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October 28, 2019

Chairman Sam Randazzo
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Re: Case No. 19-1866-EL-BTA
In the Matter of the Amendment Application of AEP Ohio Transmission Company, Inc. for a Certificate of Environmental Compatibility and Public Need for the Ginger Switch - Vigo 138 kV Transmission Line Project

Dear Chairman Randazzo:

Attached, please find a copy of the Amendment Application of AEP Ohio Transmission Company, Inc. for a Certificate of Environmental Compatibility and Public Need ("Application") for the above-referenced project. This filing is made pursuant to O.A.C. 4906-5-01, *et seq.*, and 4906-2-01, *et seq.*

Filing of this Application is effected electronically pursuant to O.A.C. 4906-2-02 (A) and (D). Five printed copies and ten additional electronic copies (CDs) of this filing will also be submitted to the Staff of the Ohio Power Siting Board for its use.

The following information is included pursuant to O.A.C. 4906-2-04(A)(3):

- (a) Applicant:
AEP Ohio Transmission Company, Inc.
c/o American Electric Power
Energy Transmission
8600 Smiths Mill Road
New Albany, Ohio 43054
- (b) Facilities to be Certified:
Ginger Switch-Vigo 138 kV Transmission Line Project

(c) Applicant's Authorized Representative with respect to this Application:
Robert S. Howard
Project Manager
8600 Smiths Mill Road
New Albany, Ohio 43054

If you have any questions, please do not hesitate to contact me.

/s/ Christen M. Blend

Christen M. Blend (0086881), Counsel of Record
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Counsel for AEP Ohio Transmission Company, Inc.

cc: Executive Director and Counsel, c/o Jon Pawley, OPSB Staff



Application for Amendment to the

**GINGER SWITCH - VIGO 138 kV
TRANSMISSION LINE PROJECT**

**OPSB CASE NO.
19-1866-EL-BTA**

Submitted pursuant to O.A.C. 4906-5

AEP Ohio Transmission Company, Inc.

October 2019

BEFORE THE OHIO POWER SITING BOARD
Application for Amendment to the Ginger Switch –
Vigo 138 kV Transmission Line Project

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FIGURES

Figure 2-1. Project Overview Map

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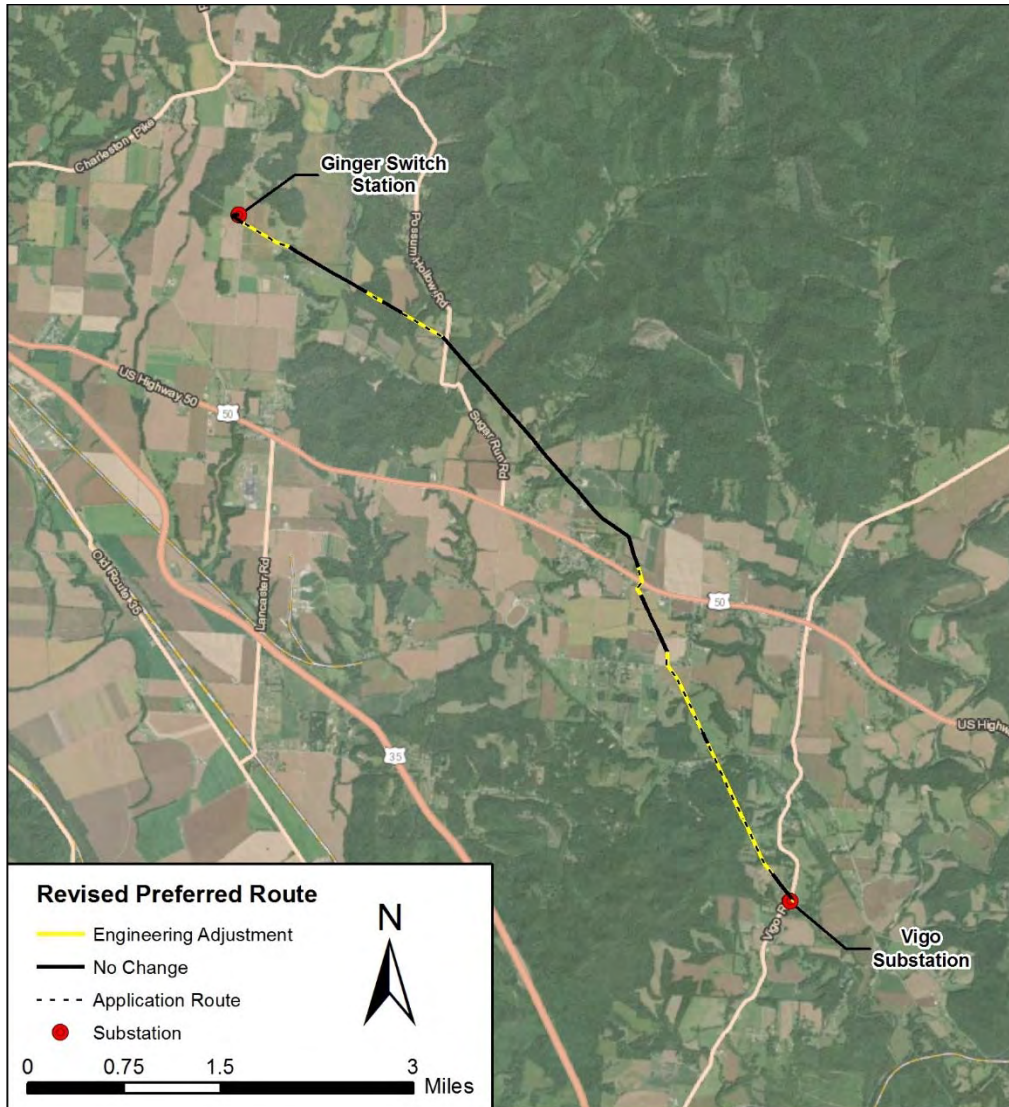
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AMENDMENT CHANGE SUMMARY

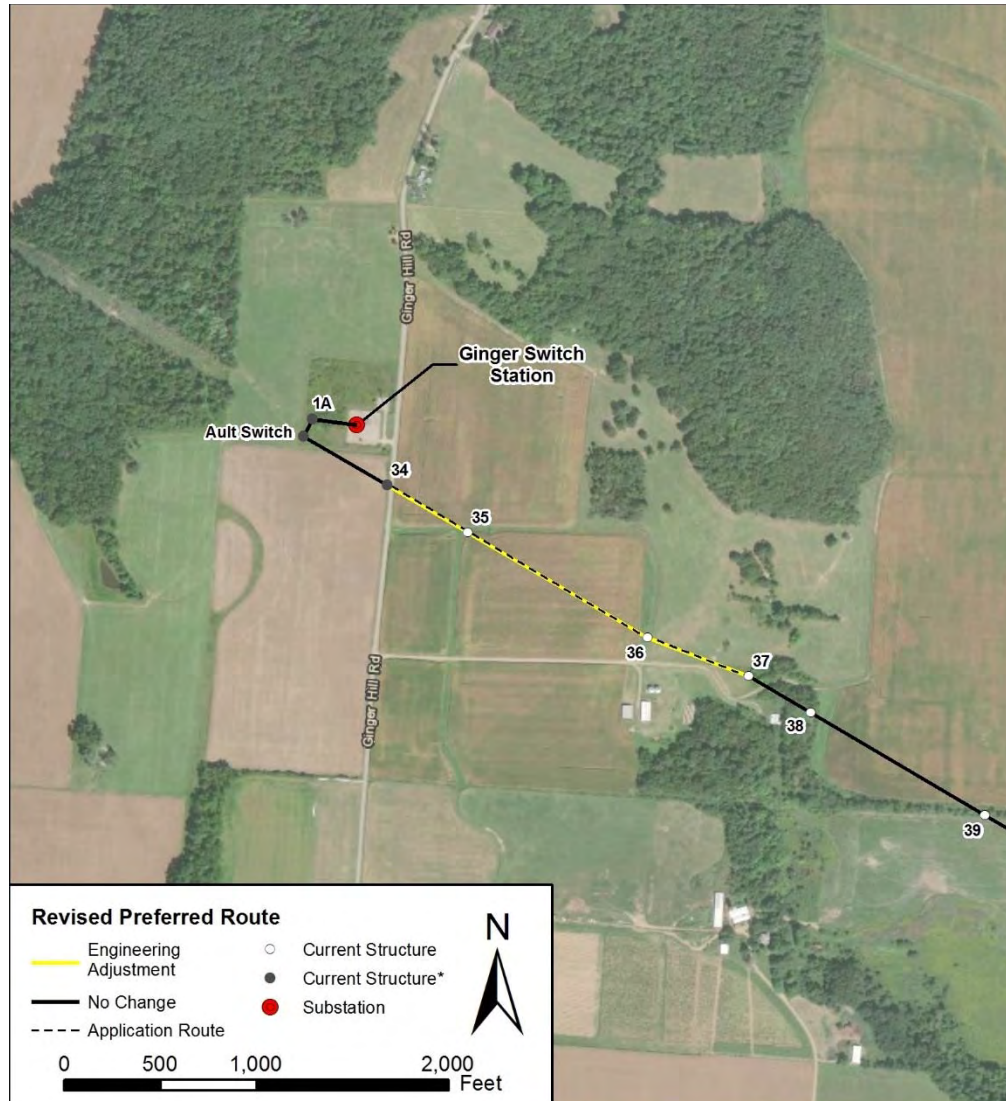
AEP Ohio Transmission Company, Inc. (“AEP Ohio Transco” or the “Company”) submitted a Certificate Application to the Ohio Power Siting Board (“OPSB”) on March 15, 2018 for the Ginger Switch - Vigo 138 kV Transmission Line Project (“Project”) in Case Number 17-638-EL-BTX. On November 18, 2018, the OPSB issued its Certificate of Environmental Compatibility and Public Need for the Preferred Route.

The purpose of this amendment is to document the changes to the Preferred Route alignment since the OPSB’s approval of the Preferred Route, and to seek OPSB approval of the revised alignment.

As detailed engineering of the transmission line progressed after submittal of the certificate application in March 2018, AEP Ohio Transco identified nineteen structure shifts along the Preferred Route. These changes are categorized as engineering adjustments (adjustments located within the 100-foot right-of-way (“ROW”) of the OPSB-approved alignment).

EXHIBIT 1: Summary of Engineering Adjustments to the Preferred Route**Engineering Adjustments**

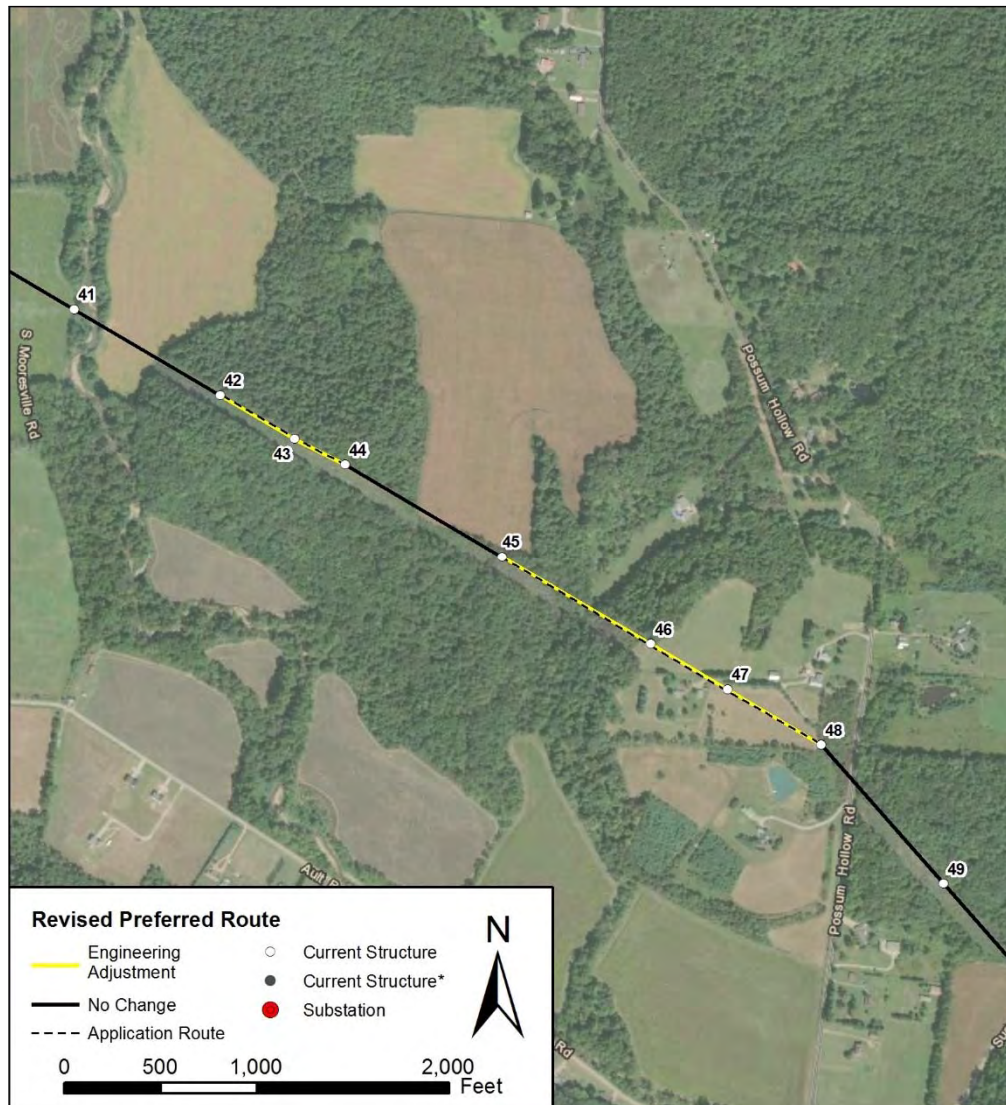
During the detailed engineering design phase of the Project (following submittal of the certificate application), AEP Ohio Transco identified nineteen structure shifts along the OPSB-approved Preferred Route that were necessary for operational purposes. The structure shifts along the Preferred Route are shown below in the series of **Exhibits 2 through 7**.

EXHIBIT 2: Map Illustration of Engineering Adjustments (Structures 35 through 37)

***Structure 1A, Ault Switch and Structure 34 were all previously submitted and approved under the Ginger Switch Repair and Upgrade Project (Case No. 18-0156-EL-BLN) and are therefore not subject to the current Amendment to Ginger Switch-Vigo 138 kV Transmission Line Project.**

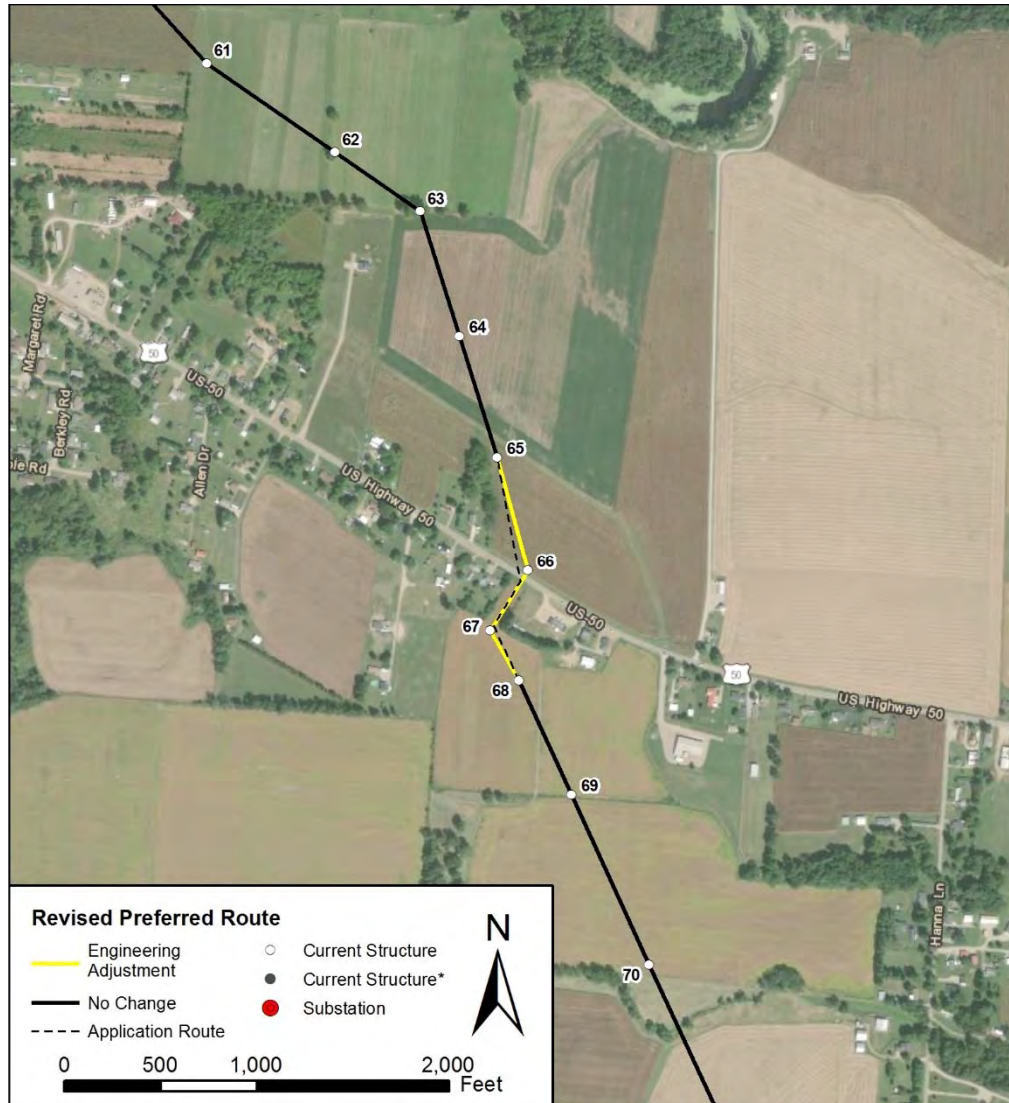
Structure 35 was originally positioned within an access road to a farm field. The Company shifted the structure southeast outside of the existing drive path in order to allow large farm equipment better access and ensure the structure would not be an obstruction. Structures 36 and 37 were originally designed as guyed structures; however, the guyed structures limited the functionality of the agricultural field. The new proposed structures are custom deadends with concrete foundations that decrease the overall footprint of the structures and improve the functionality of the field. Additionally, Structure 37 shifted in order to provide more suitable terrain for installation of the structure.

EXHIBIT 3: Map Illustration of Engineering Adjustments (Structures 42 through 43 and Structures 46 through 47)



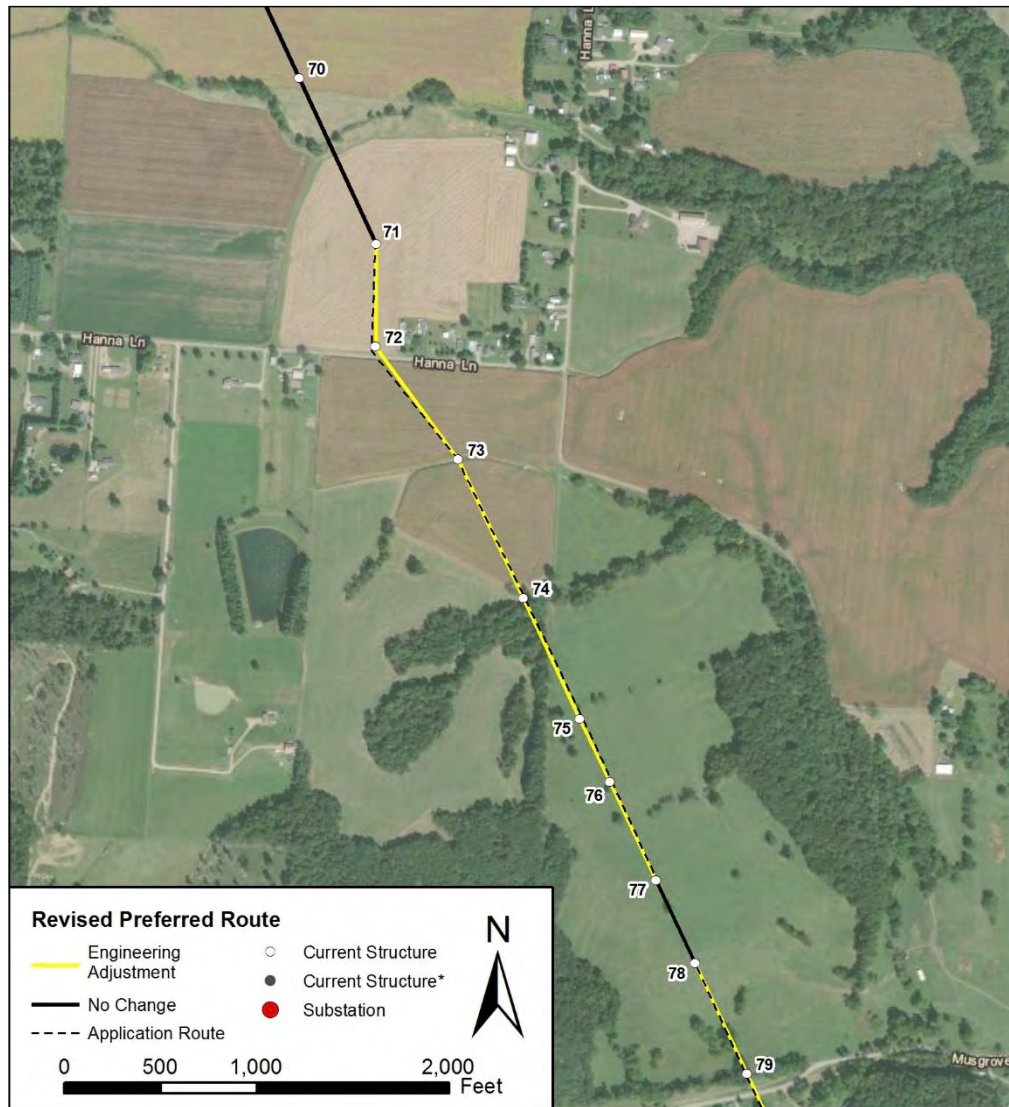
AEP Ohio Transco shifted Structures 43, 46 and 47 to optimize the structure location and to avoid unfavorable terrain at the approved locations. The approved structure locations were in a sloped area of a hillside; the revised placement provides a safer location for construction.

EXHIBIT 4: Map Illustration of Engineering Adjustments (Structures 66 through 67)



AEP Ohio Transco shifted Structures 66 and 67 after a detailed survey was completed and parcel boundaries were more accurately defined. The proposed shifts are necessary to avoid impacts to additional property owners.

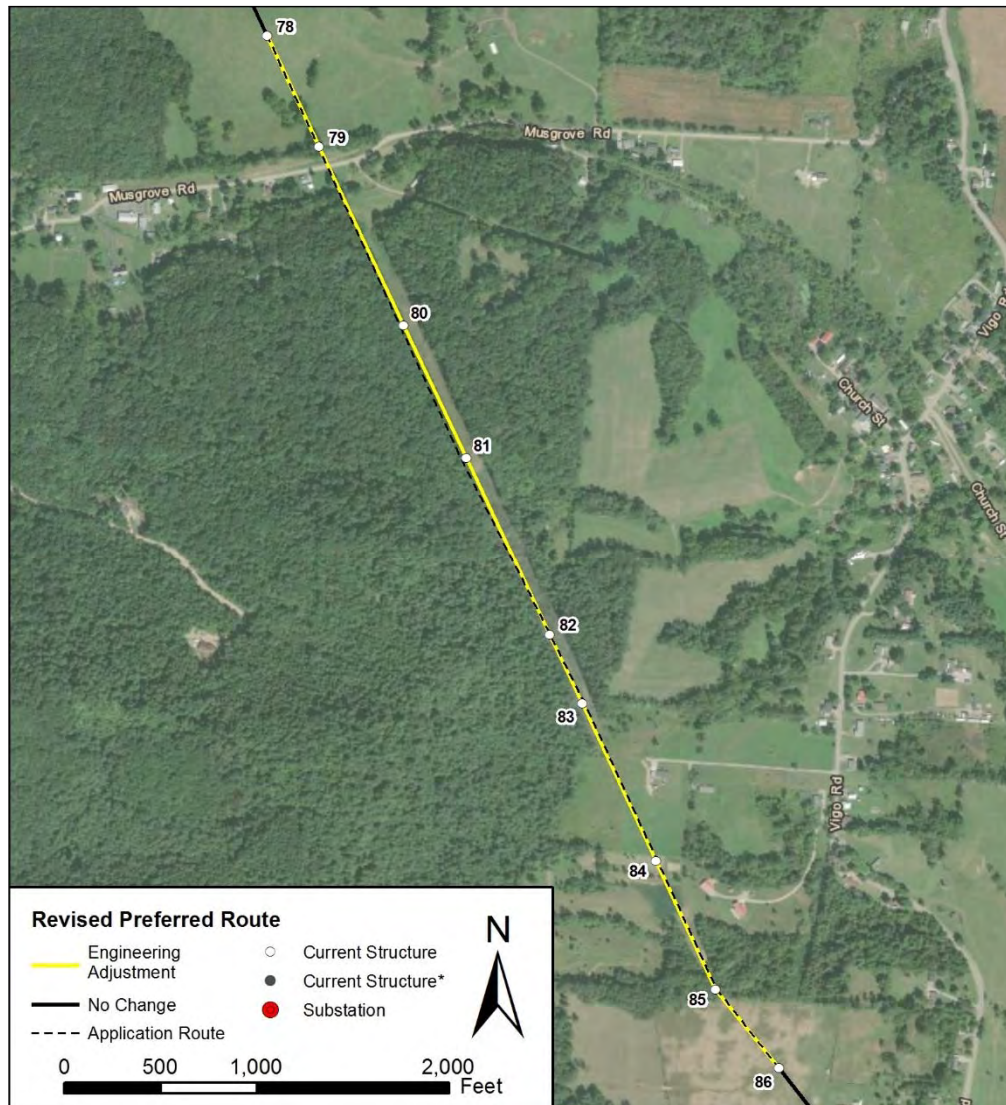
EXHIBIT 5: Map Illustration of Engineering Adjustments (Structure 72 and Structure 74 through 77)



Structure 72 shifted, at the request of a landowner, to provide access for heavy farm equipment between the structure and Hanna Lane.

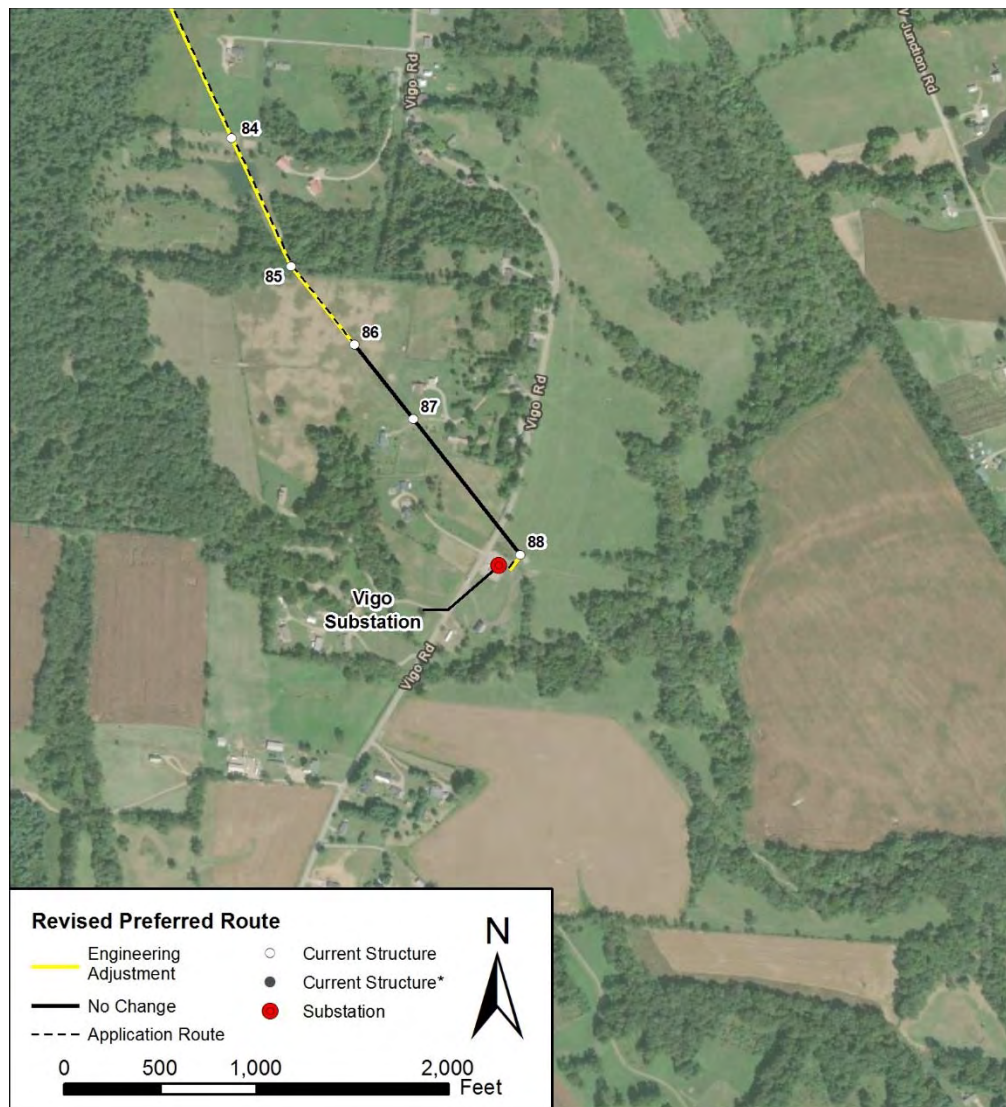
The Company also shifted Structure 74 southwest based on a landowner request to move the structure out of an agricultural field. As a result of this change, Structures 73, 75, 76, and 77 shifted to maintain the tangent structure alignment.

EXHIBIT 6: Map Illustration of Engineering Adjustments (Structures 79 through 81 and Structures 83 through 85)



Structure 81 was adjusted to optimize the structure location and to avoid unfavorable terrain at the previous position. The adjustment to Structure 81 necessitated the shifts to Structures 79 and 80, which were also adjusted to improve constructability. Additionally, Structures 83, 84 and 85 were shifted slightly to offset the line from existing 69kV pole locations.

EXHIBIT 7: Map Illustration of Engineering Adjustments (Structure 88)



Structure 88 shifted to allow the line to enter the Vigo Station at the correct bay location. As a result of this change, Structure 89 was removed as it is unnecessary with the Structure 88 adjustment.

4906-5-02 PROJECT SUMMARY AND APPLICANT INFORMATION**(A) PROJECT SUMMARY**

American Electric Power Ohio Transmission Company, Inc. (“AEP Ohio Transco” or “Company”) is proposing the Ginger Switch-Vigo 138 kilovolt (“kV”) Transmission Line Project (Project) located in Ross County, Ohio (“OH”). The Project is externally known as the Liberty 138 kV Transmission Line Rebuild Project. The Project is part of the overall Ross-Jackson Area Improvements Project which has been implemented to improve the reliability of the electric transmission grid in Ross and Jackson Counties, OH. The Project involves rebuilding approximately 7 miles of the existing Berlin-Ross 69 kV transmission line to 138 kV standards. Construction of the Project is anticipated to begin in the second quarter of 2020 and end in the third quarter of 2021. Upon completion of the new line, the existing 69 kV transmission line is planned to be removed.

(1) General Purpose of the Facility

Text provided in the March 15, 2018 application filing remains unchanged.

(2) General Location, Size, and Operating Characteristics

The Project starts at the existing Ginger Switch located just west of C.R. 213A (Ginger Hill Road). Improvements to the Ginger Switch are required as part of this rebuild effort and ~~will be~~ have been filed and approved in a separate Letter of Notification to the Ohio Power Siting Board (Case No. 18-0156-EL-BLN). The Project continues approximately 7 miles southeast to the existing Vigo Substation located off of Vigo Road, just south of Vigo, OH. The Project is located within Harrison, Jefferson, Liberty, and Springfield Townships in Ross County, OH. The study corridor for this rebuild siting evaluation does not cross any designated communities or otherwise incorporated municipalities. The Project will require a 100-foot-wide permanent right-of-way (“ROW”). Revised Figure 2-1, Project Overview, shows the Project end points and the Preferred and Alternate Routes identified by AEP Ohio Transco.

(3) Suitability of Preferred and Alternate Routes

Text provided in the March 15, 2018 application filing remains unchanged.

(i) Preferred Route

Text provided in the March 15, 2018 application filing remains unchanged.

(ii) Alternate Route

Text provided in the March 15, 2018 application filing remains unchanged.

(4) Schedule

The current Project schedule is illustrated in the diagram below.

**(B) APPLICANT INFORMATION**

Text provided in the March 15, 2018 application filing remains unchanged.

4906-5-03 REVIEW OF NEED AND SCHEDULE

Text provided in the March 15, 2018 application filing remains unchanged.

4906-5-04 ROUTE ALTERNATIVES ANALYSIS

Text provided in the March 15, 2018 application filing remains unchanged.

4906-5-05 PROJECT DESCRIPTION**(A) PROJECT AREA DESCRIPTION**

Text provided in the March 15, 2018 application filing remains unchanged.

(1) Project Area Map

Revised Figures 7-1 and 7-2 provide maps at 1:12,000-scale, showing the Preferred and Alternate Routes for the Project. These maps include a 1,000-foot buffer on each side of the proposed transmission centerlines (hereafter referred to as the 2,000-foot corridor). These maps depict the proposed transmission line, roads, parks, and recreational areas that are publicly owned, existing AEP Ohio Transco electric transmission line corridors, named lakes, reservoirs, streams, canals, rivers, and land use.

The information on the map was updated by reviewing digital, georeferenced aerial photography, property parcel data from the Ross County Auditors, and field reconnaissance completed in May, June, and August 2017, and January and February 2018. The aerial photographs are georeferenced, orthorectified color images derived from ESRI ArcGIS Online.

(2) Proposed Right-of-Way, Transmission Length, and Properties Crossed

The proposed ROW width is 100 feet. Table 5-1 provides information about the Preferred and Alternate Route ROW acreage, length, and properties crossed based on the proposed centerline.

TABLE 5-1
Right-of-way Area, Length, and Number of Properties Crossed

	Route Alternatives	
	Preferred	Alternate
Proposed ROW area (in acres)	87.4 <u>88.3</u>	86.6
Length (in miles)	7.2 <u>7.3</u>	7.1
Number of Properties Crossed (by ROW)	65 <u>66</u>	71

(B) ROUTE OR SITE ALTERNATIVE FACILITY LAYOUT AND INSTALLATION**(1) Site Clearing, Construction, and Reclamation**

Text provided in the March 15, 2018 application filing remains unchanged.

(a) Surveying and Soil Testing

Text provided in the March 15, 2018 application filing remains unchanged.

(b) Grading and Excavation

Text provided in the March 15, 2018 application filing remains unchanged.

(c) Construction of Temporary and Permanent Access Roads and Trenches

Text provided in the March 15, 2018 application filing remains unchanged.

(d) Stringing of Cable

Text provided in the March 15, 2018 application filing remains unchanged.

(e) Installation of Electric Transmission Line Poles and Structures, Including Foundations

Text provided in the March 15, 2018 application filing remains unchanged.

(f) Post-Construction Reclamation

Text provided in the March 15, 2018 application filing remains unchanged.

(2) Facility Layout

Text provided in the March 15, 2018 application filing remains unchanged.

(a) Transmission Line Route Map

Revised Figure 8-2A through 8-2E show maps at 1:12,000-scale of the Preferred and Alternate Routes. These maps illustrate the data required by O.A.C. 4906-5-05(A)(1). ~~Although the additional information required by O.A.C. 4906-5-05 (B)(2)(a) (for example, pole structure locations) will not be finalized until a final route is approved by the OPSB and the final engineering design is complete. The data and information defined in O.A.C. 4906-5-05 (B)(2)(a) includes temporary access roads and proposed locations of transmission line poles and buildings.~~ Revised Figures 8-2A through 8-2E have been updated to include the location of the OPSB-approved structures as well as the locations of the nineteen proposed structure locations. No fenced-in or secured areas are planned for Project.

The Company is currently identifying staging areas and laydown areas for the Project. To date, none have been identified within the Project area. After sites are identified, the Company will provide final locations that support this Project.

(b) Proposed Layout Rationale

Text provided in the March 15, 2018 application filing remains unchanged.

(c) Plans for Future Modifications

Text provided in the March 15, 2018 application filing remains unchanged.

(C) DESCRIPTION OF PROPOSED TRANSMISSION LINES

Text provided in the March 15, 2018 application filing remains unchanged.

4906-5-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

Text provided in the March 15, 2018 application filing remains unchanged.

4906-5-07 HEALTH AND SAFETY, LAND USE, AND REGIONAL DEVELOPMENT**(A) HEALTH AND SAFETY**

Text provided in the March 15, 2018 application filing remains unchanged.

(B) LAND USE**(1) Map of the Site and Route Alternatives**

An applicant for a Certificate of Environmental Compatibility and Public Need for electric transmission facilities is required to evaluate both the Preferred and Alternate Routes for the transmission line within the application. Maps at 1:12,000-scale, including the area 1,000 feet on either side of the centerline (also referred to as the 2,000-foot corridor), are presented as revised Figures 7-1A through 7-1E (refer to Section 4906-5-05) and include the following information:

(2) Impact on Identified Land Uses

Comparisons of the various land use types and land use features for both routes are included in revised Tables 7-5 through 7-7 for the Preferred and Alternate Route. The estimates (i.e., linear feet, acreage, and percentages) of each land use type being crossed by the transmission line, land use within the 100-foot-wide construction ROW, and the permanent 100-foot-wide ROW were determined using GIS software calculations. The potential disturbance area during construction activities (e.g., vegetation clearing, pole installations, etc.) consists of the 100-foot-wide construction ROW. The 100-foot-wide permanent ROW will be restored through soil grading, seeding, and mulching, thus the permanent impact to the ROW is primarily limited to the removal of existing trees and other vegetation. Property owners may continue to utilize most of the ROW area for general uses that will not affect the safe and reliable operation of the transmission line such as lawn maintenance or agricultural crop production. Some portions of the existing ROW within the rebuild segment(s) may also be used as pasture or hayfield. However, the utility ROW land use is the primary land use for these areas along the proposed centerline. Therefore, these areas are categorized as Utility ROW in Table 7-5. Additionally, Table 7-6 shows an acreage for Agriculture Land. This acreage accounts for the additional 50' of ROW width in the rebuild segment, outside of the ROW of the existing 69kV line.

TABLE 7-5

Length and Percent of Land Uses Crossed by the Proposed Centerline

Land Use	Preferred Route ^a		Alternate Route ^a	
	Linear Feet	Percent	Linear Feet	Percent
Agriculture Land	9,308 <u>9,368</u>	24.5 <u>24.4</u>	1,223	3.2
Industrial/Commercial	0 <u>37</u>	0.0 <u>0.1</u>	0	0.0
Open Land/Pasture	9,606 <u>10,449</u>	25.3 <u>27.2</u>	41	0.1
Residential	709 <u>686</u>	1.9 <u>1.8</u>	20	0.1
Institutional	0	0.0	0	0.0
Recreational	0	0.0	0	0.0
Road Right-of-Way	204 <u>177</u>	0.5	51	0.1
Utility Right-of-Way	11,479 <u>12,435</u>	30.2 <u>32.4</u>	36,324	96.5
Woodlot	6,605 <u>5,164</u>	17.4 <u>13.5</u>	0	0.0
Water/Wetlands	72 <u>70</u>	0.2	0	0.0
Total	37,983 <u>38,386</u>	100	37,659	100

Note:

- ^a Numbers in the table are for the planned potential disturbance area which is a nominal 100-foot-wide corridor centered on the route. The Agriculture Land category includes parcels that may have specifically been given the Agricultural District Land designation, and may contain areas which would also be considered Open Land/Pasture.

TABLE 7-6

Acreage and Percent of Land Uses Crossed by the Proposed 100-foot Right-of-Way

Land Use	Preferred Route ^a		Alternate Route ^a	
	Acreage	Percent	Acreage	Percent
Agriculture Land	24.2 24.4	27.7 27.7	14.7	17.0
Industrial/Commercial	<0.1 0.2	0.0 0.2	<0.1	0.1
Open Land/Pasture	21.0 21.7	24.1 24.6	23.1	26.7
Residential	2.3 2.2	2.6 2.5	3.1	3.5
Institutional	0.0	0.0	0.0	0.0
Recreational	0.0	0.0	0.0	0.0
Road Right-of-Way	0.5	0.5	0.4	0.4
Utility Right-of-Way	26.0 26.9	29.8 30.4	42.2	48.8
Woodlot	13.1 12.3	15.0 13.9	2.9	3.4
Water/Wetlands	0.2 0.1	0.2 0.2	0.1	0.1
Total	87.4 88.3	100	86.6	100

Note:

^a The planned potential disturbance area is a nominal 100-foot-wide corridor centered on the route.

TABLE 7-7

Number of Sensitive Features Within or Near the Potential Disturbance Area

	Route Alternatives	
	Preferred ^a	Alternate ^a
Length (in miles)	7.2 7.3	7.1
Features within 100-foot Right-of-Way		
Historic Structures	0	0
National Register of Historic Places	0	0
Previously Identified Archaeological Sites ¹	0 1	0
Residences	0	2
Commercial Buildings	0	0
Industrial Buildings	0	0
Schools and Hospitals	0	0
Churches and Civic Buildings	0	0
State/Federal Forests and Recreational Lands	0	0
Airports	0	0
Features within 1,000 feet of Route Alternatives (centerline)		
Historic Structures	0	0

TABLE 7-7

Number of Sensitive Features Within or Near the Potential Disturbance Area

	Route Alternatives	
	Preferred ^a	Alternate ^a
National Register of Historic Places	0	0
Previously Identified Archaeological Sites ¹	0 5	0
Residences	116 115	132
Commercial Buildings	2	2
Industrial Buildings	0	0
Schools and Hospitals	0	0
Churches and Civic Buildings	0	0
State/Federal Forests and Recreational Land	0	0
Airports	0	0

Note:

^a The planned potential disturbance area is a nominal 100-foot-wide corridor centered on the route.

¹ Changes in the number of Previously Identified Archaeological Sites are a result of updates to records in the database provided by OHPO on August 2019. Records for the original May 15, 2018, application filing were provided by OHPO in September 2017.

(a) Residential

Preferred Route: The Preferred Route is located within 1,000 feet of ~~116~~ 115 residences, none of which are within the planned potential disturbance area. As shown in Table 7-6, there is approximately ~~2.6%~~ 2.5% residential land within the Preferred Route ROW (~~2.3~~ 2.2 acres).

Alternate Route: The Alternate Route is located within 1,000 feet of 132 residences, two of which are within the planned potential disturbance area. As shown in Table 7-6, there is approximately 3.5% residential land within the Preferred Route ROW (3.1 acres).

(b) Commercial

Text provided in the March 15, 2018 application filing remains unchanged.

(c) Industrial

Text provided in the March 15, 2018 application filing remains unchanged.

(d) School and Hospitals

Text provided in the March 15, 2018 application filing remains unchanged.

(e) Churches and Civic Buildings

Text provided in the March 15, 2018 application filing remains unchanged.

(f) Recreational

Text provided in the March 15, 2018 application filing remains unchanged.

(g) Agricultural

As shown in Table 7-5, approximately ~~24.5~~ 24.4 percent (~~9,308~~ 9,368 feet) of the Preferred Route centerline crosses agricultural land. Approximately ~~24.2~~ 24.4 acres of agricultural land is located within the ROW of the Preferred Route. Approximately 3.2 percent (1,223 feet) of the Alternate Route centerline crosses agricultural land, where the route deviates from the existing Berlin-Ross 69kV transmission line ROW within the Londonderry Focus Area. Approximately 14.7 acres of agricultural land is located within the ROW of the Alternate Route. A discussion of agricultural land and Agricultural District Land is provided in section (C) below.

(3) Impact on Identified Structures

(a) Structures within 200 Feet of Proposed Right-of-way

There are 24 and 25 single-family residences within 200 feet of the ROW of the Preferred and Alternate Route, respectively. For the Preferred Route, one residence is within 50 feet of the ROW, ~~10~~ eight residences are between 51 and 100 feet of the ROW, six residences are between 101 and 150 feet of the ROW, and ~~seven~~ nine residences are between 151 and 200 feet of the ROW. For the Alternate Route, there are two residences within 50 feet of the ROW, nine residences between 51 and 100 feet of the ROW, nine residences within 101 and 150 feet of the ROW, and five residences between 151 and 200 feet of the ROW.

There are no commercial centers or buildings, industrial buildings and installations, schools, hospitals, churches, civic buildings, or other occupied places within 200 feet of either the Preferred or Alternate Route ROW.

(b) Destroyed, Acquired, or Removed Buildings

Text provided in the March 15, 2018 application filing remains unchanged.

(c) Mitigation Procedures

Text provided in the March 15, 2018 application filing remains unchanged.

(C) AGRICULTURAL LAND IMPACTS

The potential impacts of the Project on agricultural land use include damage to crops that may be present, disturbance of underground field drainage systems, compaction of soils and temporary reduction of crop productivity. Agricultural land within the Preferred and Alternate Route ROWs is estimated at ~~24.2~~ 24.4 acres and 14.7 acres, respectively. Other agricultural pastureland comprises ~~21.0~~ 21.7 acres of the Preferred Route and 23.1 acres of the Alternate Route.

Soil compaction resulting from construction activities is typically a temporary issue and is resolved within a few seasons of plowing and tilling. AEP Ohio Transco will work with the agricultural landowners to resolve conflicts with drainage tiles and irrigation systems that are affected by the Project where necessary.

(1) Agricultural Land Map

The various categories of agricultural land use are depicted on revised Figures 7-1A to 7-1E for both the Preferred and Alternate Route.

(2) Impacts to Agricultural Lands and Agricultural Districts

The Ross County Auditor was contacted to obtain information on current Agricultural District land records; current data was received on ~~February 22, 2018~~ October 14, 2019. ~~The proposed permanent 100 foot wide ROW for either the Preferred or Alternate Route does not cross a designated Agricultural District. Both the Preferred and Alternate Routes cross parcels designated as Agricultural District land. The Preferred Route crosses seven designated Agricultural District parcels for a total combined length of 1.1 miles, with 13.1 acres within the proposed ROW.~~

The information initially obtained in February 2018 from the Ross County Auditor regarding Agricultural District land was incorrect. The Ross County Auditor indicated that data entry errors may have led to these inaccuracies. When Agricultural District land information was requested in August and October 2019, seven Agricultural District land parcels were identified as being crossed by the Preferred Route.

(a) Acreage Impacted

Text provided in the March 15, 2018 application filing remains unchanged.

(b) Evaluation of Construction, Operation, and Maintenance Impacts

Text provided in the March 15, 2018 application filing remains unchanged.

(c) Mitigation Procedures

Text provided in the March 15, 2018 application filing remains unchanged.

(D) LAND USE PLANS AND REGIONAL DEVELOPMENT

Text provided in the March 15, 2018 application filing remains unchanged.

(1) Impacts to Regional Development

Text provided in the March 15, 2018 application filing remains unchanged.

(2) Compatibility of Proposed Facility with Current Regional Land Use Plans

Text provided in the March 15, 2018 application filing remains unchanged.

(E) CULTURAL AND ARCHAEOLOGICAL RESOURCES

Text provided in the March 15, 2018 application filing remains unchanged.

4906-5-08 ECOLOGICAL INFORMATION AND COMPLIANCE WITH PERMITTING REQUIREMENTS

In summer 2017 and early 2018, AEP Ohio Transco conducted a study to assess the potential effects of construction and operation of the proposed Project on the ecology of the Project area. A map and literature search was conducted for a 1,000-foot corridor on either side of the centerline of the existing Berlin-Ross 69kV transmission line, which includes both the Preferred and Alternate Route. A field survey of ecological habitat and features was performed within 200 feet on either side of the existing Berlin-Ross 69kV transmission line and 150 feet on either side of the Preferred and Alternate Routes within the Londonderry Focus Area (hereafter referred to as the “Field Survey Area”), which encompasses the entirety of the Preferred and Alternate Routes. Field surveys were conducted from May 2017 through February 2018 during several mobilizations. While preliminary access roads have been identified and included with this Application, it should be noted that additional field surveys are required. Information in the following paragraphs addresses AEP Ohio Transco’s ecological study conducted for both the Preferred and Alternate Route.

(A) Ecological Map

A map at a scale of 1:12,000 (one-inch = 1,000 feet) including the corridor 1,000 feet either side of the centerline (referred to as the 2,000-foot corridor) of the Preferred and Alternate Route is presented as revised Figure 8-1. This map depicts soils data, soils exceeding 12 percent slope within the 2,000-foot corridor, lakes, ponds, reservoirs, waterbodies, NWI wetlands, and 100-year floodplains. All features were identified from published data. Revised Figure 8-2 (at 1:12,000 scale) depicts field-delineated water features within the Field Survey Area, defined as a 400-foot-wide study area centered on the existing Berlin-Ross 69kV transmission line including a 300-foot-wide study area centered on the Preferred and Alternate Routes within the Londonderry Focus Area where the routes deviate from the existing centerline. Both survey areas encompassed the entirety of the Preferred and Alternate Route.

(B) Field Survey Report for Vegetation and Surface Waters

Text provided in the March 15, 2018 application filing remains unchanged.

(1) Vegetative Communities, Wetlands, and Streams in Study Area**(a) Vegetative Communities**

Text provided in the March 15, 2018 application filing remains unchanged.

(i) Agricultural and Pasture Fields

Text provided in the March 15, 2018 application filing remains unchanged.

(ii) Old Field and Scrub-Shrub

Text provided in the March 15, 2018 application filing remains unchanged.

(iii) Wetlands

Text provided in the March 15, 2018 application filing remains unchanged.

(iv) Residential

Text provided in the March 15, 2018 application filing remains unchanged.

(v) Utility ROW

Text provided in the March 15, 2018 application filing remains unchanged.

(vi) Upland and Riparian Forest

Text provided in the March 15, 2018 application filing remains unchanged.

(b) Wetlands

Text provided in the March 15, 2018 application filing remains unchanged.

(i) Summary of National Wetland Inventory Data

Text provided in the March 15, 2018 application filing remains unchanged.

(ii) Field-Delineated Wetlands

A total of 20 wetlands (totaling 3.39 acres) were delineated within the Field Survey Area. A total of 0.5265-acre of wetlands were delineated within the Preferred Route ROW and 0.52-acre within the Alternate Route ROW. These field-delineated wetlands for the Preferred and Alternate Route are mapped on Figures 8-2A through 8-2E.

Detailed information on each wetland is provided in Table 8-2. The anticipated temporary construction impacts, where unavoidable, on these wetlands are included in Table 8-2 and further discussed in Section 4906-05-08(B)(3)(b).

TABLE 8-2

Delineated Wetlands within the Preferred and Alternate Route of the Environmental Field Survey Area and Potential Disturbance Area/ROW

Wetland Name	Route	Figure	Cowardin Wetland Type ^a	ORAM Score	ORAM Category	Length Crossed by Centerline (feet)	Acreage within Field Survey Area ^b	Acreage within Potential Disturbance Area/ROW ^c
Preferred Route Wetlands								
W001-PEM-CAT2	Preferred	8-2B	PEM	46	2	—	0.03	—
W002-PUB-CAT1	Preferred	8-2B	PUB	29	1	—	0.53	—
W003-PEM-CAT1	Preferred	8-2B	PEM	27.5	1	25	0.04	0.03 0.04
W004-PUB-CATMOD2	Preferred	8-2C	PUB	35	Modified 2	—	0.20	—
W005-PEM-CAT1	Preferred	8-2C/D	PEM	21	1	14	0.19	0.02
W006-PUB-CAT2	Preferred	8-2E	PUB	33.5	2	—	0.02	—
W007-PUB-CATMOD2	Preferred	8-2E	PUB	35.5	Modified 2	152	0.79	0.33 0.4
W008-PEM-CAT1	Preferred	8-2E	PEM	27.5	1	—	0.13	—
W009A-PEM-CAT1	Preferred	8-2E	PEM	18.5	1	—	0.04	0.02 0.03
W009B-PEM-CAT1	Preferred	8-2E	PEM	18.5	1	39	0.10	0.09
W009C-PEM-CAT1	Preferred	8-2E	PEM	18.5	1	—	0.01	0.01
W010-PEM-CAT1	Preferred	8-2A	PEM	14	1	—	0.15	0.02 0.03
W011-PEM-CAT1	Preferred	8-2A	PEM	21	1	—	0.16	0.03
W012-PEM-CAT1	Preferred	8-2C	PEM	25	1	—	0.01	—
W013-PEM-CATMOD2	Preferred	8-2C	PEM	41	Modified 2	—	0.18	—
W013-PUB-CATMOD2	Preferred	8-2C	PUB	41	Modified 2	—	0.38	—
W014-PEM-CAT1	Preferred	8-2C	PEM	20	1	—	0.06	—
W015-PEM-CATMOD2	Preferred	8-2C	PEM	38	Modified 2	—	0.11	—
W015-PUB-CATMOD2	Preferred	8-2C	PUB	38	Modified 2	—	0.22	—
W016-PEM-CAT1	Preferred	8-2C/D	PEM	19	1	—	0.04	—
Total						230	3.39	0.52 0.65
Alternate Route Wetlands								
W001-PEM-CAT2	Alternate	8-2B	PEM	46	2	—	0.03	—
W002-PUB-CAT1	Alternate	8-2B	PUB	29	1	—	0.53	—
W003-PEM-CAT1	Alternate	8-2C	PEM	27.5	1	18	0.04	0.03

TABLE 8-2

Delineated Wetlands within the Preferred and Alternate Route of the Environmental Field Survey Area and Potential Disturbance Area/ROW

Wetland Name	Route	Figure	Cowardin Wetland Type ^a	ORAM Score	ORAM Category	Length Crossed by Centerline (feet)	Acreage within Field Survey Area ^b	Acreage within Potential Disturbance Area/ROW ^c
W004-PUB-CATMOD2	Alternate	8-2C	PUB	35	Modified 2	—	0.20	—
W005-PEM-CAT1	Alternate	8-2C/D	PEM	21	1	—	0.19	0.01
W006-PUB-CAT2	Alternate	8-2E	PUB	33.5	2	—	0.02	—
W007-PUB-CATMOD2	Alternate	8-2E	PUB	35.5	Modified 2	152	0.79	0.33
W008-PEM-CAT1	Alternate	8-2E	PEM	27.5	1	—	0.13	—
W009A-PEM-CAT1	Alternate	8-2E	PEM	18.5	1	—	0.04	0.02
W009B-PEM-CAT1	Alternate	8-2E	PEM	18.5	1	39	0.10	0.09
W009C-PEM-CAT1	Alternate	8-2E	PEM	18.5	1	—	0.01	0.01
W010-PEM-CAT1	Alternate	8-2A	PEM	14	1	—	0.15	—
W011-PEM-CAT1	Alternate	8-2A	PEM	21	1	—	0.16	0.03
W012-PEM-CAT1	Alternate	8-2C	PEM	25	1	—	0.01	—
W013-PEM-CATMOD2	Alternate	8-2C	PEM	41	Modified 2	—	0.18	—
W013-PUB-CATMOD2	Alternate	8-2C	PUB	41	Modified 2	—	0.38	—
W014-PEM-CAT1	Alternate	8-2C	PEM	20	1	—	0.06	—
W015-PEM-CATMOD2	Alternate	8-2C	PEM	38	Modified 2	—	0.11	—
W015-PUB-CATMOD2	Alternate	8-2C	PUB	38	Modified 2	—	0.22	—
W016-PEM-CAT1	Alternate	8-2C/D	PEM	19	1	—	0.04	—
Total						209	3.39	0.52

Note

^a Wetland Type: PEM = palustrine emergent, PUB = palustrine unconsolidated bottom.^b The width of the Field Survey Area was 400 feet centered on the existing Berlin-Ross 69 kV transmission line and 300 feet centered on the Preferred and Alternate Routes within the Londonderry Focus Area where the routes deviate from the existing centerline.^c The width of the potential disturbance area and the final maintained ROW is planned to be 100 feet.

(c) Waterbodies**(i) Field-Delineated Streams**

Streams and drainage channels were delineated and assessed during the ecological survey of the Preferred and Alternate Route. The OEPA's Headwater Habitat Evaluation Index ("HHEI") is used to evaluate streams with a drainage area less than or equal to one square mile, and maximum pool depths less than or equal to 40 centimeters ("cm") (OEPA, 2012). The HHEI is generally used to assess Primary Headwater Habitat ("PHWH") streams that typically fall under the classification of first or second-order streams. The HHEI rates a stream based on its physical habitat and uses that information to determine the biological potential of the stream. The physical habitats scored for the HHEI are substrate type, pool depth, and bank full width. Scores for Class I PHWH Streams range from 0 to 29.9; scores for Class II PHWH Streams range from 30 to 69.9; and scores for Class III PHWH Streams range from 70 to 100. A "Modified" qualifier may be added as a prefix to any of these classes if evidence of anthropogenic alterations, such as channelization and bank stabilization, are observed. A higher PHWH class corresponds with a more continuous flow regime. The flow regime determines the physical habitat of the stream and is therefore indicative of the biological communities it can support. Streams with scores between 30 and 69 may be classified as potential rheocrene habitat, depending on substrate type, watershed size, and stream flow. The PHWH class for these potential rheocrene streams is then identified by evaluating the biology (fish, salamanders, and benthic macroinvertebrates). Per AEP Ohio Transco's consultant's standard operating procedures, it was not necessary to perform a biotic evaluation, and no potential rheocrene streams were identified within the Field Survey Area.

A total of 37 streams were identified within the Field Survey Area. Of these streams, 33 were evaluated using the HHEI method and one was evaluated using OEPA's Qualitative Habitat Evaluation Index ("QHEI") method for streams with drainage areas greater than one (1.0) square mile or maximum pool depths of greater than 40 cm.

Streams identified during the ecological survey on the Preferred and Alternate Route are shown on Figures 8-2A through 8-2E. Detailed information on each delineated stream is included in Table 8-3. Aquatic life use designations within the Scioto River drainage basin obtained from O.A.C. 3745-1-09 are also provided. The Scioto River, located approximately 4.0 miles west of the Preferred and Alternate Route, is a traditionally navigable waterway as defined by USACE.

Approximately 2,254 linear feet of streams are located within the Preferred Route ROW, while approximately 2,148 linear feet are located within the Alternate Route ROW.

The Preferred Route centerline has ~~1620~~ stream crossings with all the streams being crossed once. The Alternate Route centerline has 18 stream crossings with all the streams being crossed once. The total length of streams located within the Field Survey Area is approximately 14,006 linear feet. Construction impacts on these features are included in Table 8-3 and further discussed in Section 4906-05-08(B)(3)(c).

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
Preferred Route												
S001 Walnut Creek	Preferred	8-2A	Perennial	50	72	—	—	EWH	—	Yes	648	180 <u>176</u>
S002 UNT to Walnut Creek	Preferred	8-2B	Perennial	25	10	QHEI	55.5	—	Good	Yes	537	109 <u>115</u>
S003 UNT to Walnut Creek	Preferred	8-2B	Ephemeral	4	6	HHEI	34	—	Class II PHWH	Yes	320	128 <u>130</u>
S004 UNT to Walnut Creek	Preferred	8-2A/B	Perennial	7	6	HHEI	47	—	Class II PHWH	Yes	469	102 <u>101</u>
S005 UNT to Walnut Creek	Preferred	8-2A/B	Ephemeral	3	4	HHEI	23	—	Class I PHWH	No	95	NC

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S006 UNT to Walnut Creek	Preferred	8-2B	Ephemeral	4	4	HHEI	31	—	Class II PHWH	No	323	NC
S007 UNT to Walnut Creek	Preferred	8-2B	Ephemeral	3	4	HHEI	21	—	Class I PHWH	No	160	NC
S008 UNT to Walnut Creek	Preferred	8-2B	Ephemeral	4	4	HHEI	31	—	Class II PHWH	No	390	NC
S009 UNT to Walnut Creek	Preferred	8-2B	Ephemeral	4	4	HHEI	28	—	Class I PHWH	No	161	NC
S010 UNT to Walnut Creek	Preferred	8-2B	Intermittent	5	10	HHEI	48	—	Class II PHWH	No	300	3 NC

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S011 UNT to Walnut Creek	Preferred	8-2B	Intermittent	3	8	HHEI	35	—	Class II PHWH	Yes	582	130
S012 Sugar Run	Preferred	8-2B	Perennial	20	12		—	WWH	—	Yes	462	104
S013 UNT to Sugar Run	Preferred	8-2B	Ephemeral	2	2	HHEI	13	—	Class I PHWH	No	92	NC
S014 UNT to Sugar Run	Preferred	8-2B	Ephemeral	4	6	HHEI	30	—	Class II PHWH	No	181	NC
S015 UNT to Sugar Run	Preferred	8-2B	Ephemeral	4	8	HHEI	35	—	Class II PHWH	Yes	635	136
S016 UNT to Walnut Creek	Preferred	8-2B/C	Ephemeral	3	6	HHEI	20	—	Class I PHWH	No	298	49 18

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S017 UNT to Walnut Creek	Preferred	8-2B/C	Ephemeral	4	10	HHEI	31	—	Class II PHWH	No	239	NC
S018 UNT to Sugar Run	Preferred	8-2B	Ephemeral	3	4	HHEI	20	—	Class I PHWH	No	150	46 <u>48</u>
S019 UNT to Sugar Run	Preferred	8-2B	Ephemeral	3	6	HHEI	21	—	Class I PHWH	No	171	33 <u>34</u>
S020 UNT to Walnut Creek	Preferred	8-2C	Perennial	7	10	HHEI	54	—	Class II PHWH	Yes	571	145 <u>144</u>
S021 UNT to Walnut Creek	Preferred	8-2C	Intermittent	6	6	HHEI	54	—	Class II PHWH	Yes	678	133 <u>134</u>
S022 UNT to Walnut Creek	Preferred	8-2C	Ephemeral	3	4	HHEI	24	—	Class I PHWH	No	144	42 <u>44</u>

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S023 UNT to Mulgee Run	Preferred	8-2D	Perennial	6	12	HHEI	66	—	Class II PHWH	Yes	679	102
S024 UNT to Mulgee Run	Preferred	8-2D	Ephemeral	5	4	HHEI	35	—	Class II PHWH	Yes	806	114
S025 UNT to Mulgee Run	Preferred	8-2D	Ephemeral	4	6	HHEI	29	—	Class I PHWH	Yes	738	102
S026 UNT to Mulgee Run	Preferred	8-2D	Ephemeral	3	4	HHEI	20	—	Class I PHWH	Yes	529	108
S027 UNT to Mulgee Run	Preferred	8-2D	Ephemeral	3	4	HHEI	20	—	Class I PHWH	No	35	NC

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S028 UNT to Mulgee Run	Preferred	8-2D	Ephemeral	4	4	HHEI	30	—	Class II PHWH	No	68	NC
S029 UNT to Mulgee Run	Preferred	8-2D/E	Ephemeral	2	3	HHEI	20	—	Class I PHWH	Yes	540	274 <u>281</u>
S030 Mulgee Run	Preferred	8-2D/E	Perennial	12	8	—	—	WWH	—	Yes	410	102
S031 UNT to Mulgee Run	Preferred	8-2D/E	Ephemeral	4	6	HHEI	31	—	Class II PHWH	No	609	NC
S032 UNT to Mulgee Run	Preferred	8-2E	Ephemeral	3	3	HHEI	21	—	Class I PHWH	No	236	NC

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S033 UNT to Mulgee Run	Preferred	8-2E	Ephemeral	4	4	HHEI	30	—	Class II PHWH	No	88	NC
S034 UNT to Mulgee Run	Preferred	8-2E	Ephemeral	5	6	HHEI	36	—	Class II PHWH	Yes	484	142 <u>146</u>
S035 UNT to Mulgee Run	Preferred	8-2E	Intermittent	7	4	HHEI	44	—	Class II PHWH	No	84	NC
S036 UNT to Walnut Creek	Preferred	8-2A	Ephemeral	2	1	HHEI	29	—	Class I PHWH	No	251	NC
S037 UNT to Mulgee Run	Preferred	8-2C/D	Intermittent	6	4	HHEI	48	—	Class II PHWH	No	843	NC
Total											14,006	2,254 <u>2,269</u>

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
Alternate Route												
S001 Walnut Creek	Alternate	8-2A	Perennial	50	72	—	—	EWH	—	Yes	648	121
S002 UNT to Walnut Creek	Alternate	8-2B	Perennial	25	10	QHEI	55.5	—	Good	Yes	537	113
S003 UNT to Walnut Creek	Alternate	8-2B	Ephemeral	4	6	HHEI	34	—	Class II PHWH	Yes	320	144
S004 UNT to Walnut Creek	Alternate	8-2A/B	Perennial	7	6	HHEI	47	—	Class II PHWH	Yes	469	101
S005 UNT to Walnut Creek	Alternate	8-2A/B	Ephemeral	3	4	HHEI	23	—	Class I PHWH	No	95	NC

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S006 UNT to Walnut Creek	Alternate	8-2B	Ephemeral	4	4	HHEI	31	—	Class II PHWH	No	323	NC
S007 UNT to Walnut Creek	Alternate	8-2B	Ephemeral	3	4	HHEI	21	—	Class I PHWH	No	160	NC
S008 UNT to Walnut Creek	Alternate	8-2B	Ephemeral	4	4	HHEI	31	—	Class II PHWH	No	390	23
S009 UNT to Walnut Creek	Alternate	8-2B	Ephemeral	4	4	HHEI	28	—	Class I PHWH	No	161	NC
S010 UNT to Walnut Creek	Alternate	8-2B	Intermittent	5	10	HHEI	48	—	Class II PHWH	Yes	300	57

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S011 UNT to Walnut Creek	Alternate	8-2B	Intermittent	3	8	HHEI	35	—	Class II PHWH	Yes	582	118
S012 Sugar Run	Alternate	8-2B	Perennial	20	12		—	WWH	—	Yes	462	103
S013 UNT to Sugar Run	Alternate	8-2B	Ephemeral	2	2	HHEI	13	—	Class I PHWH	No	92	NC
S014 UNT to Sugar Run	Alternate	8-2B	Ephemeral	4	6	HHEI	30	—	Class II PHWH	No	181	NC
S015 UNT to Sugar Run	Alternate	8-2B	Ephemeral	4	8	HHEI	35	—	Class II PHWH	Yes	635	140
S016 UNT to Walnut Creek	Alternate	8-2B/C	Ephemeral	3	6	HHEI	20	—	Class I PHWH	Yes	298	74

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S017 UNT to Walnut Creek	Alternate	8-2B/C	Ephemeral	4	10	HHEI	31	—	Class II PHWH	No	239	NC
S018 UNT to Sugar Run	Alternate	8-2B	Ephemeral	3	4	HHEI	20	—	Class I PHWH	No	150	NC
S019 UNT to Sugar Run	Alternate	8-2B	Ephemeral	3	6	HHEI	21	—	Class I PHWH	No	171	NC
S020 UNT to Walnut Creek	Alternate	8-2C	Perennial	7	10	HHEI	54	—	Class II PHWH	Yes	571	138
S021 UNT to Walnut Creek	Alternate	8-2C	Intermittent	6	6	HHEI	54	—	Class II PHWH	Yes	678	133
S022 UNT to Walnut Creek	Alternate	8-2C	Ephemeral	3	4	HHEI	24	—	Class I PHWH	No	144	42

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S023 UNT to Mulgee Run	Alternate	8-2D	Perennial	6	12	HHEI	66	—	Class II PHWH	Yes	679	102
S024 UNT to Mulgee Run	Alternate	8-2D	Ephemeral	5	4	HHEI	35	—	Class II PHWH	Yes	806	114
S025 UNT to Mulgee Run	Alternate	8-2D	Ephemeral	4	6	HHEI	29	—	Class I PHWH	Yes	738	132
S026 UNT to Mulgee Run	Alternate	8-2D	Ephemeral	3	4	HHEI	20	—	Class I PHWH	Yes	529	101
S027 UNT to Mulgee Run	Alternate	8-2D	Ephemeral	3	4	HHEI	20	—	Class I PHWH	No	35	NC

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S028 UNT to Mulgee Run	Alternate	8-2D	Ephemeral	4	4	HHEI	30	—	Class II PHWH	No	68	NC
S029 UNT to Mulgee Run	Alternate	8-2D/E	Ephemeral	2	3	HHEI	20	—	Class I PHWH	Yes	540	102
S030 Mulgee Run	Alternate	8-2D/E	Perennial	12	8	—	—	WWH	—	Yes	410	103
S031 UNT to Mulgee Run	Alternate	8-2D/E	Ephemeral	4	6	HHEI	31	—	Class II PHWH	No	609	34
S032 UNT to Mulgee Run	Alternate	8-2E	Ephemeral	3	3	HHEI	21	—	Class I PHWH	No	236	11

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
S033 UNT to Mulgee Run	Alternate	8-2E	Ephemeral	4	4	HHEI	30	—	Class II PHWH	No	88	NC
S034 UNT to Mulgee Run	Alternate	8-2E	Ephemeral	5	6	HHEI	36	—	Class II PHWH	Yes	484	142
S035 UNT to Mulgee Run	Alternate	8-2E	Intermittent	7	4	HHEI	44	—	Class II PHWH	No	84	NC
S036 UNT to Walnut Creek	Alternate	8-2A	Ephemeral	2	1	HHEI	29	—	Class I PHWH	No	251	NC
S037 UNT to Mulgee Run	Alternate	9-2C/D	Intermittent	6	4	HHEI	48	-	Class II PHWH	No	843	NC

TABLE 8-3

Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation ^a	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline ^b	Length (linear feet) within Field Survey Area ^c	Length (linear feet) within Potential Disturbance Area/ROW ^d
Total											14,006	2,148

Notes:

^a EWH = Exceptional Warmwater Habitat, WWH = Warm Water Habitat^b NC = Not crossed by proposed ROW.^c The width of the Field Survey Area was 400 feet centered on the existing Berlin-Ross 69 kV transmission line and 300 feet centered on the Preferred and Alternate Routes within the Londonderry Focus Area where the routes deviate from the existing centerline.^d The width of the potential disturbance area and the final maintained ROW is planned to be 100 feet.

UNT = unnamed tributary

(ii) Lakes, Ponds, and Reservoirs

Text provided in the March 15, 2018 application filing remains unchanged.

(2) Map of Facility, Right-of-Way, and Delineated Resources

Text provided in the March 15, 2018 application filing remains unchanged.

(3) Construction Impacts on Vegetation and Surface Waters**(a) Construction Impacts on Vegetation**

The construction impacts on woody and herbaceous vegetation along both the Preferred and Alternate Route will be limited to the initial clearing of vegetation within the 100-foot-wide ROW for the proposed transmission line and access roads. Preliminary locations for access roads have been identified and will be confirmed at the time of AEP Ohio Transco's transmission line easement acquisition process. Trees adjacent to the ROW that are dead, dying, diseased, leaning, significantly encroaching, or prone to failure may require clearing to allow for safe construction and operation of the transmission line. Vegetation waste (e.g., tree limbs and trunks) generated during the construction phase will be windrowed or chipped and disposed of appropriately depending on individual landowner requests. The approximate vegetation impacts along the Preferred and Alternate Route ROWs are provided in Table 8-4.

TABLE 8-4
Approximate Vegetation Impacts Along the Potential Disturbance Area/ROW

Land Use Type	Length of Route (in feet)	Length of Route (in miles)	Acreage within ROW
Preferred Route			
Agricultural	9,308 <u>9,368</u>	1.8	24.2 <u>24.4</u>
Industrial / Commercial	0 <u>37</u>	0.0 <u><0.1</u>	<0.1 <u>0.2</u>
Open Land / Pasture	9,606 <u>10,449</u>	1.8 <u>2.0</u>	21.0 <u>21.7</u>
Road / Railroad ROW	204 <u>177</u>	<0.1	0.5
Utility ROW	11,479 <u>12,435</u>	2.2 <u>2.4</u>	26.0 <u>26.9</u>
Water	72 <u>70</u>	<0.1	0.2 <u>0.1</u>
Woodlot	6,605 <u>5,164</u>	1.3 <u>1.0</u>	13.1 <u>12.3</u>
Alternate Route			
Agricultural	1,223	0.2	14.7
Industrial/Commercial	0	0.0	<0.1
Open Land / Pasture	41	<0.1	23.1
Road / Railroad ROW	51	<0.1	0.4
Utility ROW	36,324	6.9	42.2
Water	0	0.0	0.1
Woodlot	0	0.0	2.9

(b) Construction Impacts on Wetlands

Text provided in the March 18, 2018 application filing remains unchanged.

(c) Construction Impacts on Waterbodies

Text provided in the March 18, 2018 application filing remains unchanged.

(4) Operation and Maintenance Impacts on Vegetation and Surface Water

Text provided in the March 18, 2018 application filing remains unchanged.

(5) Mitigation Procedures

Text provided in the March 18, 2018 application filing remains unchanged.

(C) Literature Survey of Plant and Animal Life Potentially Affected

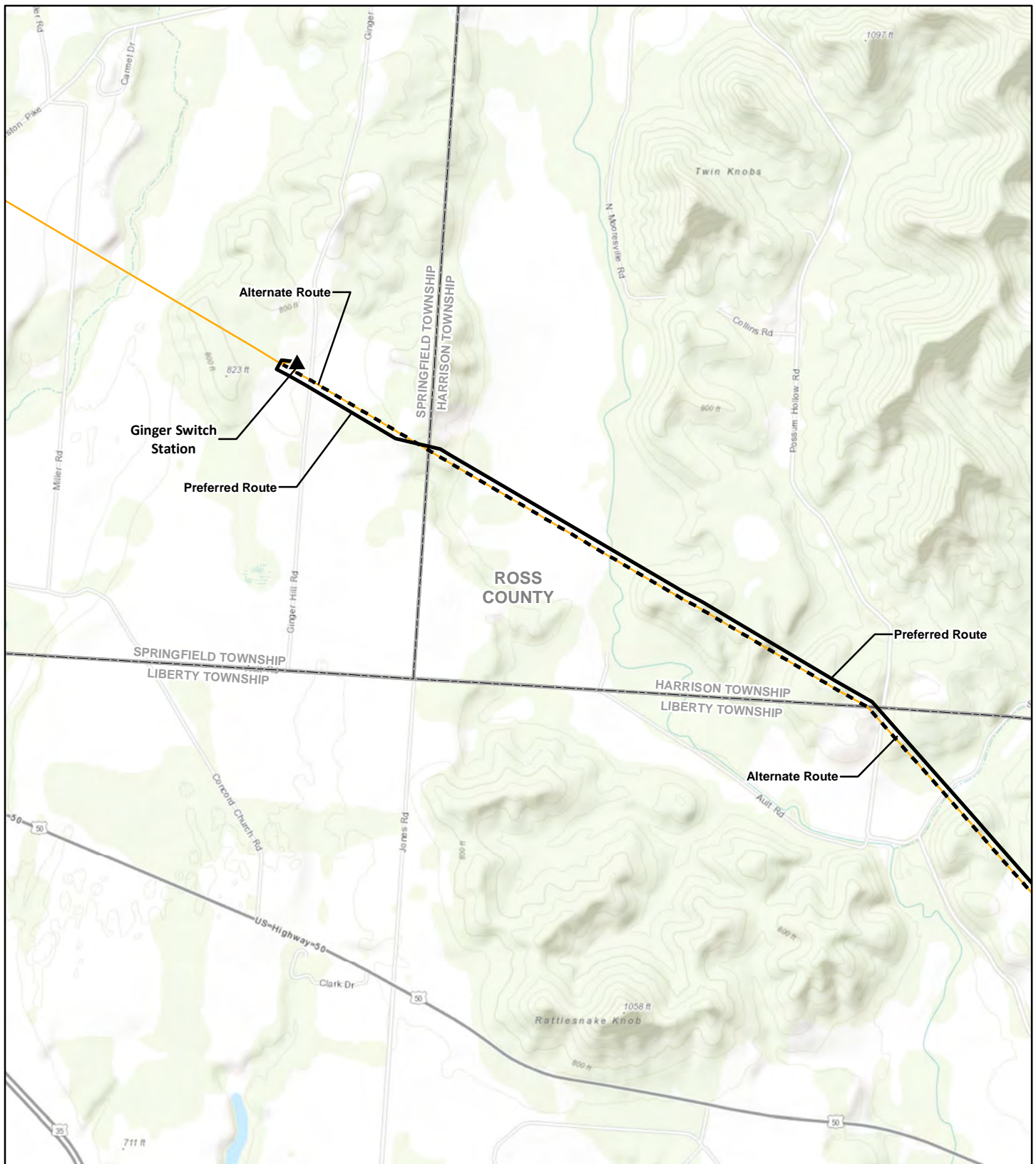
Text provided in the March 18, 2018 application filing remains unchanged.

(D) Site Geology

Text provided in the March 18, 2018 application filing remains unchanged.

(E) Environmental and Aviation Regulation Compliance

Text provided in the March 18, 2018 application filing remains unchanged.



Legend

- ▲ Substation
- Populated Place
- Preferred Route
- - - Alternate Route
- Existing 69kV Transmission Line
- Stream or River
- Waterbody
- Administrative Boundary

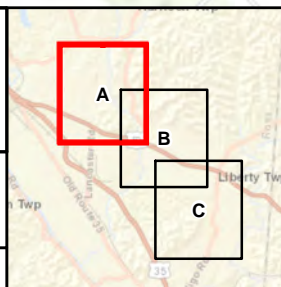
Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH DOT (2015)

Notes: Railroads reviewed but not present within the map area.

NAD 1983 State Plane
Ohio South Feet



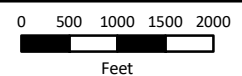
September 26, 2019

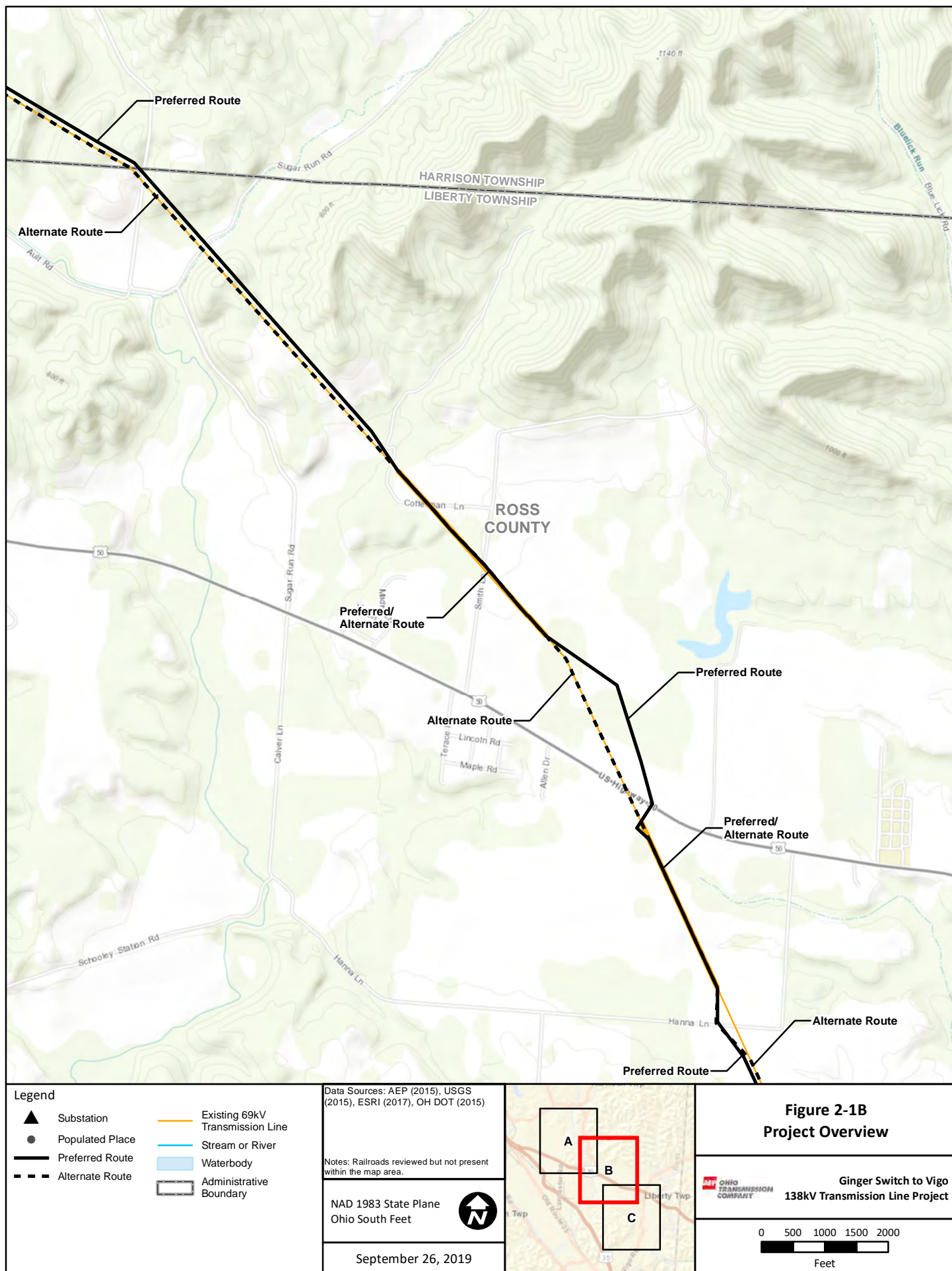


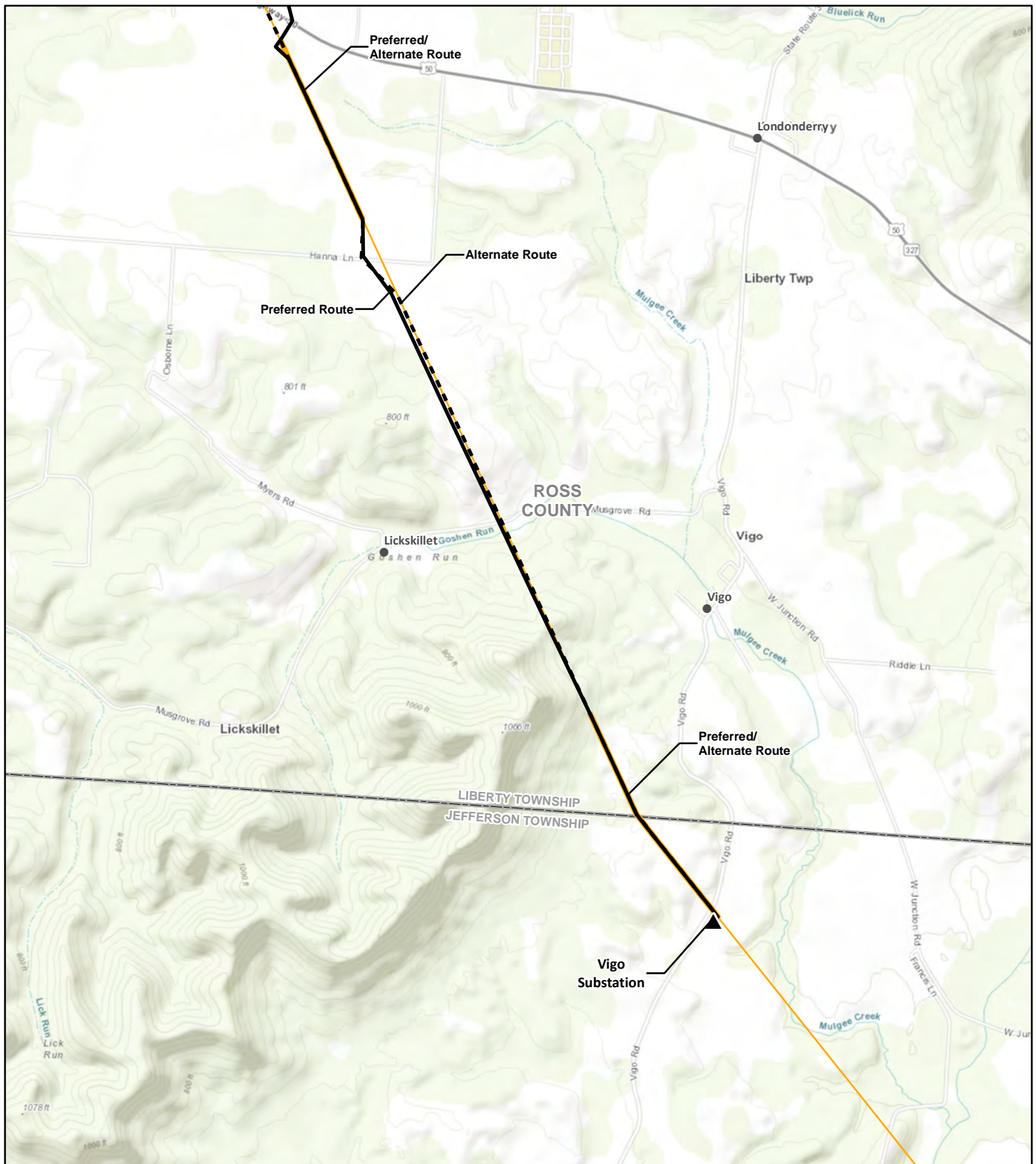
**Figure 2-1A
Project Overview**



**Ginger Switch to Vigo
138kV Transmission Line Project**







Legend

- | | |
|-----------------------|-----------------------------------|
| ▲ Substation | — Existing 69kV Transmission Line |
| ● Populated Place | — Stream or River |
| — Preferred Route | — Waterbody |
| - - - Alternate Route | — Administrative Boundary |

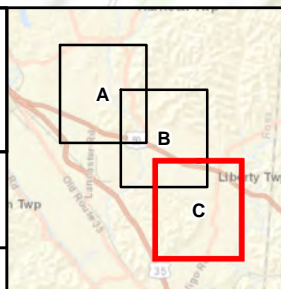
Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH DOT (2015)

Notes: Railroads reviewed but not present within the map area.

NAD 1983 State Plane
Ohio South Feet



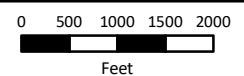
September 26, 2019

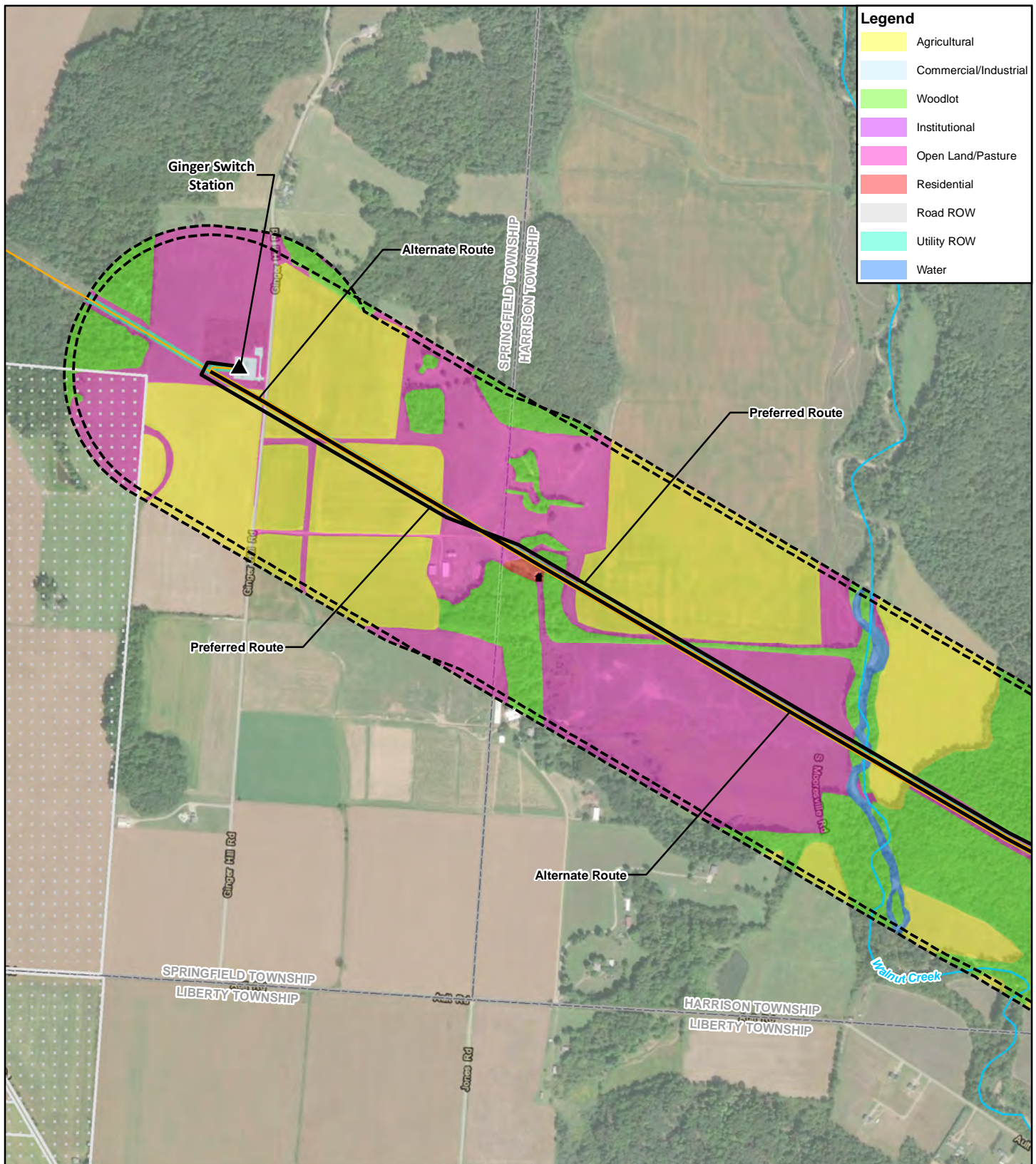


**Figure 2-1C
Project Overview**



**Ginger Switch to Vigo
138kV Transmission Line Project**

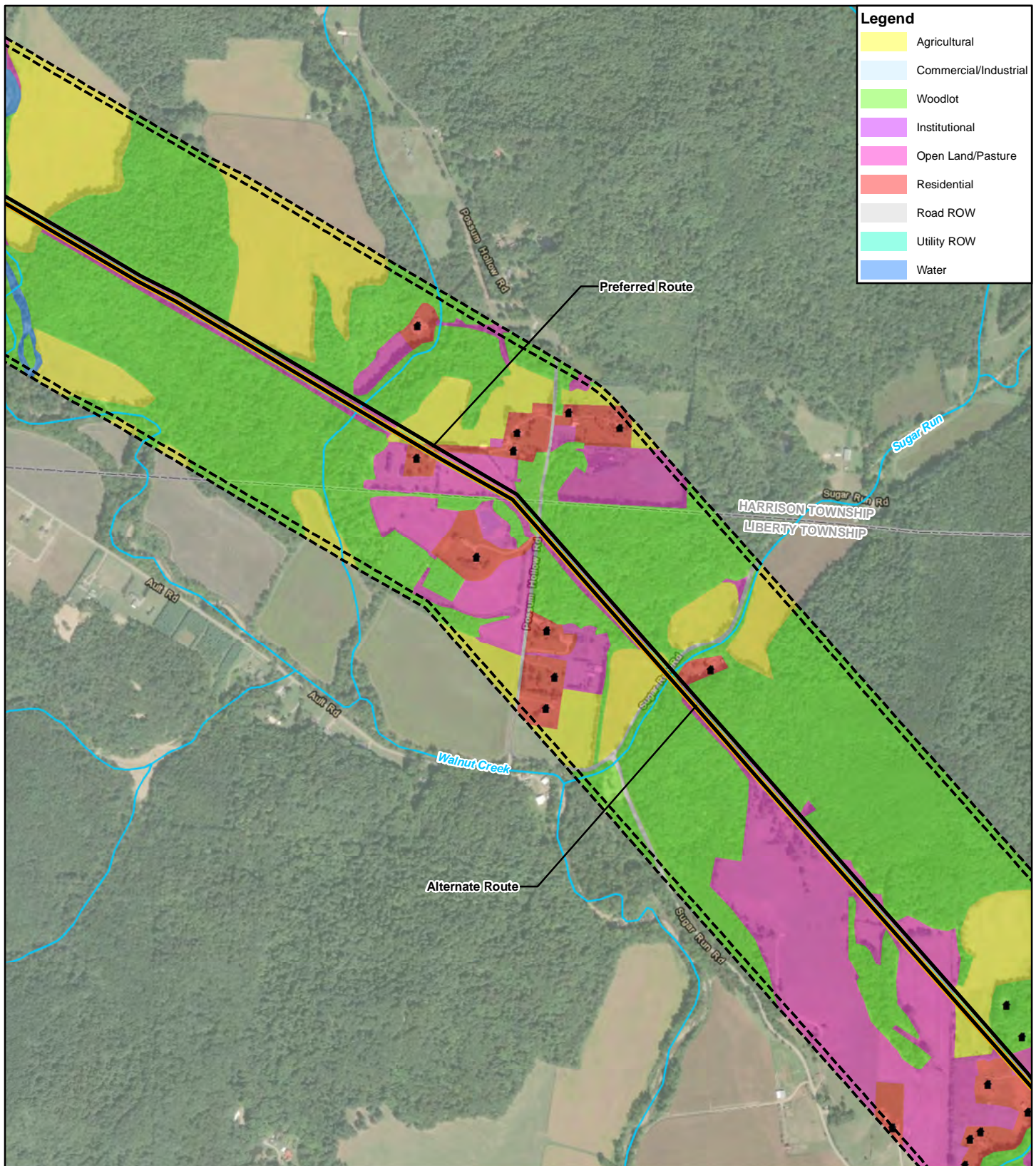




Legend

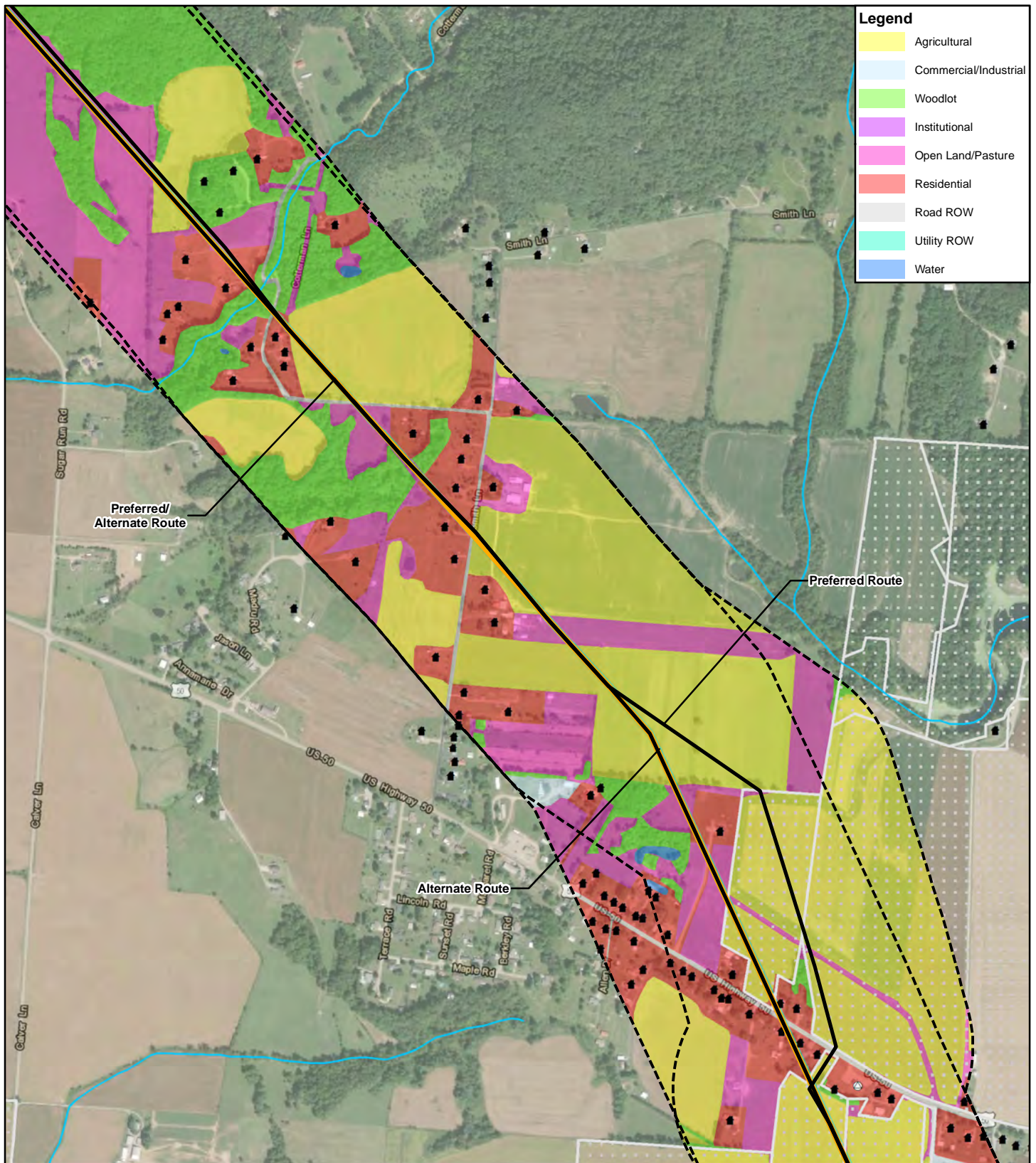
- Agricultural
- Commercial/Industrial
- Woodlot
- Institutional
- Open Land/Pasture
- Residential
- Road ROW
- Utility ROW
- Water

<p>Legend</p> <ul style="list-style-type: none"> Substation Route Alternative 1,000-Foot Buffer Existing 69kV Transmission Line Cemetery Residence Commercial Building Stream or River Agricultural District Parcel Administrative Boundary 	<p>Data Sources: AEP (2015), USGS (2018), ESRI (2019), OH SHPO (2019), Ross County Assessor (2019)</p> <p>Notes: Recreation areas were reviewed but not present within the map area.</p> <p>NAD 1983 State Plane Ohio South Feet</p> <p>September 26, 2019</p>		<p>Figure 7-1A Land Use</p> <p>Ginger Switch to Vigo 138kV Transmission Line Project</p> <p>OHIO TRANSMISSION COMPANY</p> <p>0 250 500 750 1000 Feet</p>
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- Legend**
- Agricultural
 - Commercial/Industrial
 - Woodlot
 - Institutional
 - Open Land/Pasture
 - Residential
 - Road ROW
 - Utility ROW
 - Water

<p>Legend</p> <ul style="list-style-type: none"> Substation Route Alternative 1,000-Foot Buffer Existing 69kV Transmission Line Cemetery Residence Commercial Building Stream or River Agricultural District Parcel Administrative Boundary 	<p>Data Sources: AEP (2015), USGS (2018), ESRI (2019), OH SHPO (2019), Ross County Assessor (2019)</p> <p>Notes: Recreation areas were reviewed but not present within the map area.</p> <p>NAD 1983 State Plane Ohio South Feet</p> <p style="text-align: center;"> </p> <p style="text-align: center;">September 26, 2019</p>		<p style="text-align: center;">Figure 7-1B Land Use</p> <p style="text-align: center;"> Ginger Switch to Vigo 138kV Transmission Line Project </p> <p style="text-align: center;"> </p>
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- Legend**
- Agricultural
 - Commercial/Industrial
 - Woodlot
 - Institutional
 - Open Land/Pasture
 - Residential
 - Road ROW
 - Utility ROW
 - Water

- Legend**
- Substation
 - Route Alternative
 - 1,000-Foot Buffer
 - Existing 69kV Transmission Line
 - Cemetery
 - Residence
 - Commercial Building
 - Stream or River
 - Agricultural District Parcel
 - Administrative Boundary

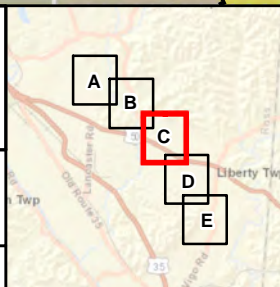
Data Sources: AEP (2015), USGS (2018), ESRI (2019), OH SHPO (2019), Ross County Assessor (2019)

Notes: Recreation areas were reviewed but not present within the map area.

NAD 1983 State Plane
Ohio South Feet



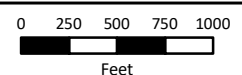
September 26, 2019

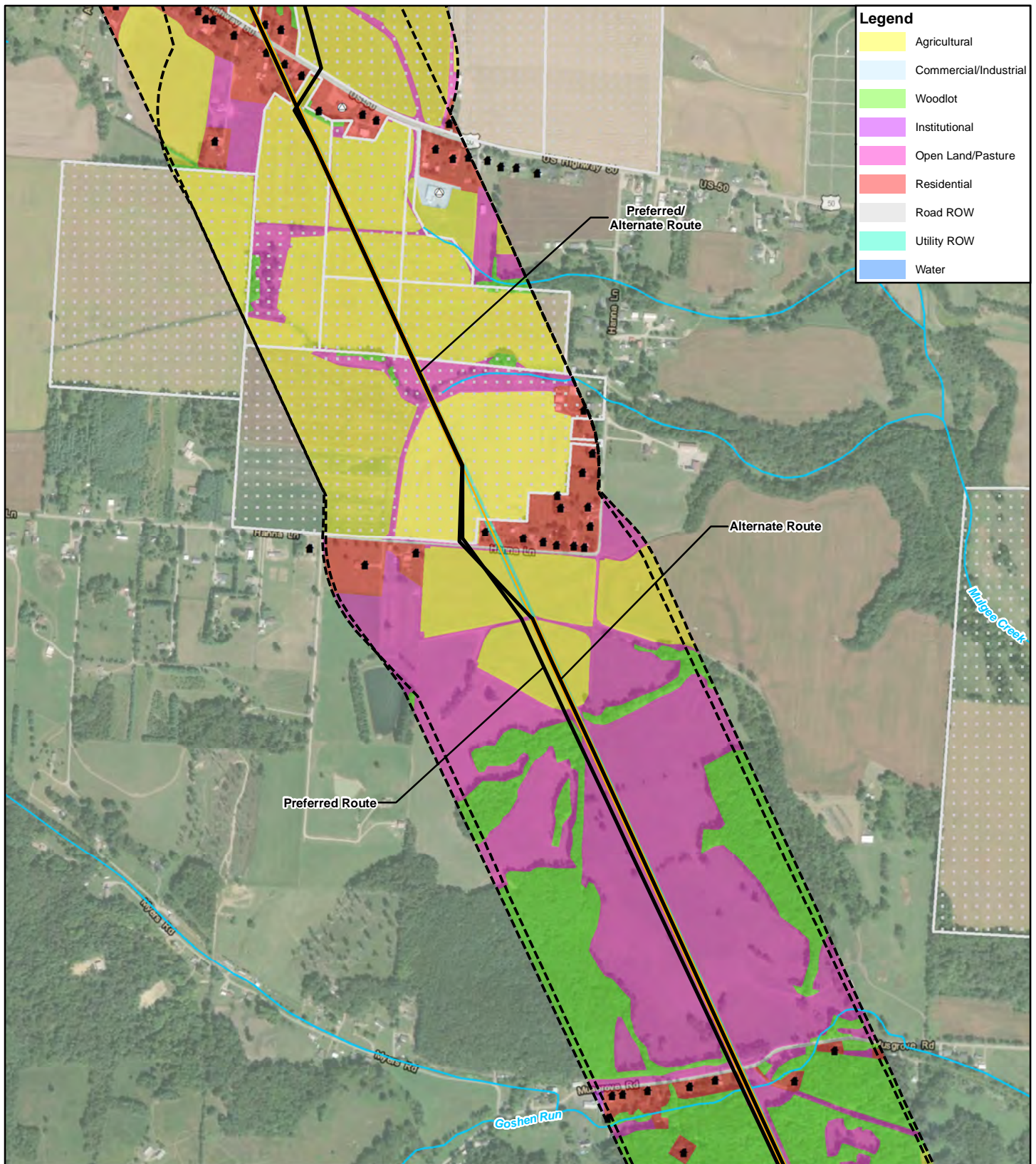


**Figure 7-1C
Land Use**

AEP
OHIO
TRANSMISSION
COMPANY

**Ginger Switch to Vigo
138kV Transmission Line Project**

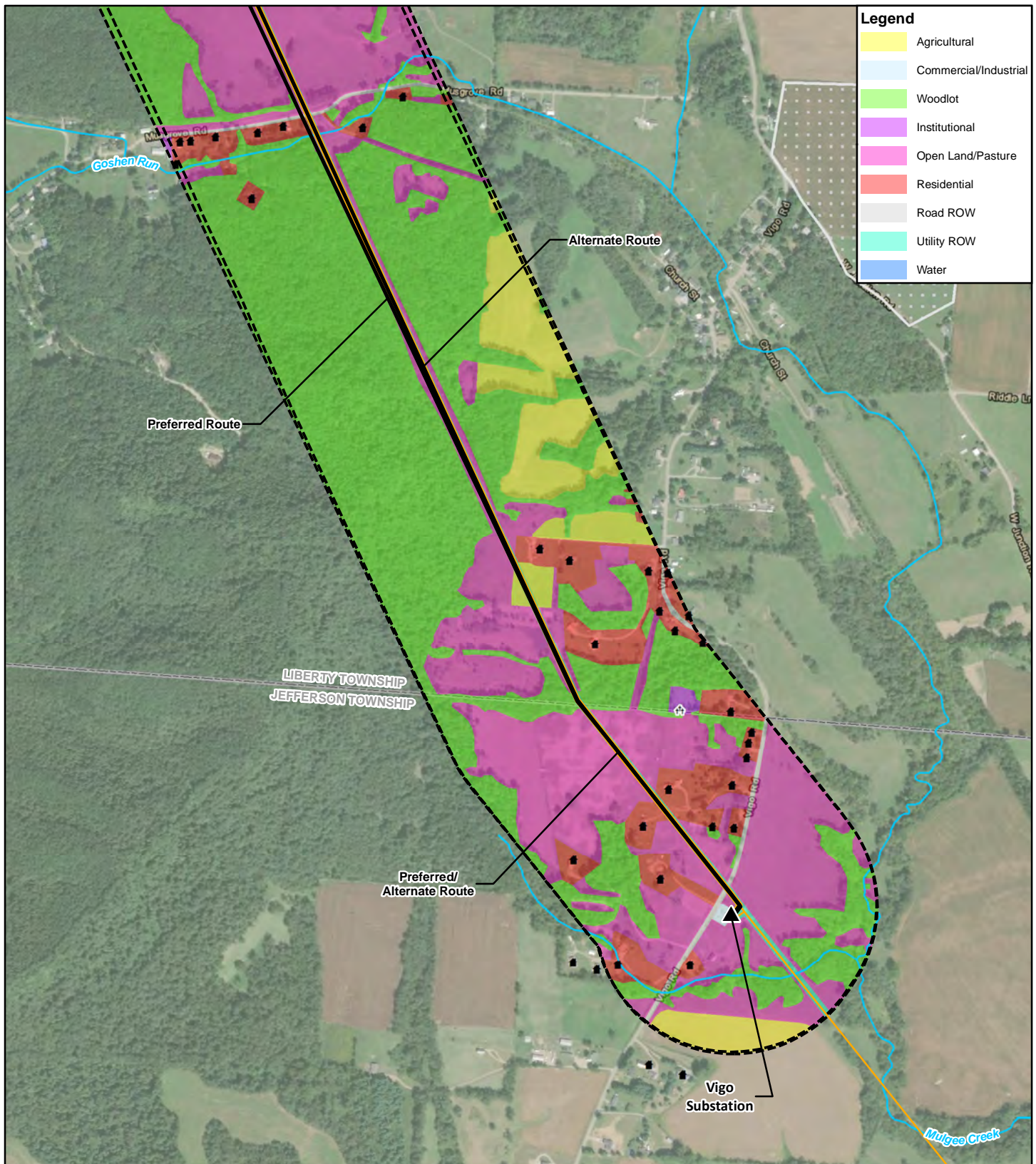




Legend

- Agricultural
- Commercial/Industrial
- Woodlot
- Institutional
- Open Land/Pasture
- Residential
- Road ROW
- Utility ROW
- Water

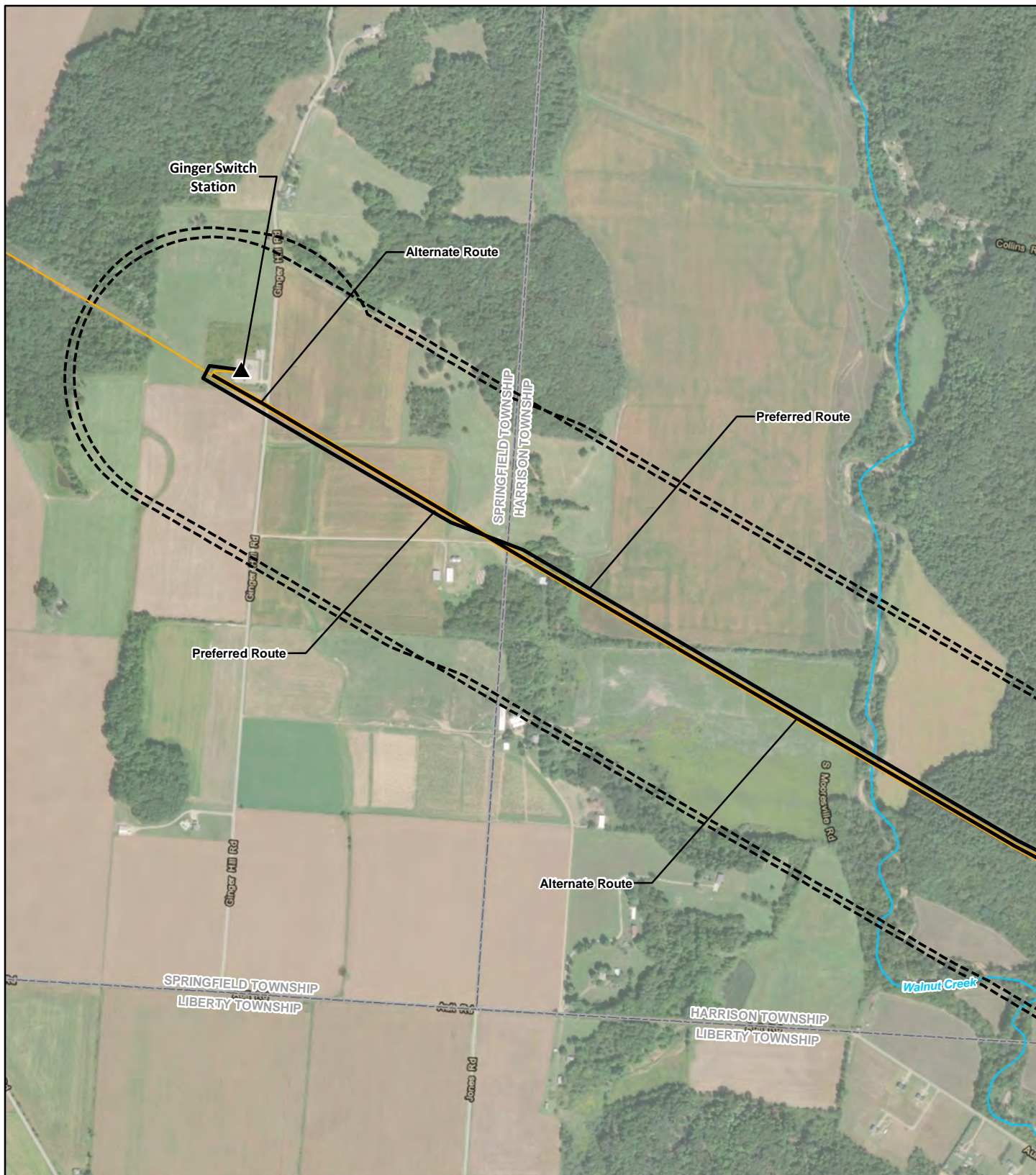
<p>Legend</p> <ul style="list-style-type: none"> Substation Route Alternative 1,000-Foot Buffer Existing 69kV Transmission Line Cemetery Residence Commercial Building Stream or River Agricultural District Parcel Administrative Boundary 	<p>Data Sources: AEP (2015), USGS (2018), ESRI (2019), OH SHPO (2019), Ross County Assessor (2019)</p> <p>Notes: Recreation areas were reviewed but not present within the map area.</p> <p>NAD 1983 State Plane Ohio South Feet</p> <p>September 26, 2019</p>		<p>Figure 7-1D Land Use</p> <p>Ginger Switch to Vigo 138kV Transmission Line Project</p> <p>OHIO TRANSMISSION COMPANY</p> <p>0 250 500 750 1000 Feet</p>
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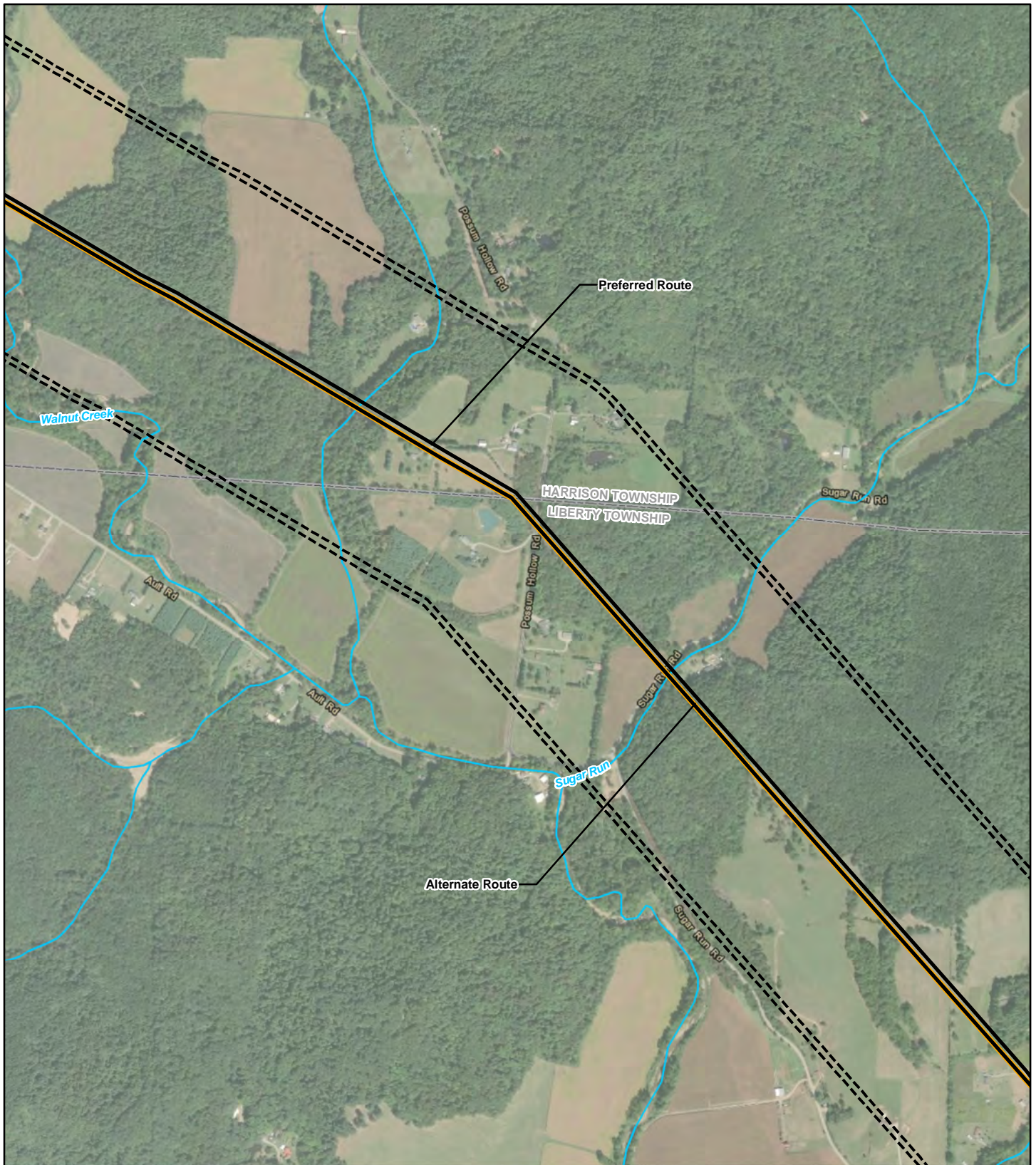
Legend

- Agricultural
- Commercial/Industrial
- Woodlot
- Institutional
- Open Land/Pasture
- Residential
- Road ROW
- Utility ROW
- Water

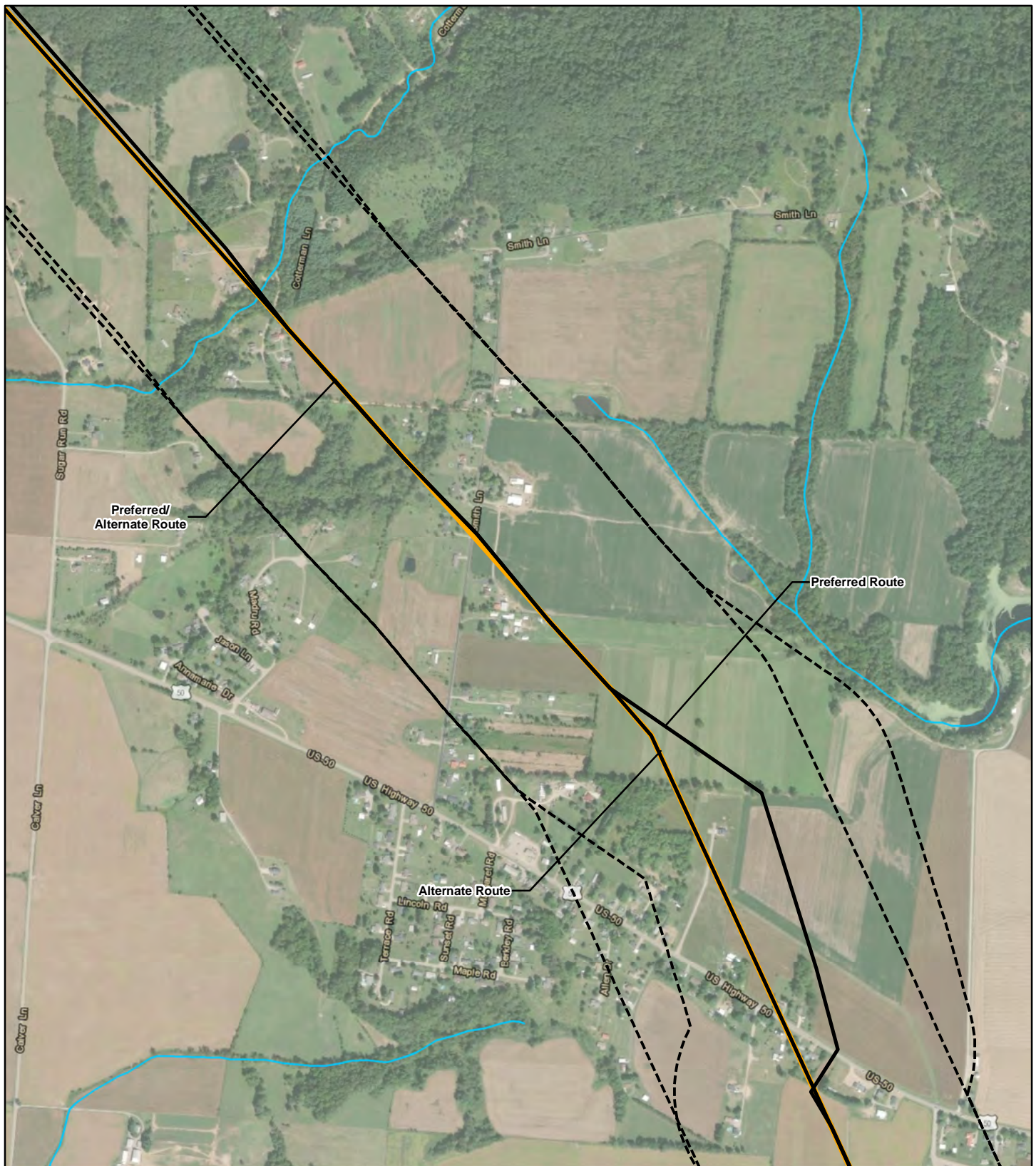
<p>Legend</p> <ul style="list-style-type: none"> Substation Route Alternative 1,000-Foot Buffer Existing 69kV Transmission Line Cemetery Residence Commercial Building Stream or River Agricultural District Parcel Administrative Boundary 	<p>Data Sources: AEP (2015), USGS (2018), ESRI (2019), OH SHPO (2019), Ross County Assessor (2019)</p> <p>Notes: Recreation areas were reviewed but not present within the map area.</p> <p>NAD 1983 State Plane Ohio South Feet</p> <p>September 26, 2019</p>		<p>Figure 7-1E Land Use</p> <p>Ginger Switch to Vigo 138kV Transmission Line Project</p> <p>OHIO TRANSMISSION COMPANY</p> <p>0 250 500 750 1000 Feet</p>
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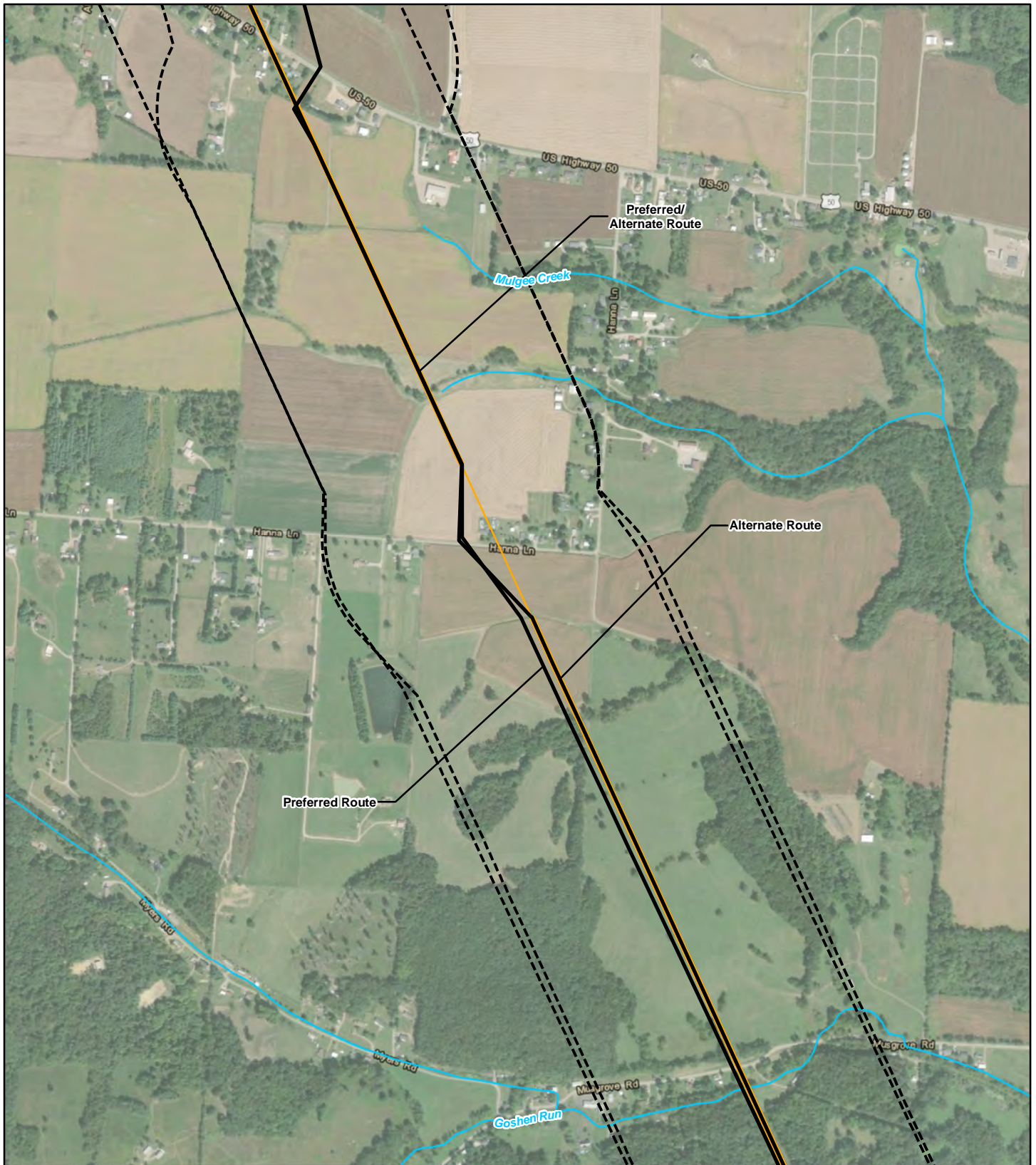
<p>Legend</p> <ul style="list-style-type: none"> ▲ Substation Route Alternative 1,000-Foot Buffer Existing 69kV Transmission Line ✚ Cemetery Stream or River Administrative Boundary 	<p>Data Sources: AEP (2015), USGS (2018), ESRI (2017), OH SHPO (2019), ODNR (2018)</p> <p>Notes: State lands and historic structures reviewed but not present within the map area.</p> <p>NAD 1983 State Plane Ohio South Feet</p> <p>October 24, 2019</p>		<p>Figure 7-2A Recreational and Cultural Resources</p> <p>Ginger Switch to Vigo 138kV Transmission Line Project</p> <p>OHIO TRANSMISSION COMPANY</p> <p>0 250 500 750 1000 Feet</p>
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<p>Legend</p> <ul style="list-style-type: none"> ▲ Substation ⛑ Cemetery — Route Alternative — Stream or River - - - 1,000-Foot Buffer - - - Administrative Boundary — Existing 69kV Transmission Line 	<p>Data Sources: AEP (2015), USGS (2018), ESRI (2017), OH SHPO (2019), ODNR (2018)</p> <p>Notes: State lands and historic structures reviewed but not present within the map area.</p> <p>NAD 1983 State Plane Ohio South Feet</p> <p>October 24, 2019</p>		<p>Figure 7-2B Recreational and Cultural Resources</p> <p>Ginger Switch to Vigo 138kV Transmission Line Project</p> <p>OHIO TRANSMISSION COMPANY</p> <p>0 250 500 750 1000 Feet</p>
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<p>Legend</p> <ul style="list-style-type: none"> ▲ Substation ✚ Cemetery — Route Alternative — Stream or River - - - 1,000-Foot Buffer — Administrative Boundary — Existing 69kV Transmission Line 	<p>Data Sources: AEP (2015), USGS (2018), ESRI (2017), OH SHPO (2019), ODNR (2018)</p> <p>Notes: State lands and historic structures reviewed but not present within the map area.</p> <p>NAD 1983 State Plane Ohio South Feet</p> <p>October 24, 2019</p>		<p>Figure 7-2C Recreational and Cultural Resources</p> <p>Ginger Switch to Vigo 138kV Transmission Line Project</p> <p>OHIO TRANSMISSION COMPANY</p> <p>0 250 500 750 1000 Feet</p>
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Legend

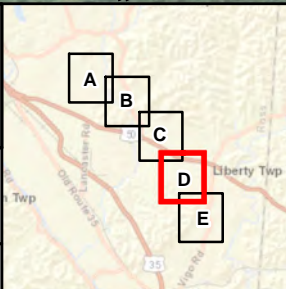
	Substation		Cemetery
	Route Alternative		Stream or River
	1,000-Foot Buffer		Administrative Boundary
	Existing 69kV Transmission Line		

Data Sources: AEP (2015), USGS (2018), ESRI (2017), OH SHPO (2019), ODNR (2018)

Notes: State lands and historic structures reviewed but not present within the map area.

NAD 1983 State Plane
Ohio South Feet

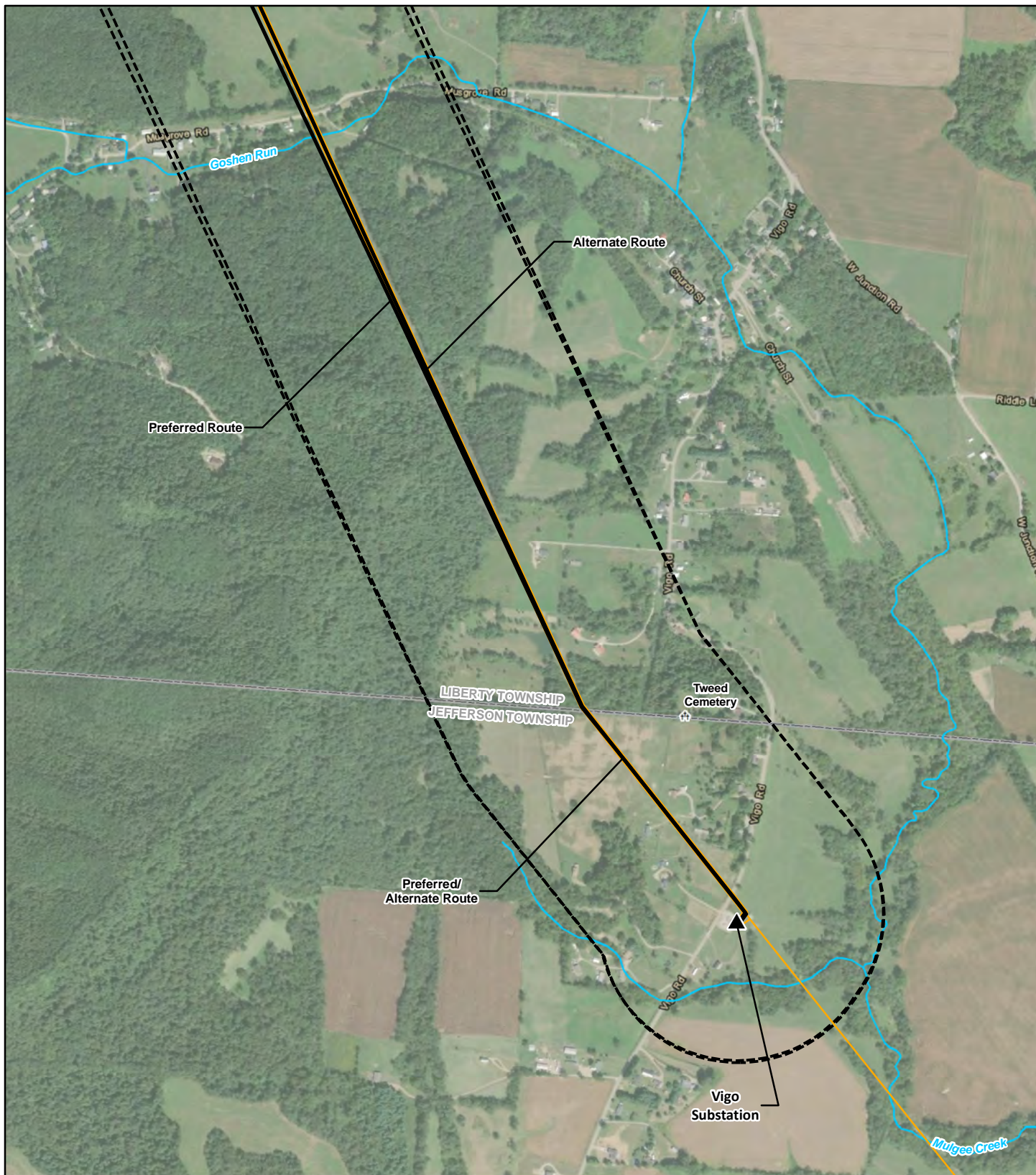
October 24, 2019



**Figure 7-2D
Recreational and
Cultural Resources**

**Ginger Switch to Vigo
138kV Transmission Line Project**

0 250 500 750 1000
Feet



Legend

- | | | | |
|--|---------------------------------|--|-------------------------|
| | Substation | | Cemetery |
| | Route Alternative | | Stream or River |
| | 1,000-Foot Buffer | | Administrative Boundary |
| | Existing 69kV Transmission Line | | |

Data Sources: AEP (2015), USGS (2018), ESRI (2017), OH SHPO (2019), ODNR (2018)

Notes: State lands and historic structures reviewed but not present within the map area.

NAD 1983 State Plane
Ohio South Feet



October 24, 2019

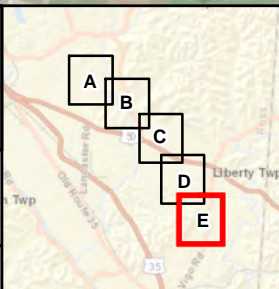
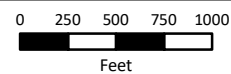
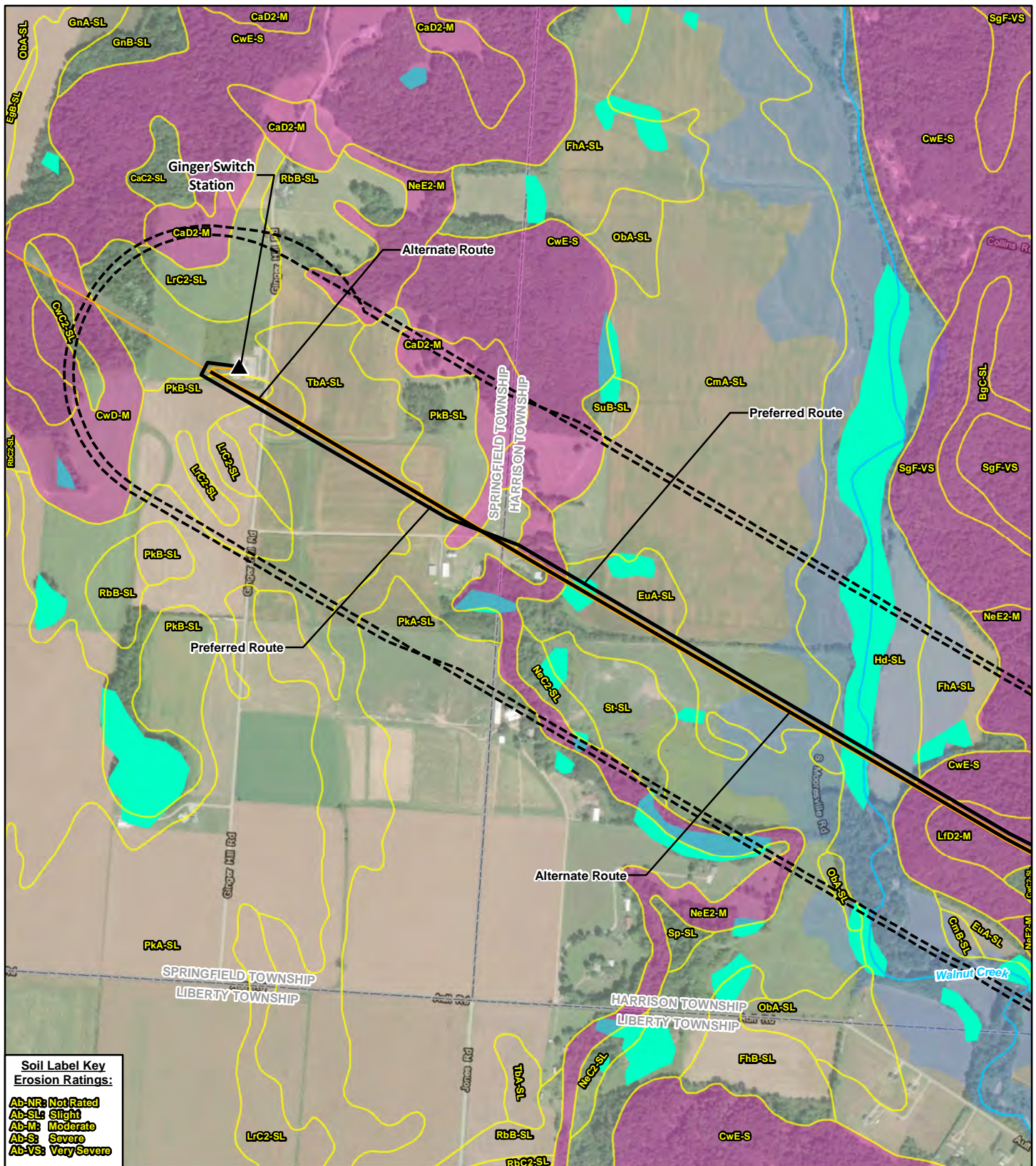


Figure 7-2E
Recreational and Cultural Resources



Ginger Switch to Vigo
138kV Transmission Line Project





Soil Label Key
Erosion Ratings:
 Ab-NR: Not Rated
 Ab-SL: Slight
 Ab-M: Moderate
 Ab-S: Severe
 Ab-VS: Very Severe

- Legend**
- ▲ Substation
 - Route Alternative
 - 1,000-Foot Buffer
 - Existing 69kV Transmission Line
 - Stream or River
 - NWI Wetland
 - 100-Year Floodplain
 - Soil Unit Slope Exceeds 12%
 - Soil Unit Boundary
 - Administrative Boundary

Data Sources: AEP (2015), USGS (2018), ESRI (2017), OH SHPO (2017), ODNR (2014), FEMA (2018), USFWS (2018)

NAD 1983 State Plane
 Ohio South Feet



September 26, 2019

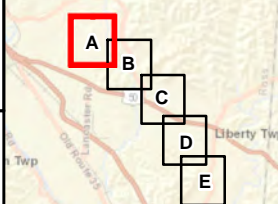
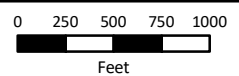
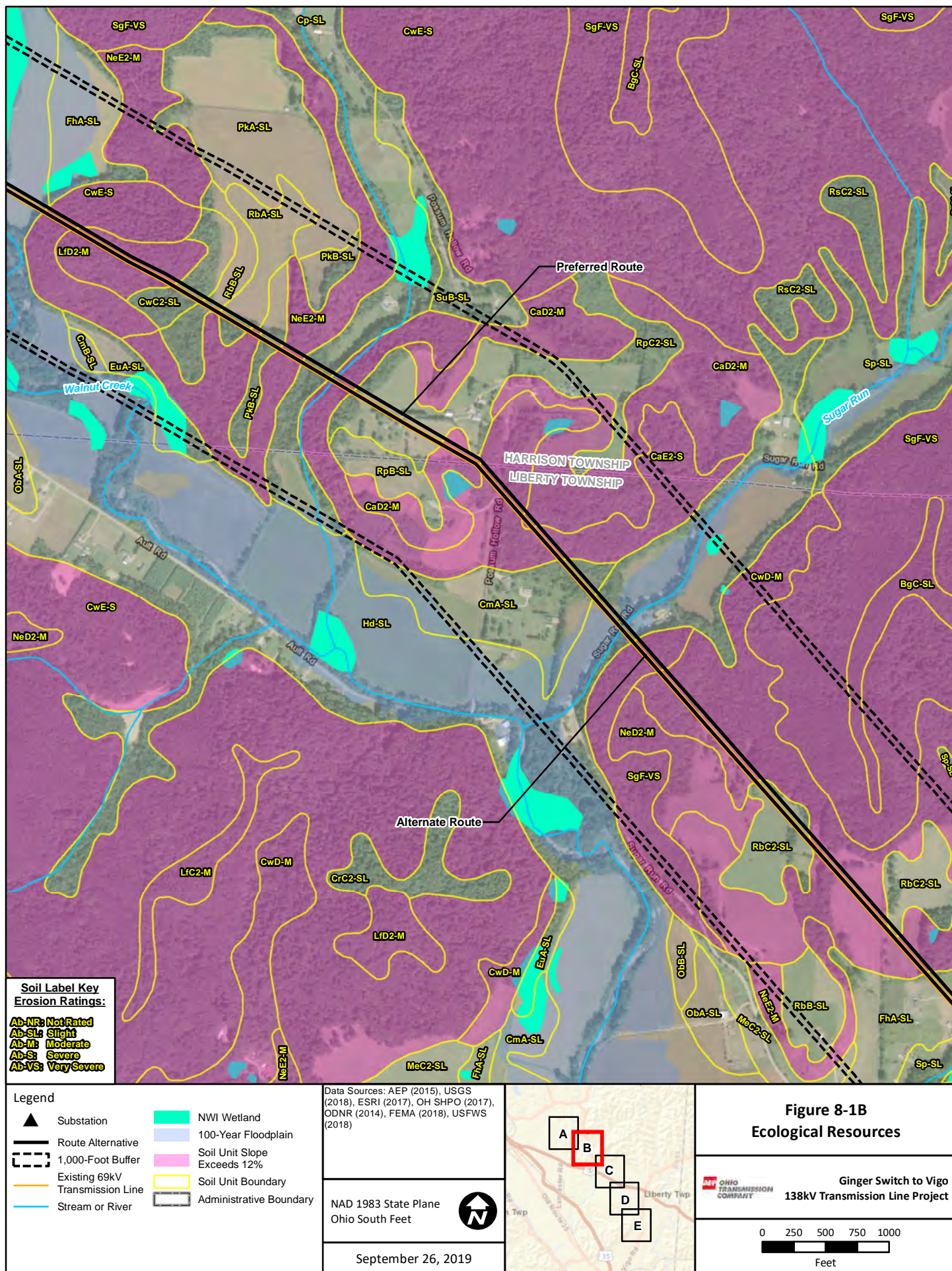


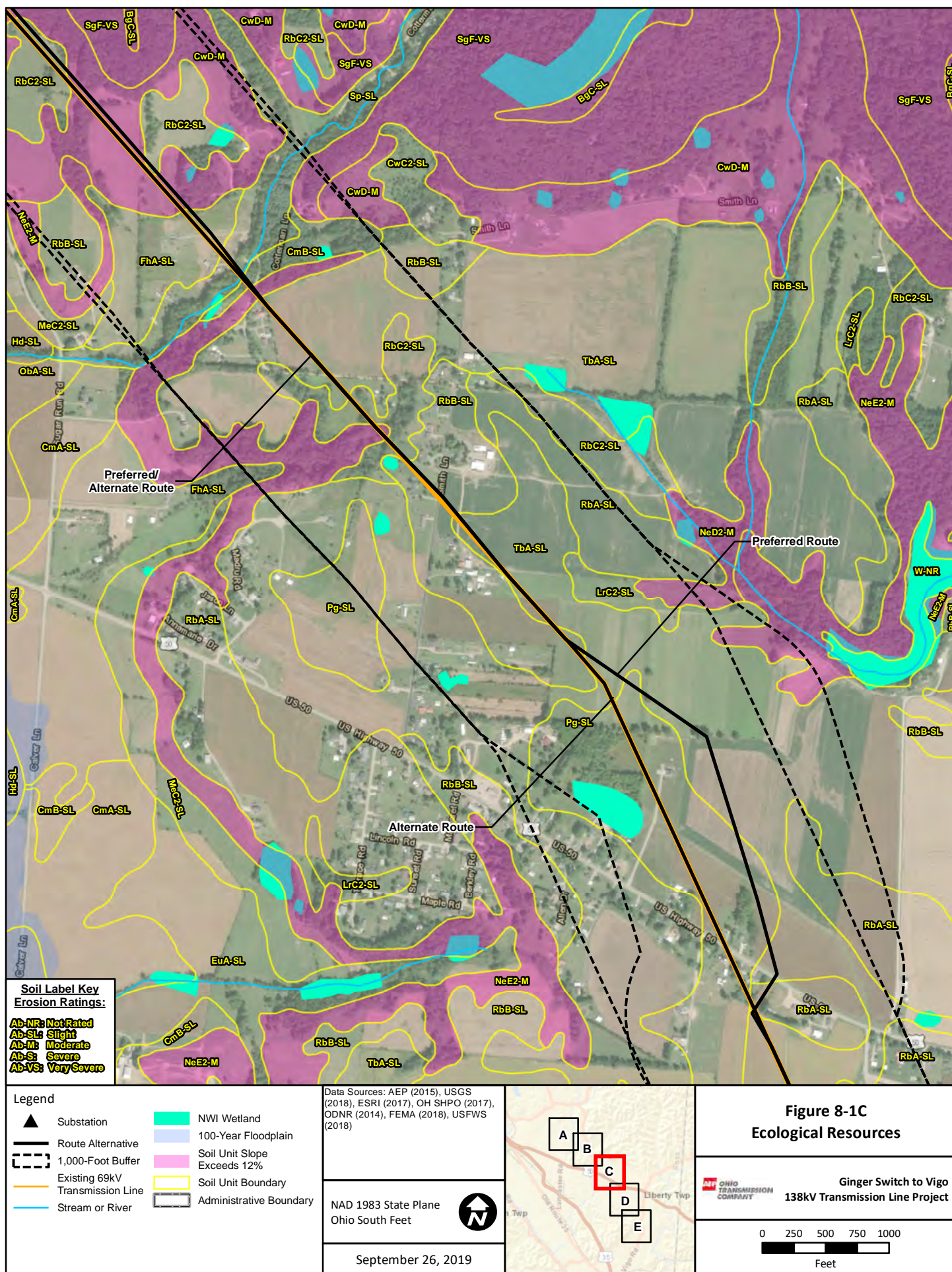
Figure 8-1A
Ecological Resources

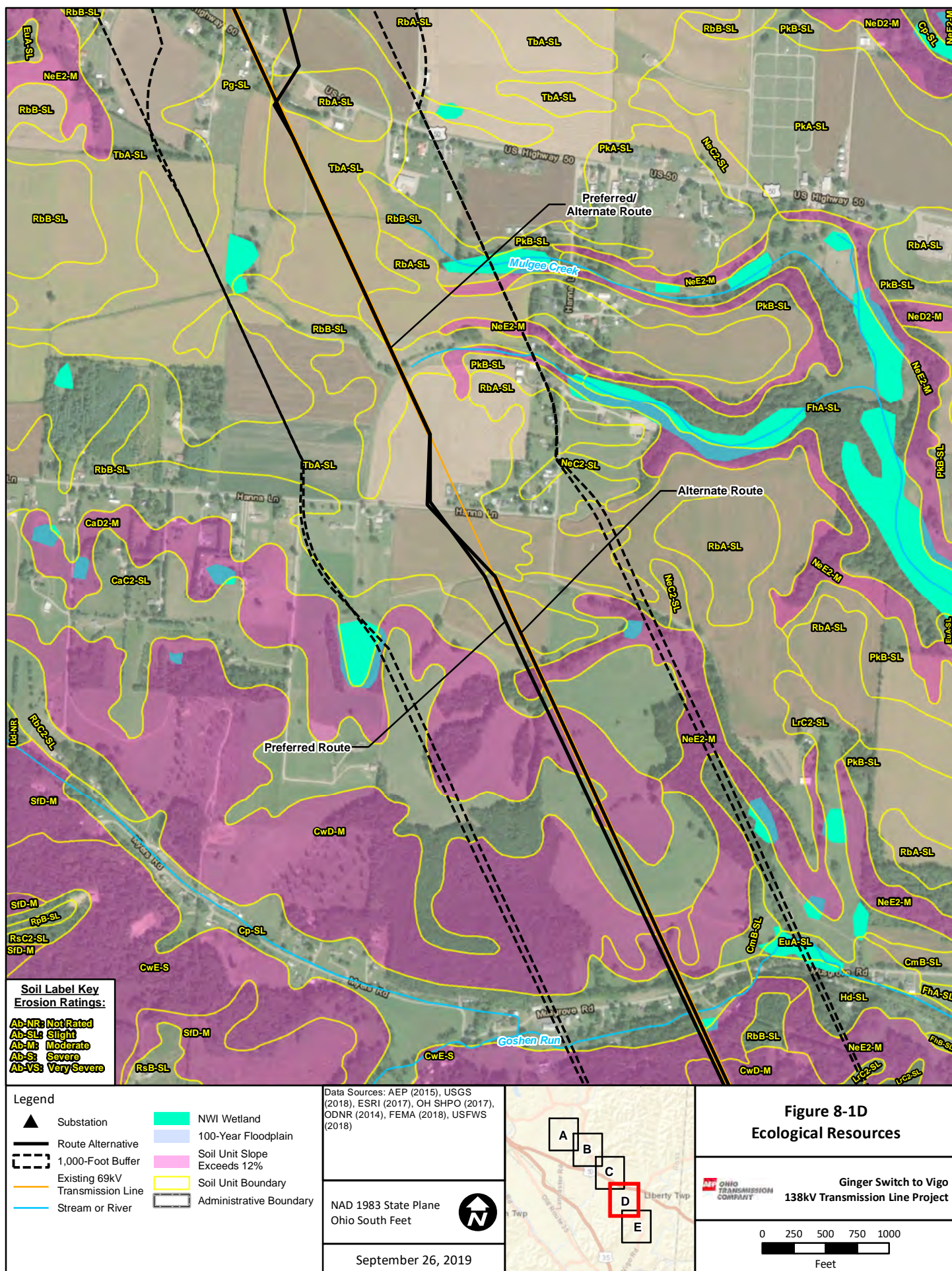


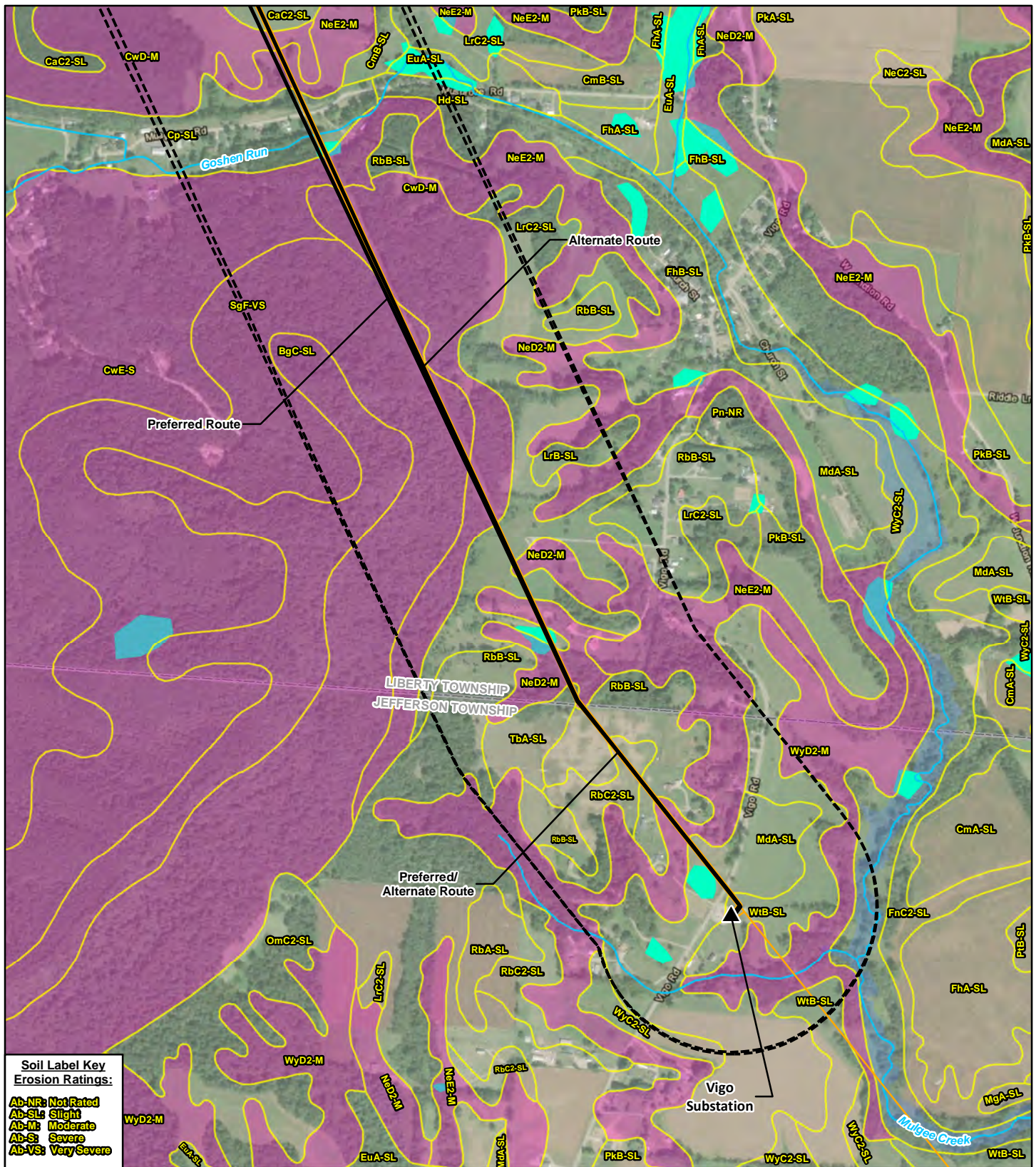
Ginger Switch to Vigo
 138kV Transmission Line Project











Legend

- ▲ Substation
- Route Alternative
- 1,000-Foot Buffer
- Existing 69kV Transmission Line
- Stream or River
- NWI Wetland
- 100-Year Floodplain
- Soil Unit Slope Exceeds 12%
- Soil Unit Boundary
- Administrative Boundary

Data Sources: AEP (2015), USGS (2018), ESRI (2017), OH SHPO (2017), ODNR (2014), FEMA (2018), USFWS (2018)

NAD 1983 State Plane
Ohio South Feet

September 26, 2019

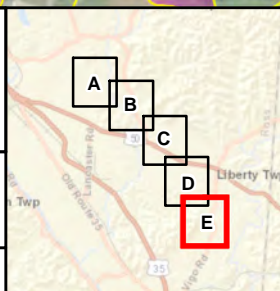
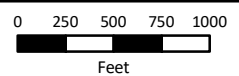
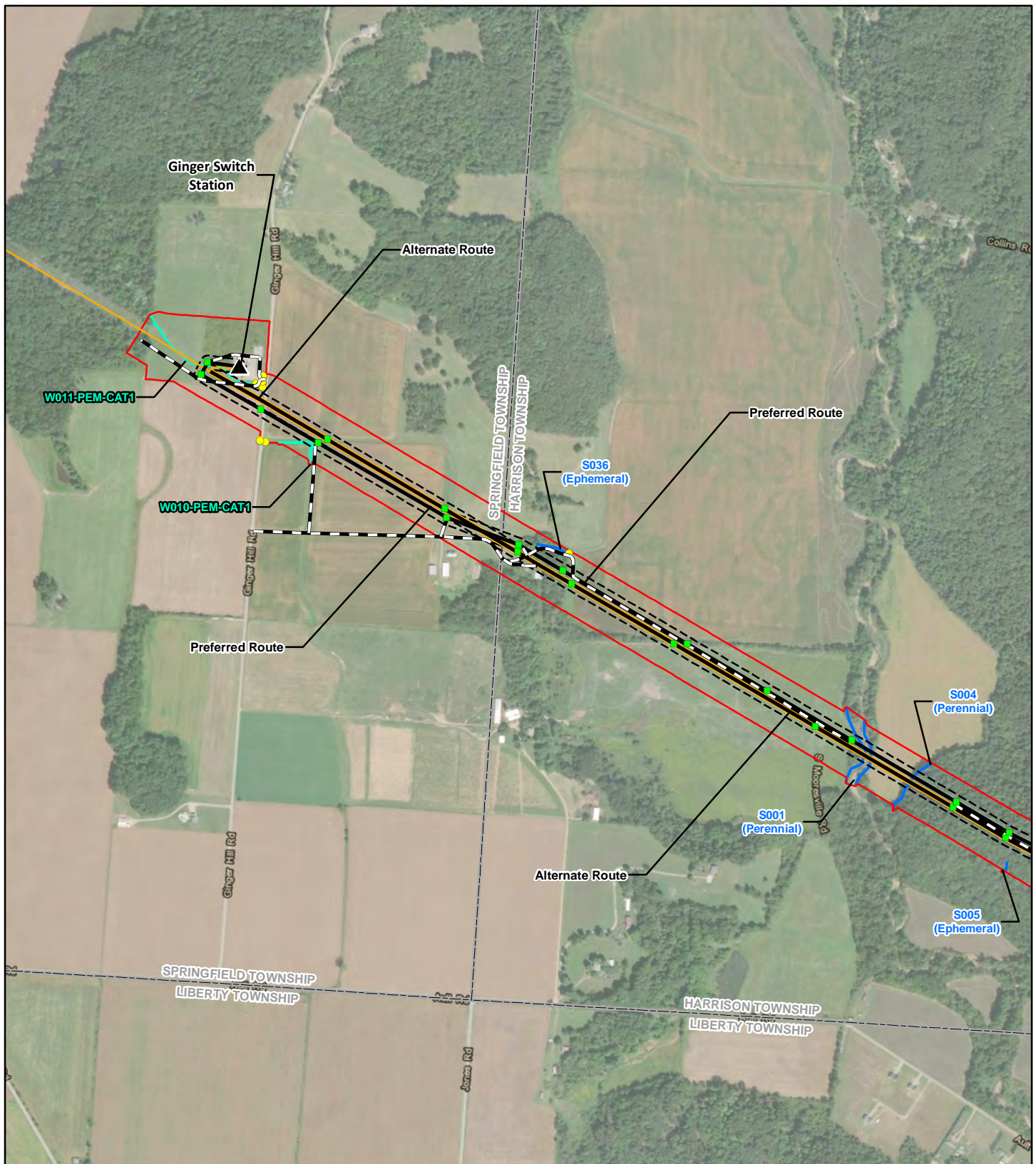


Figure 8-1E
Ecological Resources



Ginger Switch to Vigo
138kV Transmission Line Project





Legend

- | | |
|-----------------------------------|----------------------------|
| ▲ Substation | ● Culvert |
| ■ Proposed Structure | --- Drainage Feature |
| — Route Alternative | — Field-Delineated Stream |
| --- Proposed Access Road | — Field-Delineated Wetland |
| --- 100-Foot ROW | □ Survey Area |
| — Existing 69kV Transmission Line | □ Administrative Boundary |

Data Sources: AEP (2015), USGS (2015), ESRI (2017)

NAD 1983 State Plane
Ohio South Feet

September 26, 2019

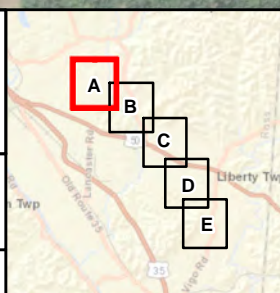
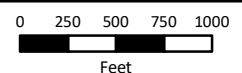
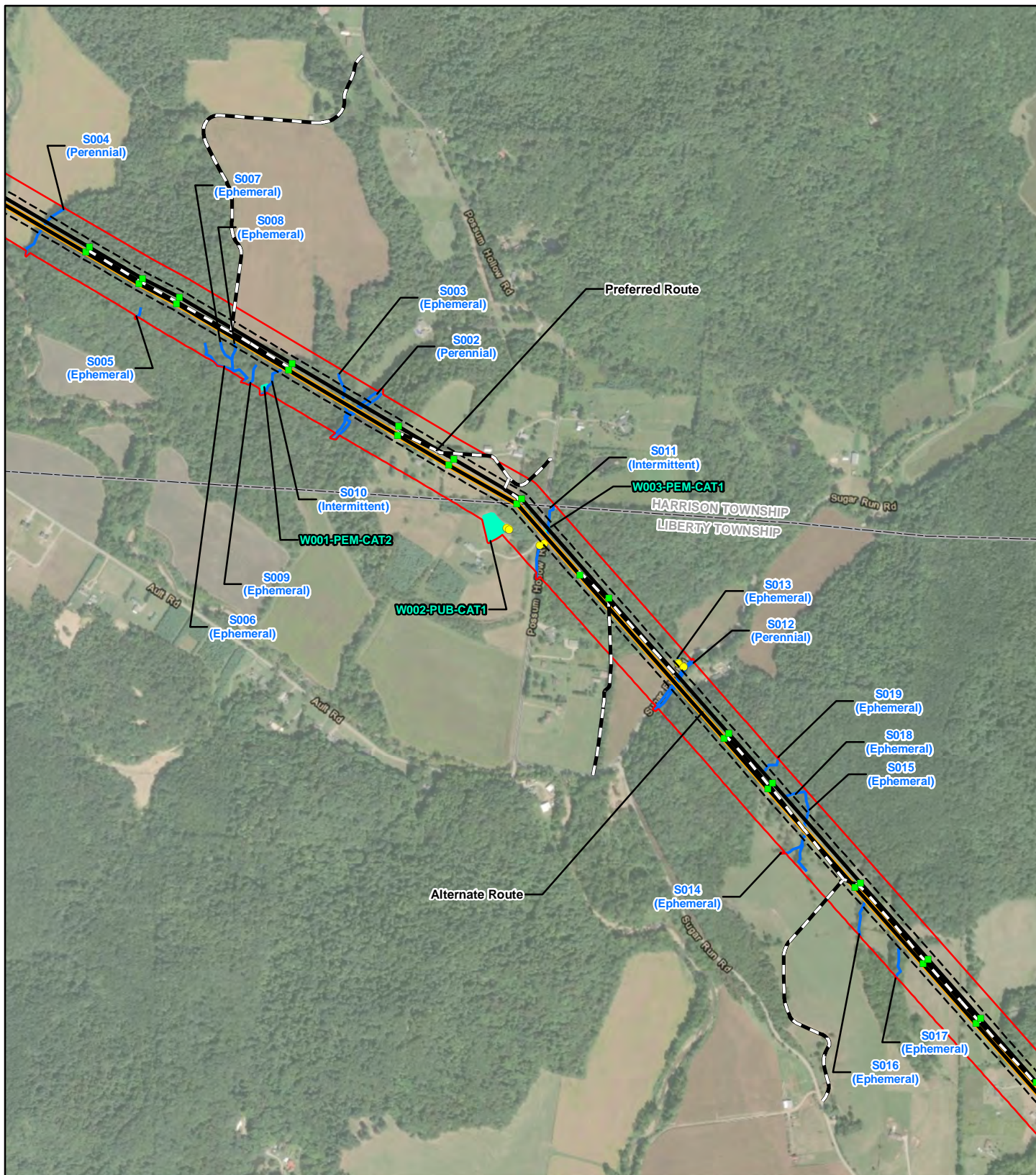


Figure 8-2A
Delineated Wetlands
and Waterbodies



Ginger Switch to Vigo
138kV Transmission Line Project





Legend

- | | | | |
|--|---------------------------------|--|--------------------------|
| | Substation | | Culvert |
| | Proposed Structure | | Drainage Feature |
| | Route Alternative | | Field-Delineated Stream |
| | Proposed Access Road | | Field-Delineated Wetland |
| | 100-Foot ROW | | Survey Area |
| | Existing 69kV Transmission Line | | Administrative Boundary |

Data Sources: AEP (2015), USGS (2015), ESRI (2017)

NAD 1983 State Plane
Ohio South Feet



September 26, 2019

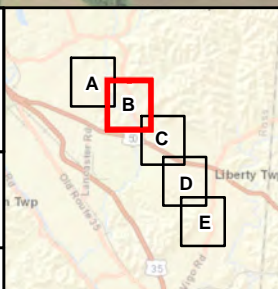
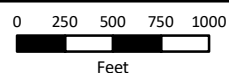
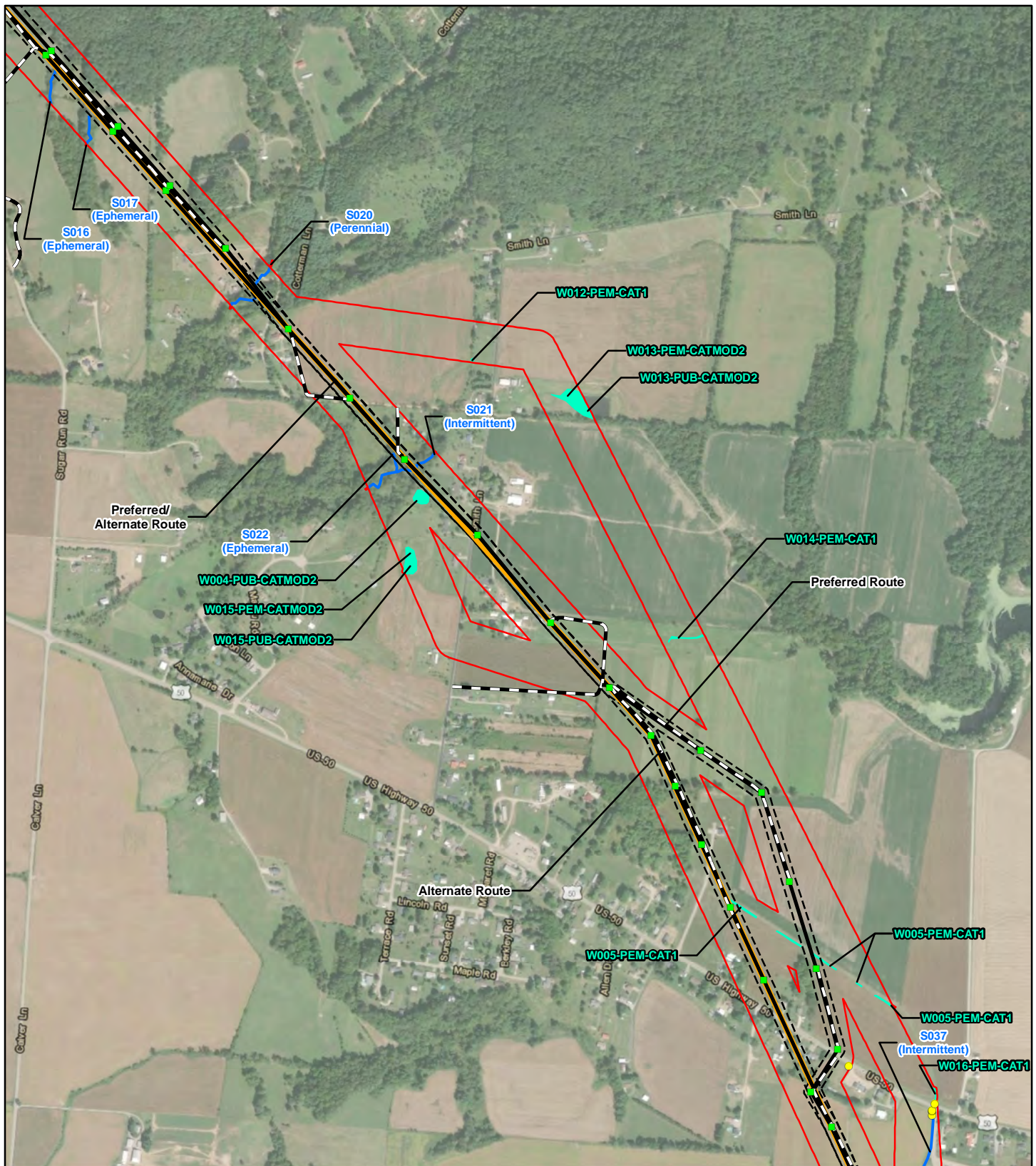


Figure 8-2B
Delineated Wetlands
and Waterbodies



Ginger Switch to Vigo
138kV Transmission Line Project





Legend

- | | | | |
|--|---------------------------------|--|--------------------------|
| | Substation | | Culvert |
| | Proposed Structure | | Drainage Feature |
| | Route Alternative | | Field-Delineated Stream |
| | Proposed Access Road | | Field-Delineated Wetland |
| | 100-Foot ROW | | Survey Area |
| | Existing 69kV Transmission Line | | Administrative Boundary |

Data Sources: AEP (2015), USGS (2015), ESRI (2017)

NAD 1983 State Plane
Ohio South Feet

September 26, 2019

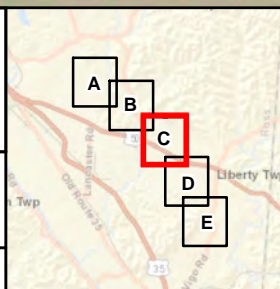
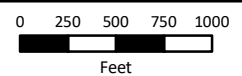
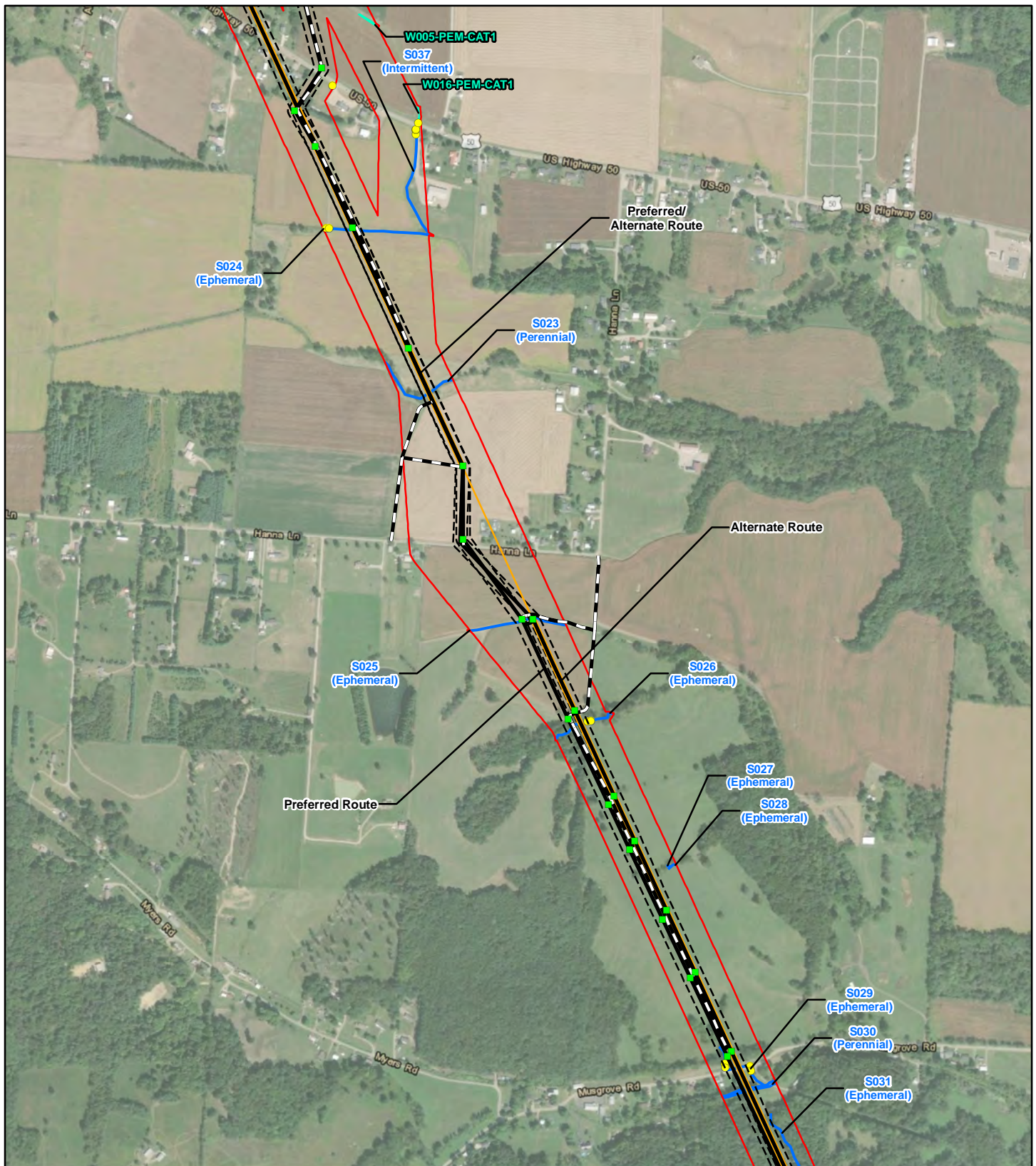


Figure 8-2C
Delineated Wetlands
and Waterbodies



Ginger Switch to Vigo
138kV Transmission Line Project





Legend

- | | | | |
|--|---------------------------------|--|--------------------------|
| | Substation | | Culvert |
| | Proposed Structure | | Drainage Feature |
| | Route Alternative | | Field-Delineated Stream |
| | Proposed Access Road | | Field-Delineated Wetland |
| | 100-Foot ROW | | Survey Area |
| | Existing 69kV Transmission Line | | Administrative Boundary |

Data Sources: AEP (2015), USGS (2015), ESRI (2017)

NAD 1983 State Plane
Ohio South Feet

September 26, 2019

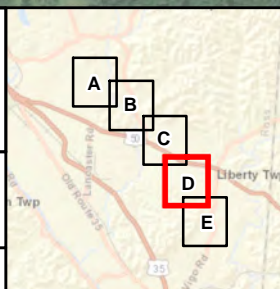
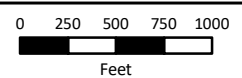
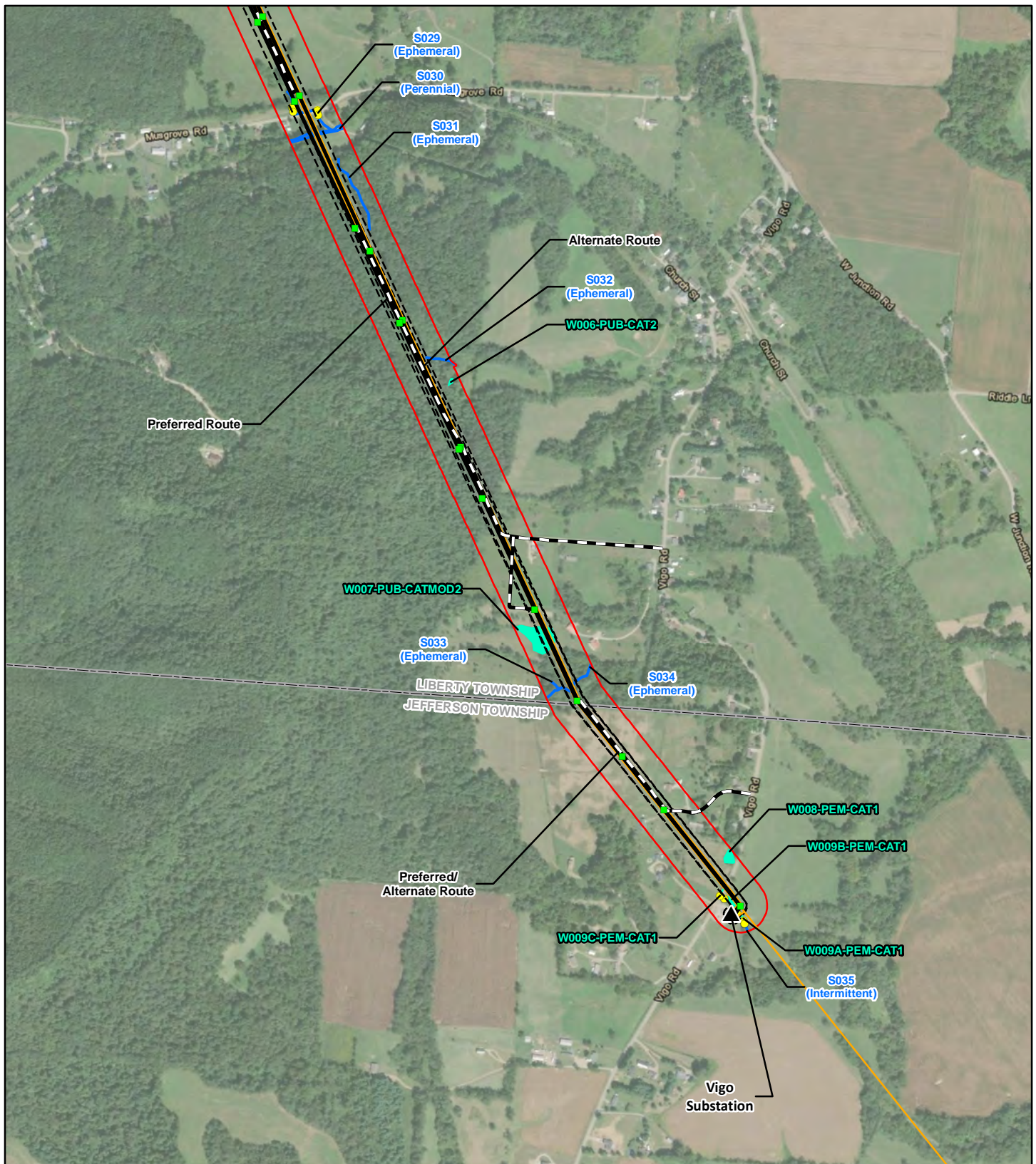


Figure 8-2D
Delineated Wetlands
and Waterbodies



Ginger Switch to Vigo
138kV Transmission Line Project





Legend

- | | |
|-----------------------------------|----------------------------|
| ▲ Substation | ● Culvert |
| ■ Proposed Structure | --- Drainage Feature |
| — Route Alternative | — Field-Delineated Stream |
| --- Proposed Access Road | ■ Field-Delineated Wetland |
| --- 100-Foot ROW | ■ Survey Area |
| — Existing 69kV Transmission Line | — Administrative Boundary |

Data Sources: AEP (2015), USGS (2015), ESRI (2017)

NAD 1983 State Plane
Ohio South Feet



September 26, 2019

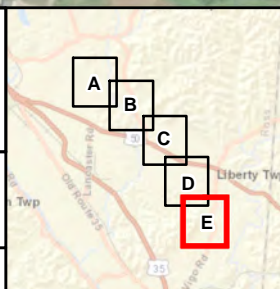
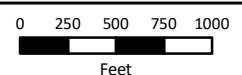


Figure 8-2E
Delineated Wetlands
and Waterbodies



Ginger Switch to Vigo
138kV Transmission Line Project



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in

Case No(s). 19-1866-EL-BTA

Summary: Notice Amendment Application for the Ginger Switch- Vigo 138 kV Transmission Line Project electronically filed by Tanner Wolfram on behalf of AEP Ohio Transmission Company, Inc.