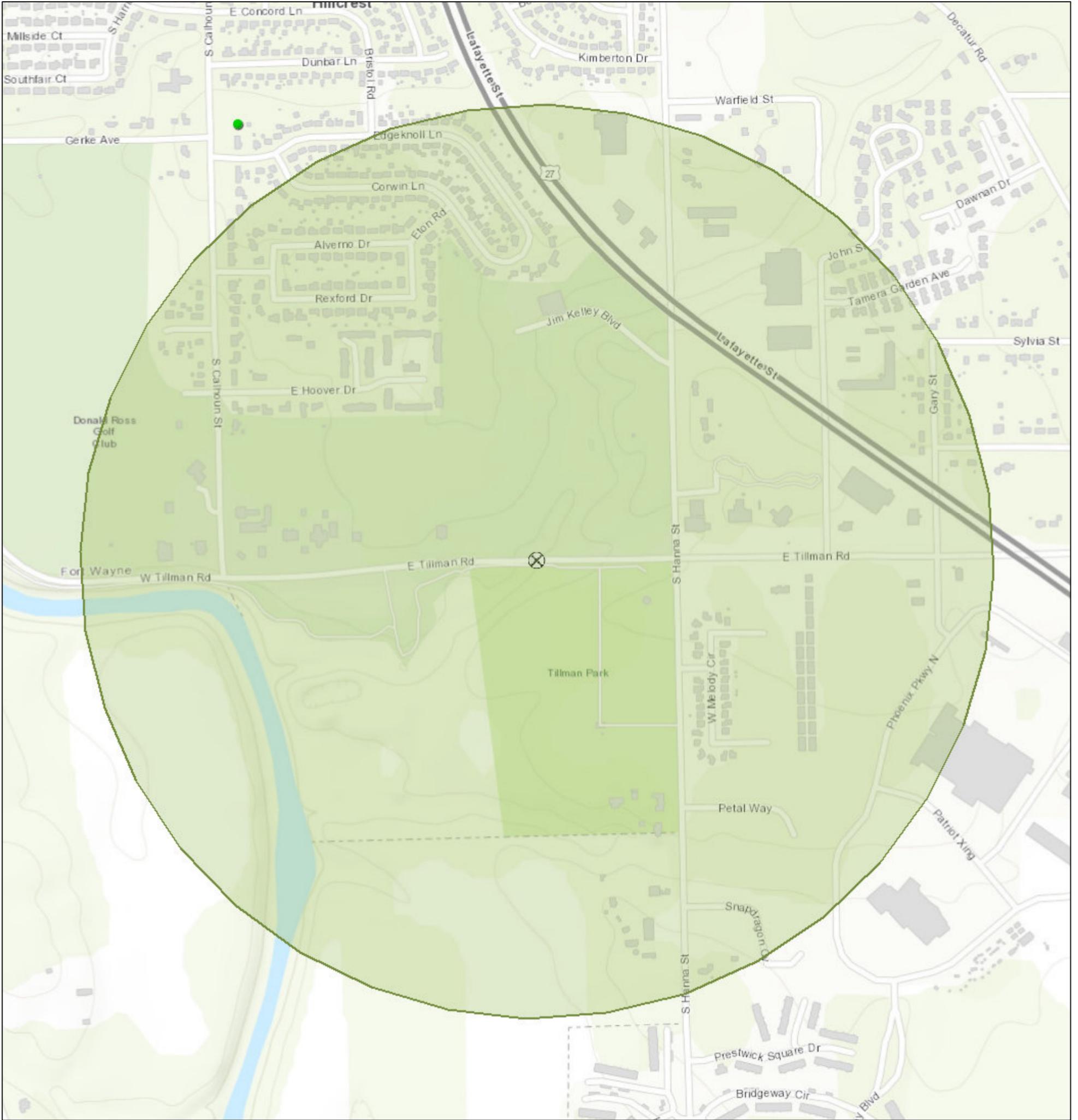
<ul style="list-style-type: none"> Brownfield RCRA Corrective Action Sites Confined Feeding Operation Notice_of_Contamination Construction/Demolition Site Infectious/Medical Waste Site Leaking Underground Storage Tank Manufactured Gas Plant NPDES Facilities NPDES Pipe Locations Open Dump Waste Site 	<ul style="list-style-type: none"> RCRA Generator/TSD Restricted Waste Site Septage Waste Site Solid Waste Landfill State Cleanup Site Superfund Tire Waste Site Underground Storage Tank Voluntary Remediation Program Waste Transfer Station 	<ul style="list-style-type: none"> Institutional Controls County Boundary Project Area Half Mile Radius Toll Interstate State Route US Route Local Road
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Sources:
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

Historic Buildings, Bridges, and Cemeteries Map



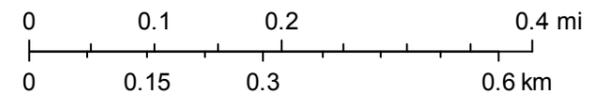
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1:9,028

Buffer polygon

County Survey Sites

Notable



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

APPENDIX C

STRUCTURE APPRAISAL AND INVENTORY REPORT

Bridge Inspection Report

IDENTIFICATION

(1) STATE CODE:	185 - Indiana	(12) BASE HIGHWAY NETWORK:	0
(8) STRUCTURE:	0200277	(13A) INVENTORY ROUTE:	
(5 A-B-C-D-E) INV. ROUTE:	1 - 5 - 1 - 00000 - 0	(13B) SUBROUTE NUMBER:	
(2) HIGHWAY AGENCY DISTRICT:	02 - Fort Wayne	(16) LATITUDE:	41.01713
(3) COUNTY CODE:	002 - ALLEN	(17) LONGITUDE:	-85.12957
(4) PLACE CODE:	25000 - FORT WAYNE	(98) BORDER	
(6) FEATURES INTERSECTED:	HIGHLAND DRAIN 4	A) STATE NAME:	
(7) FACILITY CARRIED:	TILLMAN RD	B) PERCENT	%
(9) LOCATION:	00.20 W OF S HANNA ST	(99) BORDER BRIDGE STRUCT. NO:	
(11) MILEPOINT:	0000.000		

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE, MAIN:		(45) NUMBER OF SPANS IN MAIN UNIT:	001
A) KIND OF MATERIAL/DESIGN:	5 - Prestressed concrete	(46) NUMBER OF APPROACH SPANS:	0000
B) TYPE OF DESIGN/CONSTR:	05 - Box Beam or Girders - Multiple	(107) DECK STRUCTURE TYPE:	1 - Concrete Cast-in-Place
(44) STRUCTURE TYPE, APPROACH SPANS:		(108) WEARING SURFACE/PROT SYS:	
A) KIND OF MATERIAL/DESIGN:	0 - Other	A) WEARING SURFACE:	1 - Monolithic Concrete (concurrently placed with structural deck)
B) TYPE OF DESIGN/CONSTR:	00 - Other	B) DECK MEMBRANE:	N - NA
		C) DECK PROTECTION:	0 - None

AGE OF SERVICE

(27) YEAR BUILT:	1966	(28) LANES:	
(106) YEAR RECONSTRUCTED:	0000	A) ON BRIDGE:	04
(42) TYPE OF SERVICE:		B) UNDER BRIDGE:	00
A) ON BRIDGE:	5 - Highway-pedestrian	(29) AVERAGE DAILY TRAFFIC:	012125
B) UNDER BRIDGE:	5 - Waterway	(30) YEAR OF AVERAGE DAILY TRAFFIC:	2017
		(109) AVERAGE DAILY TRUCK TRAFFIC:	05 %
		(19) BYPASS DETOUR LENGTH:	001 MI

Inspector: Kate Kreienkamp
 Inspection Date: 05/18/2021

Asset Name: 02-00550
 Facility Carried: TILLMAN RD

Bridge Inspection Report

GEOMETRIC DATA

(48) LENGTH OF MAX SPAN: 0025.0 FT	(35) STRUCTURE FLARED: 0 - No flare
(49) STRUCTURE LENGTH: 00026.0 FT	(10) INV RTE, MIN VERT CLEARANCE: 99.99 FT
(50) CURB/SIDEWALK WIDTHS:	(47) TOT HORIZ CLEARANCE: 048.0 FT
A) LEFT 04.3 FT	(53) VERT CLEAR OVER BR RDWY: 99.99 FT
B) RIGHT: 04.3 FT	(54) MIN VERTICAL UNDERCLEARANCE:
(51) BRDG RDWY WIDTH CURB-TO-CURB: 048.0 FT	A) REFERENCE FEATURE: N
(52) DECK WIDTH, OUT-TO-OUT: 066.0 FT	B) MIN VERT UNDERCLEAR: 00.0 FT
(32) APPROACH ROADWAY 048.0 FT	(55) LATERAL UNDERCLEARANCE RIGHT:
(33) BRIDGE MEDIAN: 0 - No median	A) REFERENCE FEATURE: N
(34) SKEW: 00 DEG	B) MIN LATERAL UNDERCLEAR: 000.0 FT
	(56) MIN LATERAL UNDERCLEAR ON LEFT: 000.0 FT

INSPECTIONS

(90) INSPECTION DATE: 05/18/2021	(91) DESIGNATED INSPECTION FREQUENCY: 12 MONTHS
(92) CRITICAL FEATURE INSPECTION:	(93) CRITICAL FEATURE INSPECTION DATE:
A) FRACTURE CRITICAL REQUIRED/FREQUENCY: N	A) FRACTURE CRITICAL DATE:
B) UNDERWATER INSPECTION REQUIRED/FREQUENCY: N	B) UNDERWATER INSP DATE:
C) OTHER SPECIAL INSPECTION REQUIRED/FREQUENCY: N	C) OTHER SPECIAL INSP DATE:

CONDITION

(58) DECK: 5 - Fair Condition (minor section loss)	(60) SUBSTRUCTURE: 6 - Satisfactory Condition (minor deterioration)
(58.01) WEARING SURFACE: 5 - Fair Condition	(61) CHANNEL/CHANNEL PROTECTION: 6 - Bank slump. widespread minor damage
(59) SUPERSTRUCTURE: 3 - Serious Condition (primary structure affected)	(62) CULVERTS: N - Not Applicable

CONDITION COMMENTS

(58) DECK: 5 - Fair Condition (minor section loss)

Comments:
 Fair - Cracks at beam joints. Seepage.
 Material: 6" Reinforced Concrete Deck

(58.01) WEARING SURFACE: 5 - Fair Condition

Comments:
 Fair - Cracks at beam joints.
 Material: Concrete

Inspector: Kate Kreienkamp
 Inspection Date: 05/18/2021

Asset Name: 02-00550
 Facility Carried: TILLMAN RD

Bridge Inspection Report

(59) SUPERSTRUCTURE: 3 - Serious Condition (primary structure affected)

Comments:

Serious - Large spalls. Strands exposed, severed in most beams.

Beams numbered from north.

2 strands Beams 1, 2, 6, 14

3 strands beams 3, 4, 7, 10, 11

4 strands beams 5,8, 9

Beams 13 and 14 have most significant spalling with exposed strands.

Material: 12" PRECAST CONCRETE BOX BEAMS, DOUBLE T BEAM PEDESTRIAN BRIDGE

(60) SUBSTRUCTURE: 6 - Satisfactory Condition (minor deterioration)

Comments:

Satisfactory - Cracked and leaching. Four full-height vertical cracks at the west abutment. Six full-height vertical cracks at the east abutment. Timber retention system at southwest corner of bridge has failed.

Material: Concrete abutments.

(61) CHANNEL/CHANNEL PROTECTION 6 - Bank slump. widespread minor damage

Comments:

Satisfactory - Flow against west abutment.

Material: Gravel channel. Natural and riprap at abutments.

(62) CULVERTS: N - Not Applicable

Comments:

N/A

LOAD RATING AND POSTING

(31) DESIGN LOAD:	5 - HS 20	(66) INVENTORY RATING:	37
(70) BRIDGE POSTING	5 - Equal to or above legal loads	(65) INVENTORY RATING METHOD: 1 - Load Factor (LF)	
(41) STRUCTURE OPEN/POSTED/CLOSED:	A - Open	(66B) INVENTORY RATING (H):	22
(64) OPERATING RATING:	63	(66C) TONS POSTED :	
(63) OPERATING RATING METHOD:	1 - Load Factor (LF)	(66D) DATE POSTED/CLOSED:	

APPRAISAL

SUFFICIENCY RATING:	31.4	(36) TRAFFIC SAFETY FEATURE:	
STATUS:	1	36A) BRIDGE RAILINGS:	0
(67) STRUCTURAL EVALUATION:	3	36B) TRANSITIONS:	0
(68) DECK GEOMETRY:	2	36C) APPROACH GUARDRAIL:	0
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL:	N	36D) APPROACH GUARDRAIL ENDS:	0

(71) WATERWAY ADEQUACY: 6 - Occasional Overtopping of Approaches - Insignificant Delays

Comments:

Appears barely adequate.

Inspector: Kate Kreienkamp
 Inspection Date: 05/18/2021

Asset Name: 02-00550
 Facility Carried: TILLMAN RD

Bridge Inspection Report

(72) APPROACH ROADWAY ALIGNMENT: **8 - Equal to present desirable criteria**

Comments:
 Very Good - Straight. In slight sag curve.
 Material: Asphalt. Satisfactory - Sealed cracks.

(113) SCOUR CRITICAL BRIDGES: **8 - Stable for scour conditions**

Comments:
 Protected with riprap.

CLASSIFICATION

(20) TOLL:	3 - On Free Road	(21) MAINT. RESPONSIBILITY:	02 - County Highway Agency
(22) OWNER:	02 - County Highway Agency	(26) FUNCTIONAL CLASS OF INVENTORY RTE:	16 - Urban - Minor Arterial
(37) HISTORICAL SIGNIFICANCE:	5 - Not eligible	(100) STRAHNET HIGHWAY:	Not a STRAHNET route
(101) PARALLEL STRUCTURE:	N - No parallel structure	(102) DIRECTION OF TRAFFIC:	2-way traffic
(103) TEMPORARY STRUCTURE:		(104) HIGHWAY SYSTEM OF INVENTORY ROUTE:	0 - Structure/Route is NOT on NHS
(105) FEDERAL LANDS HIGHWAYS:	0-Not Applicable	(110) DESIGNATED NATIONAL NETWORK:	Inventory route not on network
(112) NBIS BRIDGE LENGTH:	Yes		

NAVIGATION DATA

(38) NAVIGATION CONTROL:	0 - No navigation control on waterway (bridge permit not required)	(39) NAVIGATION VERTICAL CLEAR:	000.0 FT
(111) PIER OR ABUTMENT PROTECTION:		(116) MINIMUM NAVIGATION VERT. CLEARANCE, VERT. LIFT BRIDGE:	FT
		(40) NAV HORIZONTAL CLEARANCE:	0000.0 FT

PROPOSED IMPROVEMENTS

(75A) TYPE OF WORK:	31 - Replacement - Load/Geometry	(95) ROADWAY IMPROVEMENT COST:	\$ 000341
(75B) WORK DONE BY:	1 - Work to be done by contract	(96) TOTAL PROJECT COST:	\$ 001995
(76) LENGTH OF IMPROVEMENT:	000052 FT	(97) YR OF IMPROVEMENT COST EST:	2021
(94) BRIDGE IMPROVEMENT COST:	\$ 001137	(114) FUTURE AVG DAILY TRAFFIC:	016000
		(115) YR OF FUTURE ADT:	2037

APPENDIX D
COST ESTIMATE

Job: Allen 550
Item: Cost Estimate

DES: SJM **DATE:** 11/22/21
CK: JAP **DATE:** 11/24/21

ALTERNATE NO. 2

BRIDGE REPLACEMENT

Item Num.	Pay Item	UNIT	QUANTITY	UNIT PRICE	AMOUNT
105-06845	Construction Engineering	LS	1	\$ 30,600.00	\$ 30,600.00
110-01001	Mobilization And Demobilization	LS	1	\$ 76,300.00	\$ 76,300.00
201-52370	Clearing Right Of Way	LS	1	\$ 15,300.00	\$ 15,300.00
202-02240	Pavement Removal	SYS	1,067	\$ 25.00	\$ 26,675.00
202-51330	Present Structure, Remove	LS	1	\$ 50,000.00	\$ 50,000.00
203-02000	Excavation, Common	CYS	2,000	\$ 40.00	\$ 80,000.00
203-02070	Borrow	CYS	2,000	\$ 20.00	\$ 40,000.00
205-12108	Storm Water Management Budget	DOL	20,000	\$ 1.00	\$ 20,000.00
207-09935	Subgrade Treatment, Type IC	SYS	5,538	\$ 25.00	\$ 138,450.00
211-09267	Structure Backfill, Type 4	CYS	14	\$ 190.00	\$ 2,660.00
301-12234	Compacted Aggregate No. 53	CYS	498	\$ 60.00	\$ 29,880.00
302-07455	Dense Graded Subbase	CYS	46	\$ 110.00	\$ 5,060.00
306-08034	Milling, Asphalt, 1.5 in.	SYS	534	\$ 12.00	\$ 6,408.00
401-07321	QC/QA-HMA, 2, 64, Surface, 9.5 mm	TON	326	\$ 100.00	\$ 32,600.00
401-07390	QC/QA-HMA, 2, 64, Intermediate, 19.0 mm	TON	469	\$ 95.00	\$ 44,555.00
401-07423	QC/QA-HMA, 2, 64, Base, 19.0 mm	TON	750	\$ 85.00	\$ 63,750.00
406-05520	Asphalt For Tack Coat	TON	2	\$ 650.00	\$ 1,300.00
601-12291	Guardrail MGS Transition With Curb	EACH	4	\$ 3,000.00	\$ 12,000.00
601-94689	Guardrail, End Treatment, OS	EACH	4	\$ 3,100.00	\$ 12,400.00
604-05528	HMA For Sidewalk	TON	192	\$ 130.00	\$ 24,960.00
604-06070	Sidewalk, Concrete	SYS	667	\$ 70.00	\$ 46,690.00
605-06140	Curb And Gutter, Concrete	LFT	2,000	\$ 33.00	\$ 66,000.00
609-06259	Reinforced Concrete Bridge Approach, 12 in	SYS	273	\$ 150.00	\$ 40,950.00
616-06405	Riprap, Revetment	TON	201	\$ 77.00	\$ 15,477.00
616-12246	Geotextile for Riprap Type 1A	SYS	267	\$ 6.50	\$ 1,735.50
621-06560	Mulched Seeding U	SYS	5,111	\$ 1.50	\$ 7,666.50
628-09403	Field Office, C	MONTH	12	\$ 2,200.00	\$ 26,400.00
701-09558	Test Pile, Indicator, Production	LFT	248	\$ 123.00	\$ 30,504.00
701-09560	Test Pile, Indicator, Restrike	EACH	4	\$ 2,000.00	\$ 8,000.00
701-51195	Pile, Steel H HP 12 x 53	LFT	1,094	\$ 73.00	\$ 79,862.00
701-97874	Pile, Steel H, Reinforced Concrete Encased HP 12 x 53	LFT	154	\$ 200.00	\$ 30,800.00
703-06028	Reinforcing Bars	LBS	9,414	\$ 1.25	\$ 11,767.50
703-06029	Reinforcing Bars, Epoxy Coated	LBS	43,886	\$ 1.40	\$ 61,440.40

Cost Comparison

Job: Allen 550
Item: Cost Estimate

DES: SJM **DATE:** 11/22/21
CK: JAP **DATE:** 11/24/21

ALTERNATE NO. 2

704-51002	Concrete, C, Superstructure	CYS	219.9	\$ 1,000.00	\$ 219,900.00
706-06353	Concrete Bridge Railing Transition, TPS-1	EACH	4	\$ 3,500.00	\$ 14,000.00
706-09961	Railing, Concrete PS-1	LFT	106	\$ 140.00	\$ 14,840.00
706-11418	Railing, Steel PS-1	LFT	124	\$ 80.00	\$ 9,920.00
709-51821	Surface Seal	LS	1	\$ 2,000.00	\$ 2,000.00
715-02048	Misc Equipment for Water Relocation/Adj	LS	1	\$ 180,000.00	\$ 180,000.00
715-05118	Pipe, Type 1, Circular, 12 in.	LFT	50	\$ 72.00	\$ 3,600.00
715-05119	Pipe, Type 1, Circular, 15 in.	LFT	120	\$ 60.00	\$ 7,200.00
715-05123	Pipe, Type 1, Circular, 24 in.	LFT	50	\$ 80.00	\$ 4,000.00
715-46005	Pipe End Section, Diameter 15 in.	EACH	1	\$ 800.00	\$ 800.00
715-46020	Pipe End Section, Diameter 24 in.	EACH	1	\$ 1,100.00	\$ 1,100.00
720-45410	Manhole, C4	EACH	2	\$ 4,500.00	\$ 9,000.00
720-98174	Inlet, B15	EACH	4	\$ 2,900.00	\$ 11,600.00
801-04308	Road Closure Sign Assembly	EACH	4	\$ 270.00	\$ 1,080.00
801-06625	Detour Route Marker Assembly	EACH	30	\$ 120.00	\$ 3,600.00
801-06640	Construction Sign, A	EACH	10	\$ 200.00	\$ 2,000.00
801-06775	Maintaining Traffic	LS	1	\$ 20,000.00	\$ 20,000.00
801-07118	Barricade, III-A	LFT	96	\$ 14.00	\$ 1,344.00
801-07119	Barricade, III-B	LFT	96	\$ 14.00	\$ 1,344.00

Subtotal =	\$ 1,647,518.90
Add'l 25% Contingency	\$ 411,879.73
Total =	\$ 2,059,398.63
2021 Cost Estimate	\$ 2,059,000.00
2026 Cost Estimate	\$ 2,387,000.00