



OHIO DEPARTMENT OF TRANSPORTATION

Level 1 Ecological Survey Report

(Version: 10-19)

for

BUT North Hamilton Crossing PID 115755

ESR: BUT-North Hamilton Crossing

Accepted: 10/1/2025 8:59:33 AM

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I certify that I have personally examined and am familiar with the information in this report and all attachments, and that the data collection was supervised by an individual(s) prequalified to conduct ecological surveys for ODOT or by trained ODOT Environmental staff. Based on my inquiry of those persons immediately responsible for obtaining the information contained in the report, I believe that the information has been collected in accordance with the ODOT Ecological Manual current at the time of the report preparation, and is true, accurate, and complete.

Responsible party name: Christine Stahlman

Responsible party title: Senior NEPA Specialist, Associate

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1 General Project Information

1.1 Project Information

Project Location Details: County(ies): BUTLER Township(s): Saint Clair and Fairfield Latitude (DD.ddddd): 39.39930 Longitude (-DD.ddddd): -84.54565 Study area size (ac.): 152.295
Survey Conditions: Field investigator name(s): Michael de Villiers, Raymond Gonzo Date(s) of survey work: 09/19/2024, 09/25/2024, 08/07/2024, 08/08/2024, 08/14/2024
Survey Area Designations: USGS quadrangle(s): Hamilton Impacting or adjacent to ODNR property: No Project description:

Survey Area Designations:

The proposed BUT-North Hamilton Crossing project is in the City of Hamilton, Saint Clair and Fairfield Townships, Butler County, Ohio (see Fig. 1.1 and Fig. 1.2). The City of Hamilton and the Butler County Transportation Improvement District (BCTID), in partnership with the Ohio Department of Transportation (ODOT), District 8, have proposed an unobstructed east-west route through Butler County to address transportation issues within the northern part of the city and western Butler County. The study area extends between a western terminus at North B Street and an eastern terminus at the intersection of SR129 and Hampshire Drive, all north of High Street/SR129. The project will include a new bridge over the Great Miami River and a new railroad overpass.

The NHX Feasibility Study, completed in July 2023, initially evaluated approximately 18 alignment alternatives based on engineering feasibility, environmental constraints, and public input. After the study was completed, the project area was divided into three geographic sections, West, Central, and East, to support more detailed analysis of the remaining feasible routes (Gordon Rhea Crossing, Vine Street, and East Connection). A recommended preferred alternative was then identified through the Environmental Assessment process and supporting environmental studies. The recommended preferred alternatives for each section were selected in part for their ability to minimize ecological impacts relative to the other routes considered. Compared to the northern crossing, the Gordon/Rhea Crossing (South River Crossing) involves fewer stream crossings and avoids Combs Park, which contains both wetland and suitable wooded habitats. Additionally, the Northwest Washington Crossing would require a larger footprint within the Great Miami River and its floodplain (see Fig. 2a). In the Central Section, the Vine Street Connection also minimizes ecological impacts compared to the other alternatives that were studied. This alignment avoids streams, wetlands, and the hydraulic canal, and reduces impacts to suitable wooded habitat. In the East Section, only one feasible alternative, the East Connection, was identified for further study, and it was advanced based on its ability to meet the project's purpose and need while avoiding impacts to floodplains, farmland, parks, and trails (see Fig. 2b). The concept for the roadway portion of the project is a four-lane, boulevard-style road (two travel lanes in each direction) with a turn lane or landscaped median in the middle and a speed limit of 35 mph. The project also includes a sidewalk on one side of the street and a shared-use path on the other side. Bump-outs and crosswalks will be included at street corners to make crossing the street easier and safer.

The project area was investigated by Stantec environmental scientists on August 7, 8, and 14, 2024, and September 19 and 25, 2024. Weather conditions ranged from mostly cloudy to clear and sunny with average temperatures in the upper 70's degrees Fahrenheit. The study area is comprised of developed high intensity (paved roadway, paved parking lots, sidewalks, buildings), developed medium intensity (higher density single residential homes), developed low intensity (lower density single family residential homes), developed open space (grassy right-of-way, parks, large lot residential), upland forest, floodplain forest, scrub/shrub, grassland/herbaceous, open water, three (3) streams, one (1) wetland, and three (3) ponds.

For quantifying impacts in the Level 1 ESR, the Pref. Alt. preliminary construction limits are mostly the same as the study area limits, except for two areas: (1) Twomile Creek and the confluence with the Great Miami River, and (2) Hydraulic Canal, where no impacts are expected to occur. In these two areas, the preliminary construction limits were pulled in to avoid resources.

List of Project Alternatives:

Alternative name	Area of construction limits (ac.)	Preferred alternative
Preferred	149.613	Yes

2 Aquatic Ecology

2.1 Streams:

Streams present: Yes

Total length of streams within the project study area (ft.): 1650

Streams:

Stream name	Latitude (DD.ddddd)	Longitude (-DD.ddddd)	Photo ID	Drainage area (sq. mi.)	OEPA River Mile (if applicable)	12-Digit HUC	Captured within the roadway ditch	Stream hydrology type	USACE flow characteristics	Habitat assessment	Habitat score	pH value	Salamanders observed	Fish observed	Aquatic macro-invertebrates observed	OEPA aquatic life use designation	Provisional or official designation	Antidegradation designation	401 WQC for nationwide permit eligibility	National or state scenic rivers or NRI streams	Potential in-water work restriction based on proximity to scenic river	Designation for potential in-water work restriction	Length within open channel (ft.) in the study area	Length within existing culvert (ft.) in the study area	Total length in study area (ft.)	Alternative Name	Permanent estimated impact length (ft.) by alternative construction limits (Include temporary impact within the permanent impact area) (if known)	Temporary estimated impact length (ft.) by alternative construction limits (Only include temporary impact outside the permanent impact area) (if known)	Total estimated impact length (ft.) for the preferred alternative construction limits
Great Miami River	39.41122	-84.55740	Photo Location 1	3630	37	050800020902	No	Perennial	RPW-Perennial	None		7.9	Not Surveyed	Presence Observed, Not Surveyed	Presence Observed, Not Surveyed	WWH	Official from OAC	General High Quality Water	Eligible	No		WWH Greater than 20 sq. mi. Drainage Area	854	0	854	Preferred	490	0	490

Flow path to TNW:
Great Miami River (a TNW).

Details on stream impact or other information (if known):
The Great Miami River is a named USGS mapped perennial TNW that is a direct tributary to the Ohio River (also a TNW). The Ohio EPA assigned this segment of the Great Miami River an Aquatic Life Use Designation of Warmwater Habitat (WWH), meaning the stream is capable of supporting a diverse community of warmwater adapted organisms. Based on the preliminary construction limits 490 linear feet occur within the limits of the Preferred alternative (impacts will be minimized during detailed design and permitting).

Twomile Creek	39.41350	-84.55800	Photo Location 2	8.46	0.3	050800020902	No	Perennial	RPW-Perennial	QHEI	58.5	8.6	Not Surveyed	Presence Observed, Not Surveyed	Presence Observed, Not Surveyed	WWH	Provisional Based on Project Field Assessment	General High Quality Water	Eligible	No		None Applicable	354	0	354	Preferred	0	0	0
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Flow path to TNW:
Twomile Creek > Great Miami River (a TNW).

Details on stream impact or other information (if known):
Twomile Creek is a named USGS mapped perennial stream that is a direct tributary to the Great Miami River (a TNW). The Ohio EPA assigned this segment of Twomile Creek an Aquatic Life Use Designation of Warmwater Habitat (WWH) based on the 1978 water quality standards, meaning the stream is capable of supporting a diverse community of warmwater adapted organisms. A provisional QHEI assessment was completed in the field by Stantec and Twomile Creek received a score of 58.5 in the study area. Based on the preliminary construction limits no impacts to Twomile Creek are anticipated.

Hydraulic Canal	39.41130	-84.55449	Photo Location 3	5.56	0.9	050800020902	No	Perennial	RPW-Perennial	QHEI	51	8.1	Not Surveyed	Presence Observed, Not Surveyed	Presence Observed, Not Surveyed	WWH	Provisional Based on Project Field Assessment	General High Quality Water	Eligible	No		None Applicable	442	0	442	Preferred	0	0	0
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Flow path to TNW:
Hydraulic Canal > Great Miami River (a TNW).

Details on stream impact or other information (if known):
Hydraulic Canal is a named USGS mapped perennial stream that is a direct tributary to the Great Miami River (a TNW). A provisional QHEI assessment was completed in the field by Stantec and Hydraulic Canal received a score of 51 just upstream of the study area, giving this segment of Hydraulic Canal a provisional Aquatic Life Use Designation of Warmwater Habitat (WWH), meaning the stream is capable of supporting a diverse community of warmwater adapted organisms. Based on the preliminary construction limits no impacts to Hydraulic Canal at this location are anticipated.

	Total estimated permanent impact length to all streams by alternative (ft.):	Total estimated temporary impact length to all streams by alternative (ft.):	Total estimated (temporary + permanent) impact length to all streams by alternative (ft.):
PERENNIAL			
Preferred	490	0	490

	Total estimated permanent impact length to all streams by alternative (ft.):	Total estimated temporary impact length to all streams by alternative (ft.):	Total estimated (temporary + permanent) impact length to all streams by alternative (ft.):
INTERMITTENT			
Preferred	0	0	0

	Total estimated permanent impact length to all streams by alternative (ft.):	Total estimated temporary impact length to all streams by alternative (ft.):	Total estimated (temporary + permanent) impact length to all streams
EPHEMERAL			
Preferred	0	0	0

2.2 Wetlands:

Wetlands present: Yes

Total acreage of wetlands within the project study area (ac): 0.503

Wetlands identified on figure(s):

Wetlands:

Wetland ID	Latitude (DD.ddddd)	Longitude (-DD.ddddd)	Photo ID	Hydrologic connection	12-Digit HUC	ORAM score	Wetland category	Known high quality wetland	Primary wetland type (Cowardin)	Secondary wetland type (Cowardin)	Estimated hydroperiod (Cowardin)	Estimated total size (ac.)	Estimated size in study area (ac.)	Alternative Name	Permanent estimated impact area (ac.) by alternative construction limits (Include temporary impact within the permanent impact area) (if known)	Temporary estimated impact area (ac.) by alternative (Only include temporary impact outside the permanent impact area) (if known)	Total estimated impact area (ac.) for the preferred alternative construction limits
Wetland A	39.39372	-84.53353	Photo Location 4	Adjacent	050800020902	22.5	Category 1	No	Palustrine - Emergent Wetland Persistent	Not applicable	Saturated	0.746	0.503	Preferred	0.503	0	0.503

Flow path to TNW:
Wetland A > Pond 2 > storm drainage > Crawford Run > storm drainage > Great Miami River (a TNW).

Details on wetland impact or other information (if known):
Wetland A is primarily a palustrine emergent wetland. Wetland A receives hydrology from precipitation. Wetland A received a score of 22.5 on the ORAM, and would therefore be classified as a Category 1 wetland. Based on the preliminary construction limits for the preferred alternative, approximately 0.503 acre of Wetland A impact is expected from roadway embankment fill. No temporary impacts to Wetland A are anticipated. Impacts will be minimized during detailed design and permitting.

	Total estimated permanent impact area to all wetlands by alternative (ac.):	Total estimated temporary impact area to all wetlands by alternative (ac.):	Total estimated (temporary + permanent) impact area to all wetlands by alternative (ac.):
Preferred	0.503	0	0.503

2.3 Ditches:

Potentially jurisdictional ditches or non-jurisdictional conveyances for adjacent wetlands present: No

2.4 Ponds, Lakes, Reservoirs, Retention/Detention Basins:

Other water bodies present: Yes

Total area of other water bodies within the project area (ac): 0.634
Other water bodies identified on figure(s):

Ponds, Lakes, Reservoirs, Retention/Detention Basins:

Water body ID	Latitude (DD.ddddd)	Longitude (-DD.ddddd)	Photo ID	12-Digit HUC	Hydrologic connection	Type	Function	Functioning as designed	Impoundment of a jurisdictional water	Other water body is potentially jurisdictional	Estimated total size (ac.)	Estimated size in project study area (ac.)	Alternative Name	Permanent estimated impact area (ac.) by alternative construction limits (Include temporary impact within the permanent impact area) (if known)	Temporary estimated impact area (ac.) by alternative construction limits (Only include temporary impact outside the permanent impact area) (if known)	Total estimated impact area (ac.) for the preferred alternative construction limits
Pond 1	39.39830	-84.53953	Photo Location 5	050800020902	Isolated	Constructed	Abandoned (Borrow Pit/Quarry)	Yes	No	No	0.141	0.141	Preferred	0.141	0	0.141

Flow path to TNW:
Pond 1 is considered isolated.

Details on water body impact (if known) and other design functions not listed:
Pond 1 receives hydrology from precipitation. Based on the preliminary construction limits for the preferred alternative, approximately 0.141 acre of Pond 1 impact is expected from roadway embankment fill. No temporary impacts to Pond 1 are anticipated. Impacts will be minimized during detailed design and permitting.

Pond 2	39.39268	-84.53198	Photo Location 6	050800020902	Adjacent	Constructed	Storm Water Retention/Detention	Yes	No	Yes	1.057	0.384	Preferred	0.384	0	0.384
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Flow path to TNW:
Pond 2 > storm drainage > Crawford Run > storm drainage > Great Miami River (a TNW).

Details on water body impact (if known) and other design functions not listed:
Pond 2 receives hydrology from precipitation. Based on the preliminary construction limits for the preferred alternative, approximately 0.384 acre of Pond 2 impact is expected from roadway embankment fill. No temporary impacts to Pond 2 are anticipated. Impacts will be minimized during detailed design and permitting.

Pond 3	39.39253	-84.53065	Photo Location 7	050800020902	Adjacent	Constructed	Storm Water Retention/Detention	Yes	No	Yes	0.135	0.109	Preferred	0.109	0	0.109
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Flow path to TNW:
Pond 3 > storm drainage > Crawford Run > storm drainage > Great Miami River (a TNW).

Details on water body impact (if known) and other design functions not listed:
Pond 3 receives hydrology from precipitation. Based on the preliminary construction limits for the preferred alternative, approximately 0.109 acre of Pond 3 impact is expected from roadway embankment fill. No temporary impacts to Pond 3 are anticipated. Impacts will be minimized during detailed design and permitting.

Water body ID	Latitude (DD.ddddd)	Longitude (-DD.ddddd)	Photo ID	12-Digit HUC	Hydrologic connection	Type	Function	Functioning as designed	Impoundment of a jurisdictional water	Other water body is potentially jurisdictional	Estimated total size (ac.)	Estimated size in project study area (ac.)	Alternative Name	Permanent estimated impact area (ac.) by alternative construction limits (Include temporary impact within the permanent impact area) (if known)	Temporary estimated impact area (ac.) by alternative construction limits (Only include temporary impact outside the permanent impact area) (if known)	Total estimated impact area (ac.) for the preferred alternative construction limits
														Total estimated permanent impact area to potentially jurisdictional other water bodies by alternative (ac.):	Total estimated temporary impact area to potentially jurisdictional other water bodies by alternative (ac.):	Total estimated (temporary + permanent) impact area to potentially jurisdictional other water bodies by alternative
Preferred														0.493	0	0.493

2.7 Mussels

The project includes a stream(s) greater than or equal to 5 square miles in drainage area: Yes - Project Contains Streams that are Listed as Group 2 or 4 (Include a Survey by a Federally Permitted Malacologist) and Streams Listed as Group 1, 3, or Not Listed in the Ohio Mussel Survey Protocol (Complete a Reconnaissance Survey and an OMHAF).

Mussels:

Stream name	Group listing	Evidence of mussels	Level of effort	Documentation attached
Twomile Creek	Not Listed	Assume Presence - Justification Provided in Summary of Results		

Summary of results:

Twomile creek is a USGS mapped perennial direct tributary to the Great Miami River and has a drainage area greater than 5 square miles. Mussels are assumed present. However, since no impacts to Twomile creek from the proposed preferred alternative is expected, no mussel reconnaissance survey was conducted for the BUT-North Hamilton Crossing project.

Great Miami River	Group 4	Living Mussels and/or Fresh Dead Mussel Shell(s)	Professional Malacologist Survey	Survey Report
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Summary of results:

An Environmental DNA (eDNA) study sampled three sites for eDNA analysis, including an upstream and downstream site in the Great Miami River (GMR), and a site in Hydraulic Canal. Sampling occurred September 27, 2023 and September 28, 2023. The Upstream GMR site provided detection of six species, including the state species of concern elktoe (*Alasmidonta marginata*). The Downstream GMR site provided detection of eight species, including the state endangered pocketbook (*Lampsilis ovata*) and the state species of concern elktoe. The Hydraulic Canal site provided detection of seven species, including the state endangered pocketbook and the state species of concern elktoe. No federally listed species were detected at any of the three sampling sites. The full eDNA report is uploaded to the EnviroNet > Project File tab > Ecological > Reports.

A mussel survey for the selected preferred alternative crossing of the Great Miami River was completed on September 9-10, 2025. No federally protected mussels were observed. Most of the areas surveyed were comprised of unstable sand, gravel, and cobble. Mussel abundance and richness was sparse being comprised of four (4) individuals from two species, which included Elktoe (*Alasmidonta marginata*; n=3) and White Heelsplitter (*Potamilus alatus*; n=1). When completed, the full mussel survey report will be uploaded to the EnviroNet.

Hydraulic Canal	Not Listed	Living Mussels and/or Fresh Dead Mussel Shell(s)	Professional Malacologist Survey	Survey Report
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Summary of results:

An Environmental DNA (eDNA) study sampled three sites for eDNA analysis, including an upstream and downstream site in the Great Miami River (GMR), and a site in Hydraulic Canal. Sampling occurred September 27, 2023 and September 28, 2023. The Upstream GMR site provided detection of six species, including the state species of concern elktoe (*Alasmidonta marginata*). The Downstream GMR site provided detection of eight species, including the state endangered pocketbook (*Lampsilis ovata*) and the state species of concern elktoe. The Hydraulic Canal site provided detection of seven species, including the state endangered pocketbook and the state species of concern elktoe. No federally listed species were detected at any of the three sampling sites. The full eDNA report is uploaded to the EnviroNet > Project File tab > Ecological > Reports.

The preferred alternative avoids Hydraulic Canal and no impacts are anticipated to any mussels. No additional mussel work is proposed in Hydraulic Canal.

3 Terrestrial Ecology

3.1 Vegetative Communities and Land Cover

Vegetative Communities and Land Cover:

Vegetative communities and land cover found within the project study area	Degree of man induced ecological disturbance	Unique, rare, or high quality	Within project study area(s) (ac.)	Vegetation and land cover areas identified on figure(s)	Alternative Name	Alternative impacts (ac.)
Developed, High Intensity (DH) - Includes Highly Developed Areas Where People Reside or Work in High Numbers. Examples Include Apartment Complexes, Row Houses and Commercial/Industrial. Impervious Surfaces Account for 80 to 100% of the Total Cover.	Extreme Disturbance/Ruderal Community (Dominated by Opportunistic Invaders or Native Highly Tolerant Taxa)	No	59.087		Preferred	58.612
Developed, Medium Intensity (DM) - Includes Areas with a Mixture of Constructed Materials and Vegetation. Impervious Surfaces Account for 50-79% of the Total Cover. These areas most commonly include single-family housing units.	High Disturbance (Dominated by Widespread Taxa Not Typical of a Particular Community)	No	13.504		Preferred	13.503
Developed, Low Intensity (DL) - Includes Areas with a Mixture of constructed Materials and Vegetation. Impervious Surfaces Account for 20-49% of Total Cover. These Areas Most Commonly Include Single-Family Housing Units.	High Disturbance (Dominated by Widespread Taxa Not Typical of a Particular Community)	No	6.533		Preferred	6.533
Developed Open Space - DS - (Mown Right-of-Way, Large-Lot Single-Family Housing Units, Parks, Golf Courses, and Vegetation Planted in Developed Settings for Recreation, Erosion control, or Aesthetic Purposes)	High Disturbance (Dominated by Widespread Taxa Not Typical of a Particular Community)	No	39.678		Preferred	39.631
Upland Forest - UF - (Uplands Dominated by Trees)	Intermediate Disturbance (Dominated by Plants that Typify a Stable Phase of a Native Community that Persists Under Some Disturbance)	No	6.240		Preferred	6.230
Floodplain Forest - FF- (Floodplain Dominated by Trees)	Intermediate Disturbance (Dominated by Plants that Typify a Stable Phase of a Native Community that Persists Under Some Disturbance)	No	0.131		Preferred	0.096

Vegetative communities and land cover found within the project study area	Degree of man induced ecological disturbance	Unique, rare, or high quality	Within project study area(s) (ac.)	Vegetation and land cover areas identified on figure(s)	Alternative Name	Alternative impacts (ac.)
Scrub/Shrub - SS - (True Shrubs, and Young Trees in an Early Successional Stage)	Intermediate Disturbance (Dominated by Plants that Typify a Stable Phase of a Native Community that Persists Under Some Disturbance)	No	6.724		Preferred	6.400
Grassland/Herbaceous - GH - (New Fields, Pastures, Hay Fields)	Intermediate Disturbance (Dominated by Plants that Typify a Stable Phase of a Native Community that Persists Under Some Disturbance)	No	12.158		Preferred	12.158
Open Water - All Areas of Open Water, Generally with Less Than 25% Cover of Vegetation or Soil.	Intermediate Disturbance (Dominated by Plants that Typify a Stable Phase of a Native Community that Persists Under Some Disturbance)	No	7.737		Preferred	5.947
Marsh - MA - (Wetland Dominated by Submergent, Floating, and/or Emergent Vegetation)	Intermediate Disturbance (Dominated by Plants that Typify a Stable Phase of a Native Community that Persists Under Some Disturbance)	No	0.503		Preferred	0.503

Total Impacts	Preferred	149.613
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Additional Information:

The project study area was surveyed for vegetative communities on 8/7/2024, 8/8/2024, 8/14/2024, 9/19/2024, and 9/25/2024 by Stantec. Developed High Intensity (DH) land cover accounts for approximately thirty-nine (39) percent within the project impact area (preliminary construction limits) and consists of existing paved road, driveway, parking lots, and railroad. Developed Medium Intensity (DM) land cover accounts for approximately nine (9) percent within the project impact area (preliminary construction limits) and consists of dense residential and commercial areas. Developed Low Intensity (DL) land cover accounts for approximately four (4) percent within the project impact area (preliminary construction limits) and consists of residential areas with more open space. Developed Open Space (DS) vegetative community accounts for approximately twenty-six (26) percent of the land cover within the project impact area (preliminary construction limits) and consists predominately of grassy shoulder, lawn adjacent to roadway and parking lots, and open space within the Butler County Fairgrounds. Approximately four and a half (4.5) percent of the land cover within the project impact area (preliminary construction limits) is Upland Forest (UF) vegetative community. This Upland Forest vegetative community consists primarily of hackberry (*Celtis occidentalis*), black walnut (*Juglans nigra*), catalpa (*Catalpa speciosa*), black locust (*Robinia pseudoacacia*), Callery pear (*Pyrus calleryana*), and Amur honeysuckle (*Lonicera maackii*). Approximately one (1) percent of the land cover within the project impact area (preliminary construction limits) is Floodplain Forest (FF). This Floodplain Forest vegetative community is located on the right descending bank of Twomile Creek and consists primarily of American sycamore (*Platanus occidentalis*), Eastern cottonwood (*Populus deltoides*), boxelder (*Acer negundo*), silver maple (*Acer saccharinum*), and Amur honeysuckle. Approximately four (4) percent of the land cover within the project impact area (preliminary construction limits) is Scrub/Shrub (SS). This Scrub/Shrub vegetative community consists primarily of black walnut, black locust, Amur honeysuckle, autumn olive (*Elaeagnus umbellata*), Callery pear, sumac (*Rhus typhina*), and redcedar (*Juniperus virginiana*). Approximately eight (8) percent of the land cover within the project impact area (preliminary construction limits) is Grassland/Herbaceous (GH) and consists primarily of open grassy fields that are infrequently mowed and Agricultural Conservation & Education Demonstration Area lands. Approximately four (4) percent of the land cover within the project impact area (preliminary construction limits) is Open Water (OW) and includes the open channels of Twomile Creek, Great Miami River, and Hydraulic Canal, and Ponds 1, 2, and 3. The remaining half (0.5) percent of land cover within the project impact area (preliminary construction limits) is Marsh (MA) and consists of Wetland A (see Figure 3 in Appendix 1 and Photograph Locations 8 through 14 in Appendix 2).

3.4 Birds

Colony nesting birds or any peregrine falcon sightings on bridges or culverts: No

4 Listed Species

4.1 Federally Listed Species

ODOT is the lead Federal action agency for this project: Yes

4.1.1 Federally Listed Bats

Federally Listed Bats:

Species common name	Species scientific name	Listing status
Indiana Bat	<i>Myotis sodalis</i>	Endangered
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Endangered

Suitable habitat:
The 2016 PBO defines suitable wooded habitat (SWH) for these species as any tree covered area that is 0.5 ac or larger, containing any potential roosts (i.e., live trees and/or snags 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities) greater than 13 ft tall and at least 3 in dbh, or any patch of trees with these characteristics that is less than ½ acre in size but is within 1,000 feet of or connected by a travel corridor to a PMRT, ½-acre or larger stand of SWH, or any patch of wooded riparian buffer. Additionally, these species may use bridges over streams as summer roosting habitat. During the winter months these species inhabit hibernacula (typically caves, or abandoned mines that provide cool, humid, stable conditions for hibernation).

Bat management unit: Western Management Unit

The project is in a known bat buffer: No

Record type(s) (color):

Date of records request: 06/24/2024

4.1.1.1 Bat Impacts Per Alternative

Preferred

The alternative will impact suitable wooded habitat (SWH): Yes

Acreage of SWH impacts within 100 feet of the edge of pavement: 1.70

All SWH to be impacted is within 100 feet of the edge of pavement: No

Acreage of impacted SWH within 50 feet of a perennial stream but outside 100 feet of the roadway: 0.12

Acreage of impacted SWH between 100 and 300 feet from the edge of pavement and not located within 50 feet of a perennial stream: 3.0

Acreage of impacted SWH further than 300 feet from the edge of pavement: 1.51

PMRTs located further than 100 feet from the edge of pavement will be impacted: No

The alternative will impact a bridge spanning 20 feet and located over water: No

Consultation category: CC3

Effect determination: May Affect, Likely to Adversely Affect

Discussion including impacts to suitable habitat:

The Ohio Department of Natural Resources, Division of Wildlife (ODNR DOW) Natural Heritage Database check conducted on June 28, 2024, found no records for Indiana bat or northern long-eared bat capture locations or hibernacula within a one mile radius of the project (See Appendix 5). According to a United States Fish and Wildlife Service (USFWS) email information request response on June 24, 2024, the project is not located within a bat buffer (see Appendix 5). Field surveys of the study area by Stantec on 8/7/2024, 8/8/2024, 8/14/2024, 9/19/2024, and 9/25/2024 did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula for Indiana bat or northern long-eared bat. There are no bridges with suitable bat habitat within the study area that are proposed to be impacted.

The proposed work within the preliminary construction limits for the preferred alternative will impact 6.33 acres of SWH (see Figure 4 in Appendix 1). Acreage of impacted SWH that occurs within 100 feet of the edge of pavement is 1.7 acres. Acreage of impacted SWH that occurs beyond 100 feet of the edge of pavement and within 50 feet of a stream with a drainage area > 1.0 square mile is 0.12 acre. Acreage of impacted SWH between 100 feet and 300 feet of the edge of pavement is 3.0 acres. Acreage of impacted SWH beyond 300 feet of the edge of pavement is 1.51 acres. No potential maternity roost trees occur beyond 100 feet of the edge of pavement. The SWH within the preliminary construction limits for the preferred alternative occurs as Upland Forest and Floodplain Forest vegetative communities. Representative photographs of SWH are provided in Appendix 2 (see Photograph Locations 8-10).

All tree removal will occur between October 1 and March 31 to protect these species during their summer roosting period.

4.1.2 Bald Eagles

Bald Eagle:

Species common name	Species scientific name	Listing status
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Species of Concern
Suitable habitat: The Bald Eagle is protected under the Bald and Golden Eagle Protection Act which prohibits taking bald eagles, including disturbance. The preferred habitat includes mature forests adjacent to open water for nesting and foraging. Within Ohio bald eagles use the tops of large trees to build nests, which they typically use and enlarge each year.		

4.1.2.1 Bald Eagle Impacts Per Alternative

Preferred

A nest (a known record or an observed nest) is located within 0.5 mile of the roadway alternative: No

Effect determination: No Effect

The project will take an eagle nest: No

The project will require a non-purposeful take permit: No

Discussion including impacts to suitable habitat:

According to the ODNR Natural Heritage Database search, there are no known bald eagle nests located within a one-mile radius of the project (see Appendix 5). There are some mature sycamore and cottonwood trees in Floodplain Forest and Upland Forest vegetative communities adjacent to the Great Miami River and/or Hydraulic Canal that could serve as preferred habitat for nesting and foraging bald eagles that occur within the preliminary construction limits for the preferred alternative. There is also suitable habitat for bald eagle that occurs in the vicinity of the preferred alternative that will not be impacted by the BUT-North Hamilton Crossing project.

4.1.3 Other Federally Listed Species

Other Federally Listed Species:

Species common name	Species scientific name	Listing status
Eastern Massasauga	<i>Sistrurus catenatus</i>	Threatened
Suitable habitat: The Eastern Massasauga is found in a variety of wetland habitats including wet prairie, wet meadow, and nearby woodland or shrub edge. During the winter, massasaugas hibernate underground in crayfish burrows or other underground cavities in low wet areas. Adjoining lowland and upland habitat with variable elevations between are critical for the species to travel back and forth seasonally.		
Preferred	Discussion including impacts to suitable habitat: A small amount of wetland habitat (as described above) potentially suitable for the eastern massasauga is expected to be impacted by construction of the preferred alternative. According to a United States Fish and Wildlife Service (USFWS) email information response on June 24, 2024 (see Appendix 5), the project area is not located within an eastern massasauga range polygon, and this species is not expected to be present.	
	Effect Determination: No Effect	

Species common name	Species scientific name	Listing status
Rayed Bean	Villosa fabalis	Endangered
Suitable habitat: The Rayed Bean mussel is usually found in streams but can also live in large rivers and wave-washed areas of glacial lakes. The rayed bean mussel prefers gravel or sand substrates and is often found in and around roots of aquatic vegetation. In Ohio, this species is only known from certain high-quality waterways (designated in the Ohio Mussel Survey Protocol as Group 2 and 4 streams) with drainages larger than 5 square miles.		
Preferred	Discussion including impacts to suitable habitat: An Environmental DNA (eDNA) study sampled three sites for eDNA analysis, including an upstream and downstream site in the Great Miami River (GMR), and a site in Hydraulic Canal. Sampling occurred September 27, 2023 and September 28, 2023. The Upstream GMR site provided detection of six species, including the state species of concern elktoe (<i>Alasmidonta marginata</i>). The Downstream GMR site provided detection of eight species, including the state endangered pocketbook (<i>Lampsilis ovata</i>) and the state species of concern elktoe. The Hydraulic Canal site provided detection of seven species, including the state endangered pocketbook and the state species of concern elktoe. No federally listed species were detected at any of the three sampling sites. The full eDNA report is uploaded to the EnviroNet > Project File tab > Ecological > Reports.	
	A mussel survey for the selected preferred alternative crossing of the Great Miami River was completed on September 9-10, 2025. No federally protected mussels were observed. Most of the areas surveyed were comprised of unstable sand, gravel, and cobble. Mussel abundance and richness was sparse being comprised of four (4) individuals from two species, which included Elktoe (<i>Alasmidonta marginata</i> ; n=3) and White Heelsplitter (<i>Potamilus alatus</i> ; n=1). When completed, the full mussel survey report will be uploaded to the EnviroNet.	
	Effect Determination: May Affect, Not Likely to Adversely Affect	

Species common name	Species scientific name	Listing status
Tricolored Bat	<i>Perimyotis subflavus</i>	Proposed Endangered

Suitable habitat:
 During the spring and summer (April 1 through September 30), this species of bat predominately roost in living or dead clusters of leaves near the top of the crown of larger live trees. They also may rarely roost in structures, including bridges. In the winter, this species hibernates in caves, mines, and other underground structures that provide cool, humid areas with stable temperatures. In the Discussion below describe: The number of acres of wooded habitat and a brief summary of age and quality of the stand, noting if there are any larger living trees possessing roosting habitat (living or dead clusters of leaves) for the species. If bridge structures are present within the project limits that will be impacted, and were inspected for the evidence/presence of bats (per the guidance for the Indiana and northern long-eared bats), summarize the results of the inspection. Additionally, note if any known hibernacula are near the project area or if areas suitable for hibernation were identified during a survey of the project area. Known or suspect hibernacula for the Indiana and northern long-eared bats would also be suitable for the tricolored bat.

Species common name	Species scientific name	Listing status
Preferred	Discussion including impacts to suitable habitat: The Ohio Department of Natural Resources, Division of Wildlife (ODNR DOW) Natural Heritage Database check conducted on June 28, 2024, found no records for tricolored bat capture locations or hibernacula within a one mile radius of the project (See Appendix 5). According to a United States Fish and Wildlife Service (USFWS) email information request response on June 24, 2024, the project is not located within a bat buffer (see Appendix 5). Field surveys of the study area by Stantec on 8/7/2024, 8/8/2024, 8/14/2024, 9/19/2024, and 9/25/2024 did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula for tricolored bat. There are no bridges with suitable bat habitat within the study area that are proposed to be impacted. The proposed work within the preliminary construction limits for the preferred alternative will impact 6.33 acres of wooded habitat. The wooded habitat within the preliminary construction limits for the preferred alternative occurs as Upland Forest and Floodplain Forest vegetative communities and consists of a mix of younger scrubby woods and older, larger trees scattered throughout. Some of the larger more mature trees do possess roosting habitat (living or dead clusters of leaves) for the tricolored bat. Representative photographs of wooded habitat are provided in Appendix 2 (see Photograph Locations 8-10). Tree removal will only occur between October 1 and March 31 when this species would not be present. All of the pertinent AMMs listed in the OHPBO for Indiana bat and Northern long-eared bat will be followed, which will also protect this species from take. This project May Affect this species but is not going to jeopardize the continued existence of the species. Per the 11/15/2022 letter from USFWS outlining conferencing requirements for this species, this project does not need to be submitted for individual conferencing.	
	Effect Determination: May Affect, Not Likely to Adversely Affect	

4.2 State Listed Species

Date of the ONHDB check: 06/28/2024

State listed species considered include:

- All of the endangered, threatened, or potentially threatened species records from the Ohio Natural Heritage Database for any animal species located within 1 mile of the project, and any plant species records within 0.5 mile of the project.
- Any state endangered and threatened animals suspected of being within the county (from the county range list provided by the DOW).
- Does not include species that have already been included in the Federally Listed Species table

Project is within the range: Within the Range of the Following State Listed Species

State Listed Species:

Species common name	Species scientific name	The species or its suitable habitat is present within the project study area	Listing status	A record is within 1 mile of the project if it is an animal species, or within 0.5 mile of the project if it is a plant species	Proximity to the project (ft.)
Little brown bat	Myotis lucifugus	Yes	Endangered	No	
Description of suitable habitat: During the spring and summer (April 1 through September 30), the little brown bat predominately roost in trees behind loose, exfoliating bark, in crevices and cavities of living or dead trees, although they will also use structures such as barns and bridges. In the winter, this species hibernates in caves, mines, and other underground structures that provide cool, humid areas with stable temperatures.					
The species or its suitable habitat will be impacted by this project: Yes					
Discussion of impacts to suitable habitat or species:					

Species common name	Species scientific name	The species or its suitable habitat is present within the project study area	Listing status	A record is within 1 mile of the project if it is an animal species, or within 0.5 mile of the project if it is a plant species	Proximity to the project (ft.)
Preferred	The Ohio Department of Natural Resources, Division of Wildlife (ODNR DOW) Natural Heritage Database check conducted on June 28, 2024, found no records for little brown bat capture locations or hibernacula within a one mile radius of the project (See Appendix 5). Field surveys of the study area by Stantec on 8/7/2024, 8/8/2024, 8/14/2024, 9/19/2024, and 9/25/2024 did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula for little brown bat. There are no bridges with suitable bat habitat within the study area that are proposed to be impacted. Approximately 6.33 acres of wooded habitat occurs within the preliminary construction limits of the preferred alternative. This wooded habitat occurs as Upland Forest and Floodplain Forest vegetative communities and consists of a mix of younger scrubby woods and older, larger trees scattered throughout. Some of the larger more mature trees do possess roosting habitat (exfoliating bark, cracks, crevices) for the little brown bat. Representative photographs of wooded habitat are provided in Appendix 2 (see Photograph Locations 8-10). Tree removal will only occur between October 1 and March 31 when this species would not be present.				
	Effect determination: No Impact				

Species common name	Species scientific name	The species or its suitable habitat is present within the project study area	Listing status	A record is within 1 mile of the project if it is an animal species, or within 0.5 mile of the project if it is a plant species	Proximity to the project (ft.)
Kirtland's snake	Clonophis kirtlandii	Yes	Threatened	No	
Description of suitable habitat:					
The Kirtland's snake is a secretive species that prefers wet fields and meadows.					
Preferred	The species or its suitable habitat will be impacted by this project: Yes				
	Discussion of impacts to suitable habitat or species: Following ODOT:TG-ECO-07-22 'General Determination Process for Impacts to State Endangered, Threatened, and Potentially Threatened Species', limited suitable habitat for Kirtland's snake occurs in the preliminary construction limits for the preferred alternative and may be impacted. Presence of this species in the study area is assumed. However, because the species mobility is medium, no high quality foraging, denning, and/or reproductive habitat impacts are likely to occur, and there is not an important quantity of other suitable habitat impacts, impacts to Kirtland's snake are not likely.				
	Effect determination: Not Likely to Impact				

Species common name	Species scientific name	The species or its suitable habitat is present within the project study area
Cave salamander	Eurycea lucifuga	No

Species common name	Species scientific name	The species or its suitable habitat is present within the project study area	Listing status	A record is within 1 mile of the project if it is an animal species, or within 0.5 mile of the project if it is a plant species	Proximity to the project (ft.)
Upland sandpiper	Bartramia longicauda	Yes	Endangered	No	

Description of suitable habitat:

Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP).

Preferred	The species or its suitable habitat will be impacted by this project: Yes				
	Discussion of impacts to suitable habitat or species: Following ODOT:TG-ECO-07-22 'General Determination Process for Impacts to State Endangered, Threatened, and Potentially Threatened Species', limited suitable habitat for upland sandpiper occurs in the preliminary construction limits for the preferred alternative and may be impacted. Presence of this species in the study area is assumed. However, because the species mobility is high, no high quality foraging, denning, and/or reproductive habitat impacts are likely to occur, and other suitable habitat is located outside of the study area that will not be impacted, no impacts to upland sandpiper are expected.				
	Effect determination: No Impact				

Species common name	Species scientific name	The species or its suitable habitat is present within the project study area
Least bittern	Ixobrychus exilis	No

Species common name	Species scientific name	The species or its suitable habitat is present within the project study area	Listing status	A record is within 1 mile of the project if it is an animal species, or within 0.5 mile of the project if it is a plant species	Proximity to the project (ft.)
Black-crowned night-heron	Nycticorax nycticorax	Yes	Threatened	No	

Description of suitable habitat:

Black-crowned night-herons are so named because they are nocturnal, conducting most of their foraging in the evening hours or at night, and roost in trees near wetlands and waterbodies during the day. Black-crowned night-herons are migratory and are typically found in Ohio from April 1 through December 1 but can be found in more urbanized areas with reliable food sources year-round. Black-crowned night-herons primarily forage in wetlands and other shallow aquatic habitats, and roost in trees nearby. These black-crowned night-herons nest in small trees, saplings, shrubs, or sometimes on the ground, near bodies of water and wetlands.

Preferred	The species or its suitable habitat will be impacted by this project: Yes				
	Discussion of impacts to suitable habitat or species: Following ODOT:TG-ECO-07-22 'General Determination Process for Impacts to State Endangered, Threatened, and Potentially Threatened Species', limited suitable habitat for black-crowned night-heron occurs in the preliminary construction limits of the preferred alternative and may be impacted. Presence of this species in the study area is assumed. However, because the species mobility is high, no high quality foraging, denning, and/or reproductive habitat impacts are likely to occur, and other suitable habitat is located outside of the study area that will not be impacted, no impacts to black-crowned night-heron are expected.				
	Effect determination: No Impact				

5 Literature Cited

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6 Appendices

Appendix 1: Mapping:

- Topographic Map*
- County Map
- Aerial Photo*
- Water Resource Map*
- Suitable Wooded Habitat

Appendix 2: Photo Log:

- Photo Location Map*
- Project Photos*
- Bat Habitat Photos

Appendix 3: Plans:

Appendix 4: Forms:

- QHEI*
- HHEI*
- Wetland Delineation*
- ORAM*

Appendix 5: Agency Data Requests:

- ODNR - Ohio Natural Heritage Database Search Results
- USFWS - Bat Record Search Results

Appendix 6: List of Supporting Survey Report Titles or Literature Sources:

Environmental DNA Freshwater Mussel Surveys, Great Miami River, Ohio (Stantec 2024). (uploaded to the EnviroNet > Project File tab > Ecological > Reports).

Freshwater Mussel Survey Report (mussel survey completed September 9-10, 2025; completed report will be uploaded to EnviroNet > Project File tab > Ecological > Reports).