AEP OHIO TRANSMISSION COMPANY

An AEP Company

BOUNDLESS ENERGY

Application for Certificate of Environmental Compatibility and Public Need for the

GROVES ROAD – SHANNON 138 KV TRANSMISSION LINE PROJECT

OPSB Case No. 21-0199-EL-BTX

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

AEP Ohio Transmission Company, Inc.

March 2022

BEFORE THE OHIO POWER SITING BOARD

Certificate Application for Electric Transmission Facilities

Table of Contents

Tables

4906-5-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) PROJECT SUMMARY

AEP Ohio Transmission Company, Inc. (the Company) is seeking the approval of the Ohio Power Siting Board (OPSB) to construct a new, approximately 5 to 7 mile long, 138 kV transmission line through Blacklick Estates, the City of Columbus, the Village of Brice, and Truro and Madison townships in Franklin County, Ohio (Project). The Project is part of the overall Southeast Columbus Area Improvements Project, which aims to improve the reliability of the electric transmission grid in Franklin County, Ohio. The proposed transmission line will connect the Groves Road Station to the Shannon Station. Route Alternatives considered as part of the route selection process are displayed in **Appendix 4-1**. **Figure 2-1**, Project Overview, provides a general overview of the entire Project Area. Project construction will be phased and is anticipated to begin in October 2023 and end in November 2024

(1) General Purpose of the Facility

The purpose of this Project is to address asset renewal and structural overloading issues associated with the existing Groves Road-Refugee 138 kV line, as well as several other lines in the vicinity, including the Astor – Brice 138kV, Brice – Shannon – Groves 138kV, and Shannon – Bixby 138kV circuits.

The proposed solution will also eliminate a three-terminal line at Refugee Switch, by rebuilding the 1.4 mile 138 kV section of transmission line between Shannon Station and the former Refugee Switch as double circuit, rebuilding 0.7 mile of the existing Refugee – Groves Road 138 kV Transmission Line, rebuilding approximately 1 mile of the existing Shannon – Astor 138 kV Transmission Line, constructing 3.6 miles of greenfield 138 kV line between Groves Road Station and Shannon Station, and installing a new breaker at Shannon Station to accommodate the new line from Groves Road Station. The new double circuit configuration creates individual circuits between Groves Road and Shannon stations and between Shannon and Brice stations. This configuration allows for proper sectionalizing on the individual circuits which will reduce the risk of mis-operations and over tripping created by the three terminal line in the current configuration around Refugee Switch. As a result, the Refugee Switch will be retired as part of the Project.

Additional details can be found in this application's Review of Need and Schedule, in Section 4906-5-03.

(2) General Location, Size, and Operating Characteristics of the Proposed Facility

The Project begins at the existing Groves Road Station located 0.4 mile west of the intersection of Courtright Road (CR 114) and Groves Road (CR 510). The Project continues 5.8 miles east and south to the existing Shannon Station located 0.5 mile east of the intersection of Shannon Road (CR 118) and Brice Road (CR 117). The Project passes through the City of Columbus, Blacklick Estates, the Village of Brice, and Truro and Madison townships in Franklin County, Ohio. The Project will require a 60-foot-wide permanent right-of-way (ROW). **Figure 2-1** shows the Project endpoints and the Preferred Route and Alternate Route identified by the Company.

(3) Suitability of the Preferred Route and Alternate Route for the Proposed Facility

The Company identified a Preferred Route and an Alternate Route (**Figure 2-1**, and as detailed in **Appendix 4-1**) after conducting a Route Selection Study (RSS). The RSS documents the selection process of the routes and is discussed in detail in Section 4905-5-04 of this Application.

The goal of the RSS was to understand the constraints and opportunities in the study area, to develop route alternatives, evaluate potential impacts associated with the route alternatives, and identify a Preferred Route and Alternate Route. The Preferred Route is the route that (1) is most consistent with the Company's siting guidelines (see **Section 2.4** of **Appendix 4-1**); (2) reasonably minimizes adverse impacts on the natural and human environments; (3) minimizes special design requirements and unreasonable costs; and (4) can be constructed and operated in a safe, timely, and reliable manner. The Preferred Route and Alternate Route are both constructible and were selected by the Company for consideration by the Ohio Power Siting Board (OPSB) in this Application. Approximately 3 miles of the existing Shannon-Astor 138 kV Transmission Line is proposed to be rebuilt in a double circuit configuration as part of the Preferred Route. If the Alternate Route is selected, this section of transmission line would still be required to be rebuilt, as a single circuit, as part of the overall Southeast Columbus Area Improvements Project.

Per O.A.C. 4906-3-05, the Preferred Route and the Alternate Route are no more than 20 percent in common and therefore can be considered as alternatives.

(i) Preferred Route

The Preferred Route from the existing Groves Road Station to the existing Shannon Station is approximately 6.6 miles long.

The Preferred Route begins at the Groves Road Station and heads eastward by rebuilding approximately 0.6 mile of the existing Refugee – Groves Road 138 kV transmission line in existing ROW before crossing OH-317 and routing northward for 0.6-mile, paralleling Groves Road and Cloverleaf Street. At this point, the Preferred Route travels in a general southeastward direction for approximately 2.3 miles by paralleling the northside of a railroad corridor. For its remaining approximately 3 miles, the Preferred Route travels southward by primarily rebuilding the existing Shannon – Astor 138 kV transmission line in existing, maintained ROW and ties into the Shannon Station. Of the approximately 3 mile rebuild portion of the Shannon – Astor 138 kV line, approximately 0.4 mile will require a greenfield double-circuit re-route to avoid residential development south of Refugee Road; the re-route parallels road and parcel boundaries. An additional 0.1 mile greenfield portion is required as the double circuit line is routed into the Shannon Station as two single-circuit lines.

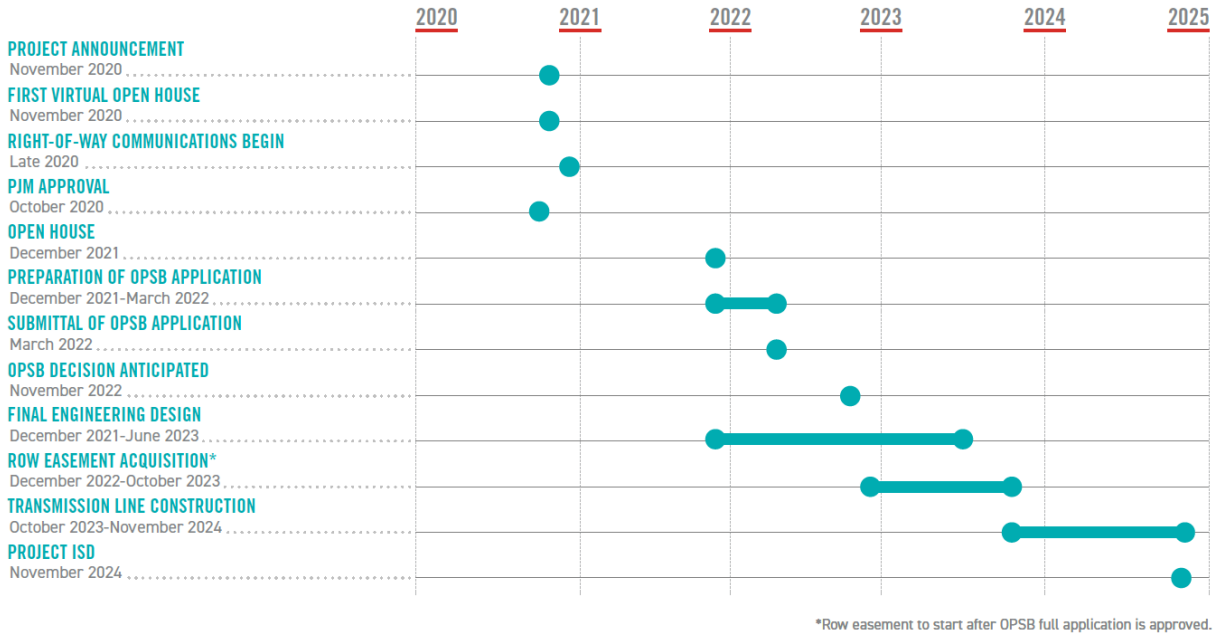
(ii) Alternate Route

The Alternate Route from the existing Groves Road Station to the existing Shannon Station is approximately 5.2 miles long.

The Alternate Route begins at Groves Road Station and routes southward by rebuilding the existing Refugee – Groves Road 138 kV Transmission Line for 0.2 mile. The Alternate Route continues southward for approximately 1.9 miles by paralleling the westside of the existing Bixby – Groves Road 138 kV Transmission Line within unmaintained, but existing ROW. At this point, the Alternate Route heads southeastward primarily by paralleling Winchester Pike and Shannon Road for approximately 3 miles, only crossing the roads to avoid encroaching residential or commercial properties. The remaining 0.1 mile of the Alternate Route proposes rebuild of the existing Shannon – Astor 138 kV Transmission Line for tie-in to Shannon Station.

(4) Project Schedule

The current Project schedule is illustrated in the diagram below.



(B) HISTORY, AFFILIATE RELATIONSHIPS, CURRENT OPERATIONS

(1) Company History

The Company is a public utility as defined by Ohio Revised Code 4905.02 and 4905.03 and is engaged in the business of supplying electric transmission and distribution service to customers in Ohio.

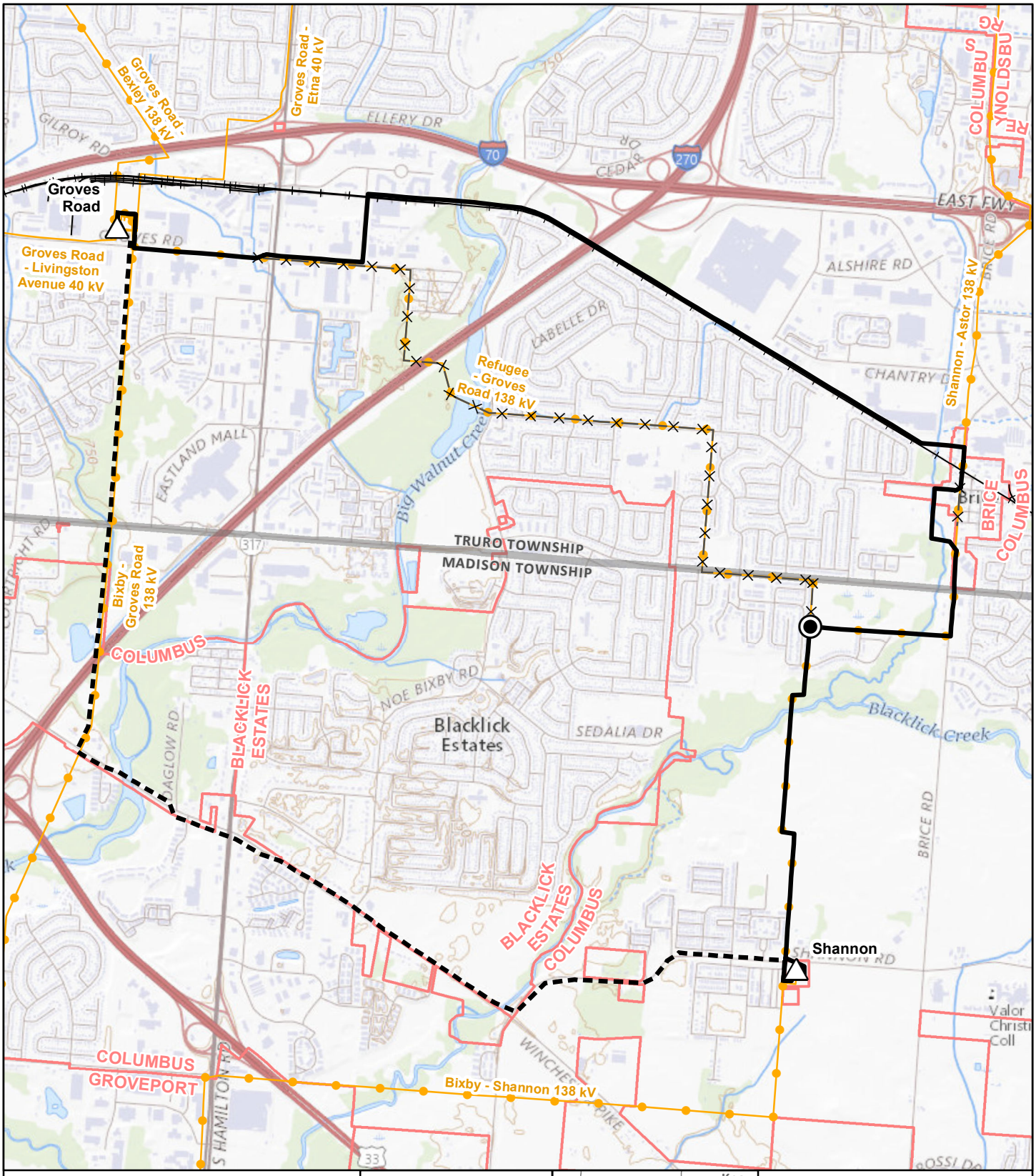
(2) Current Operations and Affiliate Relationships

The Company was originally incorporated in 1906 as the American Gas and Electric Company. The Company's earliest utility properties provided electric, gas and other services in communities in New Jersey, New York, Pennsylvania, West Virginia, Ohio, Indiana, and Illinois. The Company became AEP in 1958 and merged with Central and Southwest Corporation in 2000.

The Company is one of the largest electric utilities in the United States, delivering electricity to approximately 5.5 million customers through 223,000 miles of distribution lines in 11 states. The Company owns the nation's largest electricity transmission system, which is a network comprised

of more than 40,000 miles and includes more 765-kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. The Company also ranks among the nation's largest generators of electricity, owning approximately 30,000 megawatts of generating capacity in the U.S. The Company's utility units operate as AEP Ohio, AEP Texas, Appalachian Power (in Virginia and West Virginia), Wheeling Power (West Virginia), AEP Appalachian Power (in Tennessee), Indiana Michigan Power Company, Kentucky Power, Public Service Company of Oklahoma, and Southwestern Electric Power Company (in Arkansas, Louisiana, and east Texas). News releases and other information about the Company can be found at www.AEP.com. AEP Ohio provides electricity to over 1.5 million customers in Ohio. News and information about AEP Ohio can be found at www.AEPOhio.com.

FIGURE



- Existing Station
- Refugee Switch (to be removed)
- Preferred Route (A)
- Alternate Route (B)
- Existing Transmission Line to be Retired

Existing Transmission Line

- 69 kV and below
- 138 kV
- 345 kV
- Railroad
- Municipal Boundary
- Township Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), USGS (2013, 2021)

Coordinate System:
State Plane Ohio South NAD 1983

March 3, 2022

Figure 2-1
Project Overview

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon
138 kV Transmission Line

0 0.25 0.5 Miles

4906-5-03 REVIEW OF NEED AND PROJECT SCHEDULE

(A) JUSTIFICATION OF NEED

The existing Groves Road-Refugee 138 kV line rebuild Project is part of a larger area project to rebuild several 138 kV lines in the Columbus, Ohio area. The Groves Road-Refugee line was originally constructed in 1952 using a mix of wood and steel pole structures. The level of deterioration on the line has reached the point which repairs are no longer sufficient and the line needs to be rebuilt. There are 43 open conditions on this line section which affect approximately 45% of the total structures. These conditions include split/rotted poles, missing/broken guying and ground leads, and insulator issues. There have been two momentary outages and three permanent outages between 2015 and 2020 for an average of 17.65 hours, resulting in 2,732,043 customer minutes of interruption on this line. A recent engineering analysis of the line identified that approximately 33% of the line structures are currently physically overloaded under NESC heavy loading conditions. The Company does not operate line assets to failure.

This line section is also part of a three terminal line on the Astor-Groves-Shannon 138 kV circuit which limits sectionalizing and can cause mis-operations and over tripping. The solution will retire part of the existing Groves Road-Refugee 138 kV line (2.4 miles) and re-route it to Shannon Station (3.6 miles), while the remaining section will be rebuilt in place (0.7 mile).

An additional benefit for a portion of the Project is that it would support the build out of telecom connectivity for SCADA, fiber networking, and relaying requirements that continues to increase in the area. The required telecom fiber to be installed along the Shannon-Astor line and supports communication between the Astor and Shannon substations. If the required telecom fiber is added to the existing structures and the line is not rebuilt, the number of structures deemed overloaded under NESC heavy loading conditions would increase. Furthermore, additional structures would need to be installed to support the new telecom fiber.

Failure to move forward with the Project could lead to safety concerns on the structures, particularly because portions of this line parallel public roadways and these overloaded structures could have an impact on public safety. Failure to rebuild this line would also exacerbate the risk

of outages to customers. There have been two momentary outages (2015-2020) on this line that serves up to 106 MVA of customer load at AEP Ohio's Astor, Shannon and Brice stations. Retiring this line is not feasible as it would radialize several stations in the greater Columbus area.

(1) Purpose of the Proposed Facility

The purpose of the Project is to address asset renewal and structural overloading issues associated with the existing Groves Road-Refugee 138 kV line, as well as several other lines in the vicinity, including the Astor – Brice 138kV, Brice – Shannon – Groves 138kV, and Shannon – Bixby 138kV circuits.

The proposed solution will also eliminate a three-terminal line at Refugee Switch, by rebuilding the 1.4 mile 138 kV section of transmission line between Shannon Station and the former Refugee Switch as double circuit, rebuilding 0.7 mile of the existing Refugee – Groves Road 138 kV Transmission Line, rebuilding approximately 1 mile of the existing Shannon – Astor 138 kV Transmission Line, constructing 3.6 miles of greenfield 138 kV line between Groves Road Station and Shannon Station, and installing a new breaker at Shannon Station to accommodate the new line from Groves Road Station. The new double circuit configuration creates individual circuits between Groves Road and Shannon stations and between Shannon and Brice stations. This configuration allows for proper sectionalizing on the individual circuits which will reduce the risk of mis-operations and over tripping created by the three terminal line in the current configuration around Refugee Switch. As a result, the Refugee Switch will be retired as part of the Project.

(2) System Conditions, Local Requirements and Other Pertinent Factors

The Groves Road-Refugee 138kV transmission line is currently overloaded under NESC heavy loading conditions. Approximately 33% of the existing line is currently overloaded and is unable to support necessary telecom fiber required in the area. The line section is also part of a three terminal circuit (Astor-Groves-Shannon 138 kV circuit), which limits sectionalizing and can cause mis-operations and over tripping.

(3) Load Flow Studies and Contingency Analyses

Load flow analysis is not driving the need for the Project. As mentioned in previous section, the need was driven by the requirement to address physically overloaded structures along the Groves Road-Refugee 138 kV line. The new line with reconfigured connections will help strengthen the local network feeding critical customers from Shannon Station.

Please note that any load flow analyses would be the product of the PJM do-no-harm analysis as required by the M-3 process, which did not identify any reliability concerns with the Project. Any load flow requests should be submitted to PJM referencing project s2282 per the CEII requirements.

(4) System Performance Transcription Diagrams

Transcription diagrams would be of limited benefit for this Project because it is a supplemental project driven by physical overloading on the existing Groves Road-Refugee 138 kV line. The Project is not intended to resolve thermal overloads on the AEP Transmission system. Therefore, transcription diagrams have not been included in this application.

(B) REGIONAL EXPANSION PLANS

(1) Proposed Facility in Long-Term Forecast

(a) Reference in Recent Long-Term Forecast

This Project is referenced in AEP Ohio Transco's 2021 Long-Term Forecast Report on page 86 (FE-T9 Planned Transmission Lines table).

(b) Explanation if Not Referenced

Not applicable, see Section 4906-5-03(B)(1)(a) directly above.

(c) Reference in Regional Expansion Plans

The Project was submitted to PJM as a supplemental reliability improvement project and the need and solution were presented on November 29, 2018, and June 19, 2020 at the PJM Subregional RTEP Committee-Western meetings, respectively. The Project was subsequently assigned PJM supplemental number s2282.

(C) SYSTEM ECONOMY AND RELIABILITY

The Project will improve reliability by providing proper sectionalizing on the three terminal line and mitigating the NESC heavy loading overloaded conditions. This line serves as a source for approximately 106 MVA of load in an urban area of southeastern Columbus. Failure to improve the condition of the existing facilities may result in increased outages to customers served by the approximately 7.7 miles of 138 kV lines affected by the three terminal configuration. The Project was not driven by circuit loading concerns. Load flow studies completed by PJM and AEP planning found no adverse effects due to the Project.

(D) OPTIONS TO ELIMINATE THE NEED FOR THE PROPOSED PROJECT

The following electrical alternative was considered before proceeding with this Project. The proposed alternative was not selected to meet the Project need, as explained below:

Replacing the existing Refugee Switch with a station to eliminate the three terminal point on the circuit was considered but the ROW and siting challenges associated the Groves – Refugee line section eliminated this as a feasible alternative.

Retiring this line to address the identified needs is not feasible as it would negatively impact reliability to several stations in the greater Columbus area. Service into the stations would be reduced to a single radial transmission line. These stations would include Shannon, Shannon Rd Switch (Southcentral Power), Brice, and Astor stations which provide service to over 42,800 customers. Additionally eliminating the existing Groves Road-Refugee 138 kV line would erode the reliability of other stations in the area.

(E) FACILITY SELECTION RATIONALE

The proposed Project is needed to address the physical overloading on the existing Groves Road-Refugee 138 kV line. The proposed solution will install structures capable of handling new telecom fiber required in the area for modern relays to operate. The proposed solution will also eliminate the deteriorated condition of the existing line as well as the NESC heavy loading concerns that the line is currently experiencing today. The Groves Road-Refugee 138 kV line, as well as several others proposed to be rebuilt in the area (Astor – Brice 138kV, Brice – Shannon – Groves 138kV, and Shannon – Bixby 138kV circuits) serve 106 MVA of load in a densely congested area near downtown Columbus.

(F) PROJECT SCHEDULE

(1) Schedule Gantt Chart

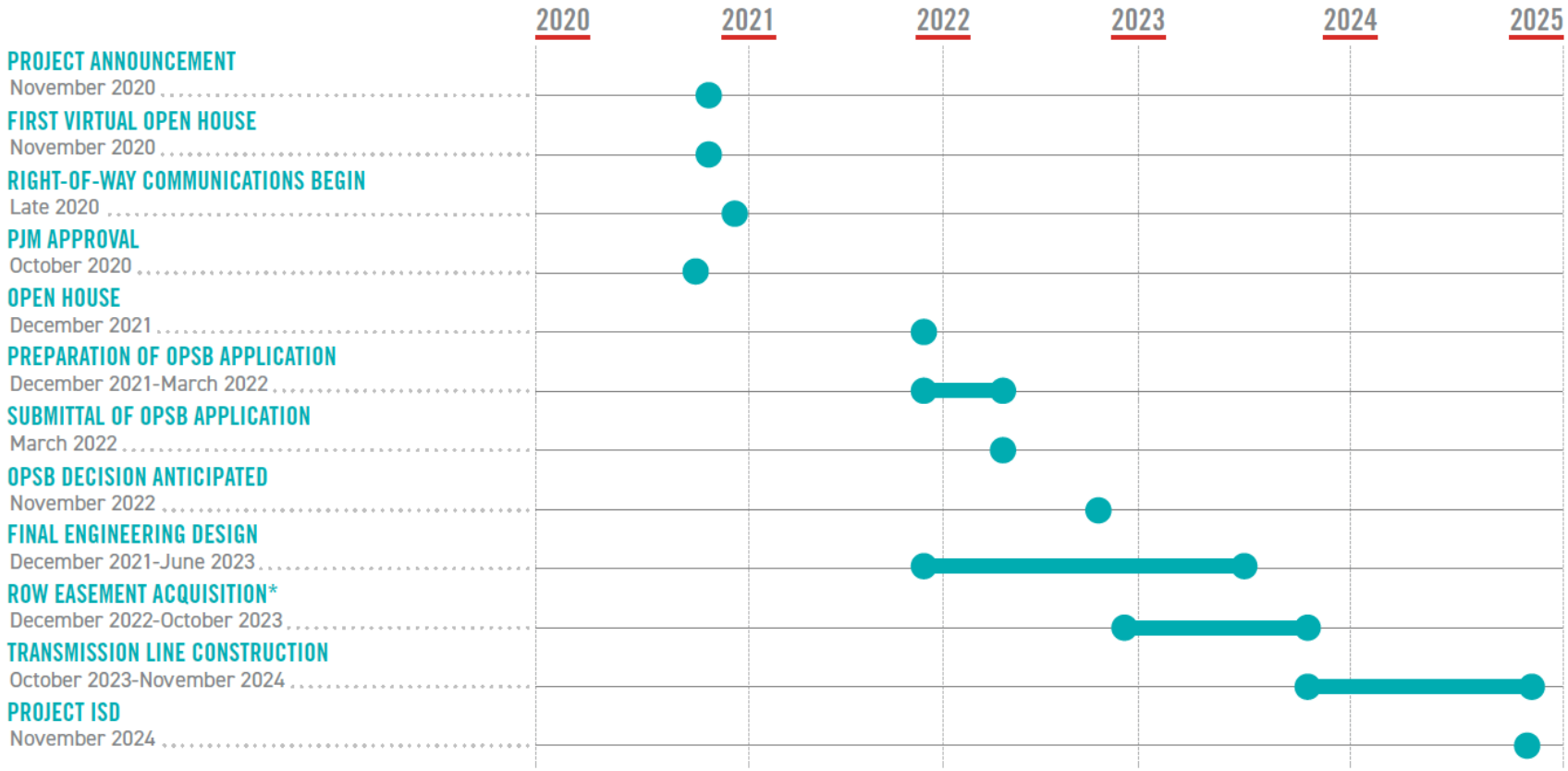
Figure 3-1 on the following page provides the project schedule as a Gantt bar chart. Construction of the Project is planned to begin in October 2023, and the anticipated in-service date is November 2024.

(2) Impact of Critical Delays

Failure to move forward with this project could lead to structure failures, additional poles required for a fiber install between these two stations, and increase risk of outages to customers as the line continues to deteriorate. In addition, since this line parallels public roadways, these overloaded structures could have an impact on public safety if not addressed.

FIGURE 3-1:

PROJECT SCHEDULE



*Row easement to start after OPSB full application is approved.

4906-5-04 ROUTE ALTERNATIVES ANALYSIS

SECTION SUMMARY

AEP Ohio Transmission Company, Inc. (the Company) along with its siting consultant, WSP USA ("WSP"), conducted a Route Selection Study (RSS) to identify a Preferred Route and an Alternate Route for a new 138 kV transmission line in Franklin County, Ohio (the "Groves Road – Shannon 138 kV Transmission Line Project" or "the Project"). This section summarizes the route identification, evaluation, and selection process.

(A) ROUTE SELECTION STUDY

A multi-disciplinary Siting Team, consisting of members of the Company and the Company's consultants, conducted a comprehensive RSS to establish a Preferred Route and an Alternate Route for the proposed Project. The Siting Team acquired environmental and engineering data from various sources and assembled the information into a geographic information system (GIS) database superimposed on aerial photography. Using established routing guidelines, the Siting Team identified constraints and opportunity features within the Study Area and developed a series of Study Segments. Study Segments were field checked from publicly accessible locations to validate the aerial imagery and to assess viability based on conditions observed on the ground. The Study Segments were adjusted as necessary based on information gathered in the field.

The Siting Team evaluated the advantages and disadvantages of Study Segments based on established routing and siting criteria; landowner and stakeholder input; an inventory of land use, environmental, and cultural factors on and in the vicinity of the Study Segments; and additional local knowledge and professional judgment and experience. Based on this review, less favorable potential route segments were eliminated from further consideration and more detailed analysis. The Siting Team evaluated the remaining potential route segments in more detail and selected two alternative routes to present at a public meeting for comment. Following the public input process, the Siting Team identified a Preferred Route and an Alternate Route. A copy of the RSS is provided as **Appendix 4-1**.

(1) Study Area Description and Rationale

The Study Area is that territory in which route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental and land use impacts, as well as Project costs. The boundaries of the Study Area were determined by the geographic area encompassing the two end points (the Groves Road Station to the northwest and the Shannon Station to the southeast). The Study Area was intended to encompass all reasonable study segments between these connection points.

Given these considerations, the Siting Team identified a Study Area encompassing approximately 4,903 acres (7.7 square miles) in Franklin County, Ohio (see **Figure 1** in the RSS, **Appendix 4-1**). The project Study Area is generally bounded by Interstate 70 (I-70), a railroad, and the Groves Road Station to the north; the Shannon – Astor 138 kV Transmission Line, Brice Road (County Road 117), and the Village of Brice to the east; Shannon Road (County Road 118), Winchester Pike (County Road 376), and the Shannon Station to the south; and the Bixby – Groves Road 138 kV Transmission Line, Interstate 270 (I-270), and South Hamilton Road (State Route 317) to the west. Using this established Study Area, the Siting Team began its efforts to determine potential Study Segments for the Project.

(2) Study Area Map

The proposed Study Area and identified constraints are shown in **Figure 4-1** at the end of this Section.

(3) Map of Study Area and Routes Evaluated

Figure 3 of the RSS (**Appendix 4-1**) shows all Potential Route segments that were evaluated as part of the study. **Figure 4** of the RSS identifies Alternative Routes A and B.

(4) Siting Criteria

The Siting Team referenced quantitative and qualitative siting criteria as part of the potential and alternative route analysis process. The Siting Team uses the siting criteria along with the established routing guidelines (described in Section 2.4 of the RSS, **Appendix 4-1**) to compare the

potential impacts of the routes on land use, natural and cultural resources, cost and engineering and construction concerns to identify the route with the least overall impact. The routing process is explained in more detail in Section 2.2 of the RSS. Quantitative and qualitative siting criteria are presented in Section 3.3 (also listed below in **Table 4-1**) and evaluated in Section 5.0 of the RSS.

The quantitative siting criteria include locations of individual residences, property boundaries, commercial, industrial and institutional land uses, wetlands, streams, existing infrastructure, steep slopes, cultural data, and other land use features. The qualitative siting criteria include the Siting Team's expertise regarding aesthetic and land use impacts, and engineering and constructability challenges, as well as information received through public comments.

Table 4-1. Quantitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Built Environment		
Number of parcels and landowners crossed by the ROW	Franklin County (2021)	Count of the number of parcels and landowners crossed by the ROW
Number of outbuildings or residential dwellings	Microsoft "US Building Footprints" downloaded 2019 and field verified from points of public access.	Count of the number of single-family and multi-family dwellings within the ROW, within 100 and 250 feet of study segments. Features within 1,000 feet of study segments were field verified.
Number of commercial/industrial buildings	Microsoft "US Building Footprints" downloaded 2019 and field verified from points of public access.	Count of the number of commercial/industrial buildings within the ROW, within 100 and 250 feet of study segments. Features within 1,000 feet of study segments were field verified.
Land use acreage and distance crossed by the ROW	National Land Cover Database (NLCD) (2016)	The NLCD 2016 (NLCD 2016) compiled by the Multi-Resolution Land Characteristics (MRLC) Consortium includes 15 classes of land cover from Landsat satellite imagery
Acres of conservation easements crossed	National Conservation Easement Database (NCED) (2020)	Private conservation easements crossed by the routes from the NCED which is comprised of voluntarily reported conservation easement information from land trusts and public agencies
Acres of agricultural district land crossed	Franklin County (2021)	Protected land that is devoted exclusively to agricultural production or devoted to and qualified for compensation under a federal land retirement or conservation program that is at least 10 acres in size, or produces an average yearly gross income of at least $2,500 during a 3-year period
Number of archeological resources within the ROW and within 0.25 mile	Ohio History Connection (2021)	Previously identified archeological resources listed or eligible on the National Register of Historic Places (NRHP) acquired through the database maintained by the Ohio History Connection, which serves as the State Historic Preservation Office

Table 4-1. Quantitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Number of historic architectural resources within the ROW and within 0.25 mile	Ohio History Connection (2021)	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP acquired through the database maintained by the Ohio History Connection
Institutional uses (schools, places of worship and cemeteries) within 1,000 feet of the route centerline	U.S. Geological Survey (USGS) Geographic Names Information System (GNIS) (2021)	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools. Features within 1,000 feet of study segments were field verified.
Airfield and heliports within 1 mile of the route centerline	GNIS (2021) and the Federal Aviation Administration (FAA) database (2020)	Distance from airfields and heliports
Natural Environment		
Forest clearing within the ROW	WSP	Acres of forest within the ROW observed by ecologists
Field delineated streams and waterbodies crossed	WSP	Count the number of streams and waterbodies delineated by ecologists via Trimble Global Navigation Satellite System (GNSS)
Field delineated wetlands within the ROW	WSP	Acres of wetlands delineated by ecologists via Trimble GNSS
Acres of 100-year floodplain and regulatory floodway within the ROW	National Flood Hazard Layer (NFHL) (FEMA) (2019)	Acres of FEMA-designated 100-year floodplain (Zone A) and regulatory floodway (Zone AE) within the ROW
Miles of public lands crossed by the route	The Protected Areas Database of the United States (PAD-US) (2019)	Miles of federal, state, and local lands crossed by the ROW
Percent of prime farmland soils and soils of statewide importance within the ROW	USDA-NRCS SSURGO Database (2019)	Percent of soil associations crossed by the ROW characterized as prime farmland or farmland of statewide importance
Technical		
Route length	Measured in GIS	Length of route in miles

Table 4-1. Quantitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Number and severity of angled structures	Developed in GIS	Anticipated number of angled structures 4 to 45 degrees and over 45 degrees based on preliminary design
Number of road crossings	Ohio Department of Transportation (ODOT) Transportation Information Mapping System (TIMS) (2021)	Count of federal, state and local roadway crossings
Number of pipeline crossings	U.S. Department of Transportation National Pipeline Mapping System (NPMS) (2021)	Number of known pipelines crossed by the transmission ROW
Number of transmission line crossings	AEP Ohio Transco (2017)	Number of high voltage (100 kV or greater) transmission lines crossed by the ROW
Length of transmission line parallel	AEP Ohio Transco (2017)	Miles of the route parallel to existing high voltage transmission lines
Length of pipeline parallel	NPMS 2021	Miles of the route parallel to existing pipelines
Length of road parallel	Ohio Department of Transportation (ODOT) Transportation Information Mapping System (TIMS) (2021)	Miles of the route parallel to existing roads

Table 4-2. Qualitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Built Environment		
Aesthetic impacts	Expert opinion	Anticipated visual impacts based on topography, structure type and height, tree clearing, land use and presence of existing infrastructure
Land use impacts	Expert opinion, comprehensive plans, public open house	Anticipated or perceived impact on communities and their values, individual residences, commercial facilities or institutional uses
Public comments	Public open house	Comments received during the November 2020 virtual house period, December 2021 virtual house period, and

Table 4-2. Qualitative Siting Criteria		
Siting Criteria	**Source**	**Description**
		December 15, 2021 in-person open house meeting regarding changes to transmission alignments or future constraints
Engineering and construction feasibility	Expert option	Anticipated engineering and construction challenges based on experience on similar projects

(5) Siting Process for the Preferred Route and Alternate Route

The routing process is described in detail in Section 2.2 of the RSS (**Appendix 4-1**). The Siting Team developed a series of potential route segments (also referred to as "Study Segments") based on the routing guidelines and criteria described previously. Study Segments are an early iteration of the routing process that involved the development of conceptually based routes that attempts to avoid large area constraints to the extent practicable, avoid and maximize distance from small area constraints, and capitalize on identified routing opportunities. Constraints and opportunities are described in Section 3.3 of the RSS.

The Preferred and Alternate Route identification effort started with a network of 35 preliminary route segments that could be considered to route the new line between the existing Groves Road Station and the existing Shannon Station. After reviewing and evaluating public input received during the November 2020 virtual open house, the Siting Team revised the preliminary network appropriately, which resulted in a total of 31 revised potential route segments. The Siting Team discussed these Study Segments by reviewing comparative data, aerial photos, notes taken during field reconnaissance (conducted in August 2020), as well as virtual open house comments received in November 2020.

The major environmental and land use factors considered in this evaluation were: length of new ROW required, length of transmission line parallel, length of transmission line rebuild, length of infrastructure parallel, proximity of residences and other occupied buildings, proximity to open spaces and/or recreational areas, known or suspected historic sites, incremental aesthetic impact, wetlands and other stream crossings, tree clearing requirements, and unique or sensitive habitat. Engineering factors were also considered during the study segment evaluation, including reviewing areas that presented engineering and construction challenges (e.g., the number of angle structures required and the need to route through developed or otherwise difficult areas). Based on the Siting Team review, some segments were revised, removed, or added based on the likelihood of impacts on residential, commercial and industrial areas, agricultural areas, planned and future development and natural areas, as well as consideration of the routing guidelines and criteria.

Route Alternative Development

Once the revised Study Segment Network was developed, a qualitative and quantitative screening process was used to eliminate or modify Study Segments that were not considered suitable for additional review, narrowing down the network and focusing on refining the more preferable segments to establish Route Alternatives. Several segments were eliminated to avoid encroachment of the built environment, including residential and commercial/industrial dwellings, as well as open space and/or recreational areas. Based on stakeholder input and landowner feedback from a virtual open house held between November 16 and December 4, 2020, a few segments were revised and rerouted to avoid City of Columbus parks and/or protected areas. The Siting Team developed two Route Alternatives (Routes A and B) from the remaining segments. The Route Alternatives were presented for comment at an in-person open house on December 15, 2021, as well as a virtual open house, held online through December 15 to December 20, 2021. The public outreach process is discussed below in Section C and detailed in Section 6 of this Application.

Following the open houses, the Siting Team reviewed all comments received from public outreach and completed the qualitative and quantitative analysis of the Route Alternatives in order to select a Preferred Route and Alternate Route. The Siting Team selected Route A as the Preferred Route and Route B as the Alternate Route.

(6) Route Descriptions and Rationale for Selection

Route A (Preferred Route)

Route A, the northernmost Route Alternative, is approximately 6.6 miles long and located within Madison and Truro townships in Franklin County, Ohio. Route A begins at the Groves Road Station and heads eastward by rebuilding approximately 0.7 mile of the existing Refugee – Groves Road 138 kV transmission line in existing ROW before crossing OH-317 and routing northward for 0.6-mile, paralleling Groves Road and Cloverleaf Street. At this point, Route A travels in a general southeastward direction for approximately 2.3 miles by paralleling the northside of a railroad corridor. For its remaining approximately 3 miles, Route A travels southward by primarily rebuilding the existing Shannon – Astor 138 kV transmission line, from single circuit to double

circuit, in existing, maintained ROW for tie-in to Shannon Station, apart from a 0.4 mile greenfield re-route portion, which parallels road and parcel boundaries. Route A would require 26.1 acres of new ROW and would use approximately 21.3 acres of existing, maintained 138 kV transmission line ROW.

Route B (Alternate Route)

Route Alternative B is the southwestern and shortest routing option, measuring approximately 5.2 miles. Route B begins at Groves Road Station and routes southward by rebuilding the existing Refugee – Groves Road 138 kV transmission line for 0.2 mile. Then, Route B continues further southward for approximately 1.9 miles by paralleling the westside of the existing Bixby – Groves Road 138 kV transmission line within an existing, unmaintained ROW. At this point, Route B heads southeastward primarily by paralleling Winchester Pike and Shannon Road for approximately three miles, crossing the roads to avoid encroaching residential or commercial properties. The remaining 0.1 mile of Route B proposes rebuild of the existing Astor-Shannon 138 kV transmission line for tie-in to Shannon Station. Route B would require approximately 21.3 acres of new ROW and would use approximately 14.8 acres of an existing AEP 200-foot-wide easement.

Description of Route Alternatives Evaluation

Section 5.0 of the RSS provides a quantitative and qualitative analysis of potential impacts to the natural and built environment as well as potential engineering and constructability challenges. The Route Alternatives were reviewed in detail and compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team.

While the Preferred Route and Alternate Route are both constructible, Route A was selected as the Preferred Route primarily because it minimizes impacts to the built and natural environment by rebuilding existing 138 kV transmission line within maintained utility ROW in addition to paralleling existing transportation corridors for the majority of its route. Rebuilding existing 138 kV transmission line within maintained ROW and paralleling existing linear infrastructure will result in fewer changes to the existing landscape and land use, fewer acres of tree clearing, and

will provide opportunities to use existing access associated with the Shannon – Astor and Groves Road – Refugee 138 kV transmission lines. Approximately 3 miles of the existing Shannon-Astor 138 kV Transmission Line is proposed to be rebuilt as part of the Preferred Route. If the Alternate Route is selected, this section of transmission line would still be required to be rebuilt as part of the overall Southeast Columbus Area Improvements Project.

(B) SUMMARY TABLE

Table 4-2, as well as Tables 1 through 4 of the RSS (**Appendix 4-1**), provide a comparison of the Route Alternatives.

Table 4-2. Summary of Route Selection Factors

Factor	Alternative Route A (Preferred Route)	Alternative Route B (Alternate Route)
Natural Environment		
Hydrology		
Total Field Delineated Stream Crossings (#)	7	4
Big Walnut Creek	1	1
Blacklick Creek	1	1
Mason Run	0	1
UNT to Big Walnut Creek	1	0
UNT to Blacklick Creek	4	0
UNT to Mason Run	0	1
Field Delineated Waterbody Crossings (#)	1	1
Total Field Delineated Wetlands in the ROW (acres)	0.6	1.02
PEM	0.3	0.8
PSS	0	0.02
PFO	0.3	0.2
FEMA 100-Year Floodplain in the ROW (acres)	4.8	7.7
FEMA Regulatory Floodway in the ROW (acres)	4.9	4.0
Forest Clearing (acres)		
Forest Clearing required for the ROW (based on field survey observation)	11.2	2.8
Open Space/Conservation		
Protected Lands (acres)	0	0
City of Columbus Parks crossed by ROW (count)	1	0

Table 4-2. Summary of Route Selection Factors		
Factor	**Alternative Route A (Preferred Route)**	**Alternative Route B (Alternate Route)**
City of Columbus Parks within 500 feet of the centerline (count)	5	6
Prime Farmland Soils in the ROW (percent)		
All Areas are Prime Farmland	25.2%	41.9%
Not Prime Farmland	11.6%	11.9%
Prime Farmland if Drained	63.2%	46.2%
Built Environment		
Human Environment (count)		
Barns, Outbuildings, Sheds, Garages, or Silos in the ROW (excludes abandoned features)	2	0
Single-Family Dwellings within the ROW	0	0
Multi-Family Dwellings within the ROW	0	0
Commercial/Industrial Buildings within the ROW	1	0
Single-Family Dwellings within 100 feet of the Centerline	44	6
Multi-Family Dwellings within 100 feet of the Centerline	10	0
Single-Family Dwellings within 250 feet of the Centerline	240	133
Multi-Family Dwellings within 250 feet of the Centerline	31	43
Commercial/Industrial Buildings within 250 feet of the Centerline	50	18
Schools within 500 feet of the Centerline	1	0
Places of Worship within 500 feet of the Centerline	5	3
Cemeteries within 500 feet of the Centerline	0	1
Municipal or Recreational Facilities within 500 feet of the Centerline	1	1
Parcels Crossed by the ROW	123	54
Landowners Crossed by the ROW	86	40
Cultural Resources		
Known[1] Architectural Sites within the ROW	0	0
NRHP-Eligible Architectural Sites within ROW	0	0

[1] known architectural and archaeological sites do not have a designated status and therefore could not be dismissed at this time, as potentially NRHP-eligible.

Table 4-2. Summary of Route Selection Factors		
Factor	**Alternative Route A (Preferred Route)**	**Alternative Route B (Alternate Route)**
Known* Architectural Sites within 0.25 mile of the Centerline	14	7
NRHP-Eligible Architectural Sites within 0.25 mile of Centerline	0	1
Known* Architectural Sites within one mile of the Centerline	38	27
NRHP-Eligible Architectural Sites within one mile of Centerline	0	1
Known Archaeological Resources within ROW	0	3
Known Archaeological Resources within 0.25 mile of the Centerline	4	36
Agriculture and Forestry Resources [2]		
Pasture/rangeland and cropland in the ROW (based on NCLD data)	7.9	3.6
Forested land cover in the ROW (based on field survey observation)	11.2	2.8
Agricultural Easement and Districts		
Security Areas (miles)	0	0
Easements (miles)	0	0
Agricultural Districts (miles)	0	0
ROW and Constructability		
Length (Miles)	6.6	5.2
Acres of ROW Required (60' corridor)	48.3	37.5
Landowners within ROW	86	40
Angled Structures (count)		
Angle Structures 4-45 degrees	10	17
Angle Structures ≥ 45 degrees	26	10
Total Angle Structures	36	27
Infrastructure Crossed (count)		
Interstates	1	1
U.S. Highways	0	0
State Routes	1	1
Local Roads	11	11
Railroad	2	0

[2] Agricultural land use calculations are based on the 2016 National Land Cover Database (NLCD). NLCD is a 16-class land cover classification that has been applied consistently across the conterminous United States at a spatial resolution of 30 meters. NLCD is an industry standard, but due to its large resolution it should be used as a rough approximation of land use.

Table 4-2. Summary of Route Selection Factors		
Factor	**Alternative Route A (Preferred Route)**	**Alternative Route B (Alternate Route)**
HV Transmission ROW	0	2
Rights-of-Way Parallel (miles)		
138 kV Transmission Parallel (within existing unmaintained ROW)	0	1.9
138 kV Transmission Rebuild (within existing maintained ROW)	3.1	0.3
Road Parallel	0.7	2.7
Railroad Parallel	2.3	0
Parcel Boundary Parallel	0.3	0
Total Percent Parallel	96%	96%

(C) PUBLIC INVOLVEMENT

Public involvement began with a virtual open house period, announcing the 35 preliminary Study Segments, which took place between November 16 and December 4, 2020. After the public's commentary, the preliminary Study Segments were reviewed and evaluated. A resulting network of 33 revised Study Segments were developed into two Route Alternatives. On December 15, 2021, the Company held a public open house at the Wigwam Event Center in Pickerington, Ohio to present the two Route Alternatives and provide information about the Project. Prior to the meeting, the Company mailed public notices to property owners within the Route Alternatives' ROW and property owners adjacent to properties within the Route Alternatives' ROW to notify them of the in-person open house meeting. During this same time period, the Company developed a Project website and virtual open house in order to provide information to those unable to attend the in person open house. Information presented at the virtual open house included the project need, the siting process, and the two Route Alternatives for public comment.

At the December 15, 2021 meeting, attendees received a project factsheet, information on the OPSB process, and comment cards. The meeting provided an opportunity for residents and other interested parties to review project information displays and discuss the Project with the Company and the Company's consultant representatives. The factsheet contained a brief statement on project need and benefits, a description of the siting process, information about easements and permitting,

and a preliminary project timeline. The public meeting was organized in an open house format and consisted of several stations that identified the Project processes. These stations included the following:

1. Welcome station located at the entrance for attendees to sign-in.
2. Project Need station, which provided an overall summary and explained the planning process.
3. Engineering station, which detailed the specifications for the new transmission line and construction requirements.
4. Siting and Environmental station, which detailed the siting process and included aerial maps showing the Preferred Route and parcel boundaries.
5. Right-of-Way station, which explained the easement process.
6. Vegetation Management station, which explained the Company's vegetation management protocol.

The virtual house was set up similarly to the in-person open house, with virtual "stations" and information related to engineering and design of the structures, the Project need, real estate and ROW issues, and the siting process. An interactive map was provided at the virtual open house for the public to review. At both the in-person and virtual open houses, participants were encouraged to document the location of their houses, places of business, properties of concern, or other sensitive resources either on comment cards or maps provided.

Five participants attended the in-person open house and three comment cards were completed. Five additional comments were received after the in-person open house, either via email or telephone. No significant opposition to any Route Alternative was expressed during the public meeting. The Company reviewed these comments and followed up with the commenters as appropriate to answer any outstanding questions. In addition, the Company provided the commenters with the Project website and a phone number to obtain additional information about the Project or to provide further comments.

FIGURES

Existing Station
Refugee Switch (to be removed)
Cemetery
Place of Worship
School

Existing Transmission Line
69 kV and below
138 kV
Study Area

Protected Areas - Ownership Type
Local Government
Private Land

Regional Agency Special District
City of Columbus Park or Easement Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), NAIP (2021), ODOT (2021), USGS (2013, 2021)

Coordinate System:
State Plane Ohio South NAD 1983

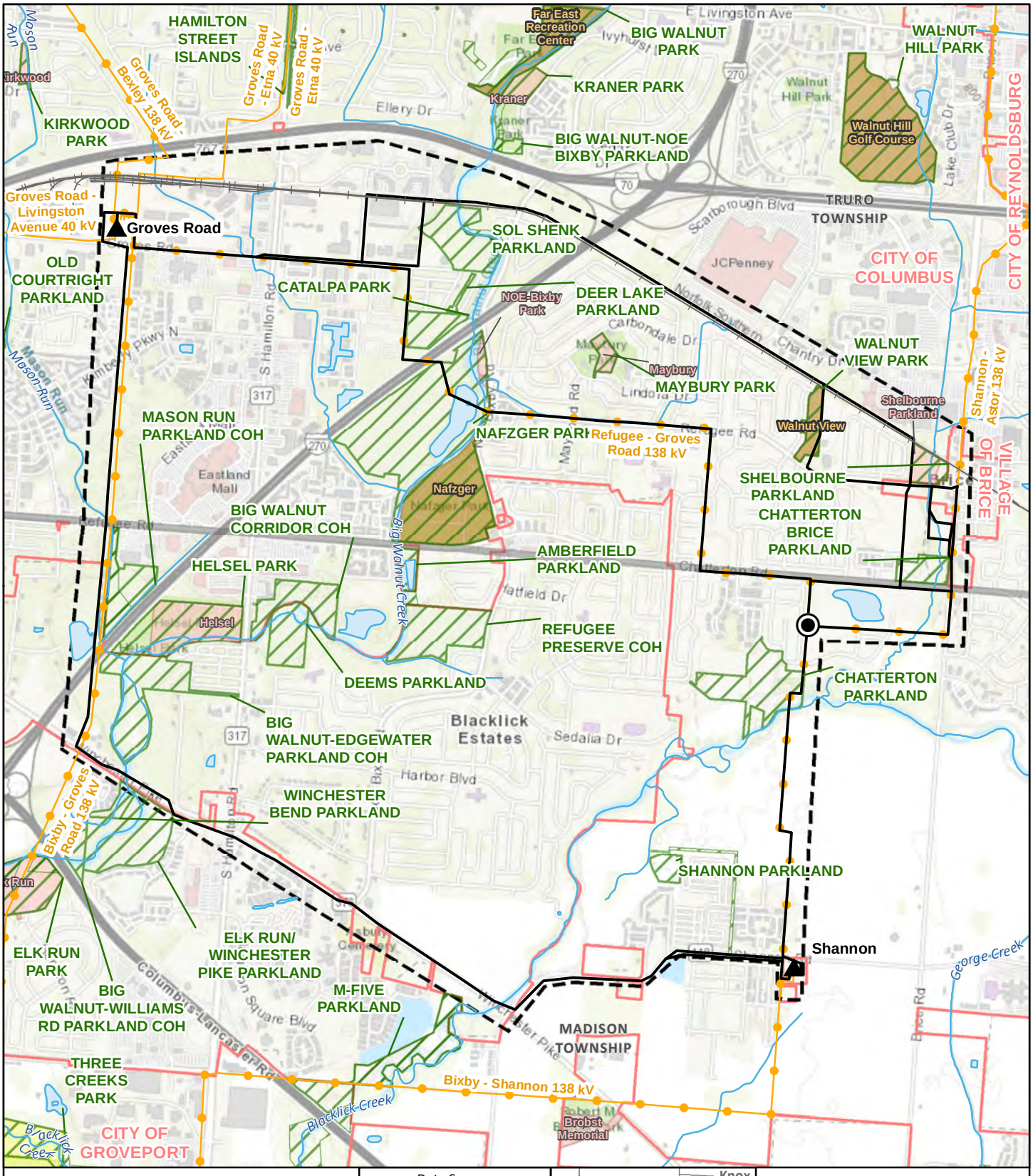
March 3, 2022

Figure 4-1
Constraint Map

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon
138 kV Transmission Line

0 0.25 0.5 Miles


HAMILTON STREET ISLANDS
Groves Road - Etna 40 kV
Groves Road - Etna 40 kV
Groves Road - Bexley 138 kV
KIRKWOOD PARK
Groves Road - Livingston Avenue 40 kV
Groves Road
OLD COURTRIGHT PARKLAND
Far East Recreation Center
BIG WALNUT PARK
KRANER PARK
BIG WALNUT-NOE BIXBY PARKLAND
WALNUT HILL PARK
Walnut Hill Golf Course
TRURO TOWNSHIP
SOL SHENK PARKLAND
CITY OF COLUMBUS
CITY OF REYNOLDSBURG
CATALPA PARK
NOE-Bixby Park
DEER LAKE PARKLAND
WALNUT VIEW PARK
MAYBURY PARK
Shannon - Astor 138 kV
Shelbourne Parkland
Walnut View
MASON RUN PARKLAND COH
NAFZGER PARK
Refugee - Groves Road 138 kV
SHELBOURNE PARKLAND
CHATTERTON BRICE PARKLAND
VILLAGE OF BRICE
BIG WALNUT CORRIDOR COH
Nafzger
AMBERFIELD PARKLAND
HELSEL PARK
Helsel
REFUGEE PRESERVE COH
DEEMS PARKLAND
CHATTERTON PARKLAND
BIG WALNUT-EDGEWATER PARKLAND COH
Blacklick Estates
WINCHESTER BEND PARKLAND
Bixby - Groves Road 138 kV
SHANNON PARKLAND
Shannon
ELK RUN PARK
ELK RUN/ WINCHESTER PIKE PARKLAND
BIG WALNUT-WILLIAMS RD PARKLAND COH
M-FIVE PARKLAND
MADISON TOWNSHIP
THREE CREEKS PARK
Bixby - Shannon 138 kV
Blacklick Creek
CITY OF GROVEPORT
Brobst Memorial
George Creek
Big Walnut Creek
Mason Run
Existing Station
Refugee Switch (to be removed)
Railroad
Potential Route
Existing Transmission Line
69 kV and below
138 kV
NHD Stream or River
NHD Waterbody
Protected Areas - Ownership Type
Local Government
Private Land
Regional Agency Special District
City of Columbus Park or Easement Boundary
Municipal Boundary
Township Boundary
Data Sources: AEP (2017), ESRI (2021), ODOT (2021), USGS (2013, 2021)
Coordinate System: State Plane Ohio South NAD 1983
March 3, 2022
Union
Delaware
Knox
Licking
Madison
Franklin
Perry
Fairfield
Fayette
Pickaway
Hocking
Figure 4-2
Potential Route Network
AEP OHIO TRANSMISSION COMPANY
Groves Road - Shannon 138 kV Transmission Line
0
0.25
0.5
Miles

APPENDIX 4-1:

ROUTE SELECTION STUDY

Route Selection Study

Groves Road – Shannon 138 kV Transmission Line Project

Prepared for:

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY™

Submitted to:

American Electric Power

Prepared by:

WSP USA
312 Elm Street
Suite 2500
Cincinnati, OH 45202

March 2022

TABLE OF CONTENTS

Tables

Figures

Attachments

Key Terminology

Conceptual Routes	Initial routes for the Project that adhere to a series of general siting and technical guidelines
Constraints	Specific areas that should be avoided to the extent reasonably practical during the route development and site selection process
Distribution Line	An electric line that delivers power from a station to households and businesses
Opportunity Feature	Areas where the transmission line may have less disruption to area land uses and the natural and cultural environment
Project Endpoint	The Project starting and ending point(s), which may include stations, switch stations, tap points, or other locations defined by the Company's planners and engineers
Preferred Route	The alignment on which the applicant/Siting Team proposes to construct a transmission line. The Preferred Route (1) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment; (2) minimizes special design requirements and unreasonable costs; and (3) can be constructed and operated in a timely, safe and reliable manner.
Route Alternatives	Assemblage of Study Segments that form routes for analysis and comparison
Siting Team	A multidisciplinary team of experts in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management
Study Area	The territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental impacts and Project costs
Study Segments	Study Segments are partial alignments that when combined form a complete route
Station	Stations are facilities that transform electric power from high to low, or the reverse an enclosed assemblage of equipment, e.g., switches, circuit breakers, buses, and transformers, through which electric energy is passed for the purpose of switching or modifying its characteristics

Switch Structure	The location where power is switched from an existing transmission line to source a Station or customer
Transmission Line	An electric line that moves bulk electric power from a generating plant to a Station or between Stations

ACRONYMS

AEP	American Electric Power
EHV	Extra-high voltage
EPA	U.S. Environmental Protection Agency
ESC	Environmental Survey Corridor
ESRI	Environmental Systems Research Institute
DBH	Diameter at breast height
GIS	Geographic information system
GPS	Global positioning system
HV	High-voltage
kV	Kilovolt
msl	Mean sea level
NAIP	National Agricultural Imagery Project
NERC	North American Electric Reliability Corporation
NCED	National Conservation Easement Database
NGOs	Non-Government Organizations
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service of the U.S. Department of Agriculture
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
ODNR	Ohio Department of Natural Resources
PADUS	Protected Areas Database of the United States
ROW	Right-of-way
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic Database
T&E	Threatened and endangered (species)
UNT	Unnamed tributary
USACE	United States Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

1.1 Project Description

American Electric Power Ohio Transmission Company ("AEP Ohio Transco" or the "Company") plans to upgrade the electric transmission network servicing customers in southeast Columbus and Groveport (the Southeast Columbus Area Improvements Project), Franklin County, Ohio. The Southeast Columbus Area Improvements Project involves:

- Building approximately 5 miles of 138-kilovolt (kV) transmission line between Groves Road and Shannon Stations in Truro and Madison Townships, Franklin County, Ohio.
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Astor and Shannon Stations in Truro and Madison Townships, Franklin County, Ohio.
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Bixby and Shannon stations in Madison Township, Franklin County, Ohio.
- Expanding Shannon Station near the intersection of Shannon Road and Brice Road.

WSP was retained by AEP Ohio Transco to conduct a comprehensive Route Selection Study ("RSS") to identify a Preferred and Alternate Route[1] for the Groves Road – Shannon 138 kV Transmission Line portion of the Southeast Columbus Area Improvements Project (herein known as the "Groves Road – Shannon 138 kV Transmission Line Project or the Project). The remaining components of the Southeast Columbus Area Improvements Project are not detailed in this study. The WSP Siting Team evaluated the Route Alternatives based on established siting guidelines (see **Section 2.3**); an inventory of environmental, land use, and cultural factors along each of the routes; and additional local knowledge, including stakeholder input and professional experience. Through this process, some study segments were eliminated. The remaining study segments were assembled into Route Alternatives and retained for further consideration. As shown in **Figure 1**, the Project is located within Madison and Truro townships, Franklin County, Ohio. The proposed right-of-way (ROW) width for the Project is 60 feet.

The Project is located approximately six miles southeast of downtown Columbus, Ohio. The Project Area is within the incorporated limits of the City of Columbus, the Census Designated Place ("CDP") of Blacklick Estates, and the Village of Brice. Other nearby incorporated municipalities include the City of Groveport and the Village of Obetz to the southwest. The

[1] Due to state [Ohio Power Siting Board (OPSB)] application requirements, the goal of this RSS is to identify a Preferred and Alternate Route for the Project.

straight-line distance between the Groves Road and Shannon stations is approximately 3.7 miles. Land use in the area is predominantly composed of mixed-use residential and commercial/industrial developed, with smaller amounts of agricultural land and open space recreation areas. Existing developed land was identified as a significant constraint when determining Route Alternatives for the Project.

Siting opportunities within the Project area were limited to paralleling transportation corridors (including major roads and railroad), paralleling or crossing agricultural property boundaries, and paralleling an existing transmission line. The main siting challenges include the densely populated residential areas, mixed-use commercial/industrial areas, highways, recreational areas, as well as Big Walnut Creek, Blacklick Creek and their associated forested riparian corridors and floodplain. **Figure 1**, shown below, displays the Project's endpoints, municipal areas, and existing infrastructure.

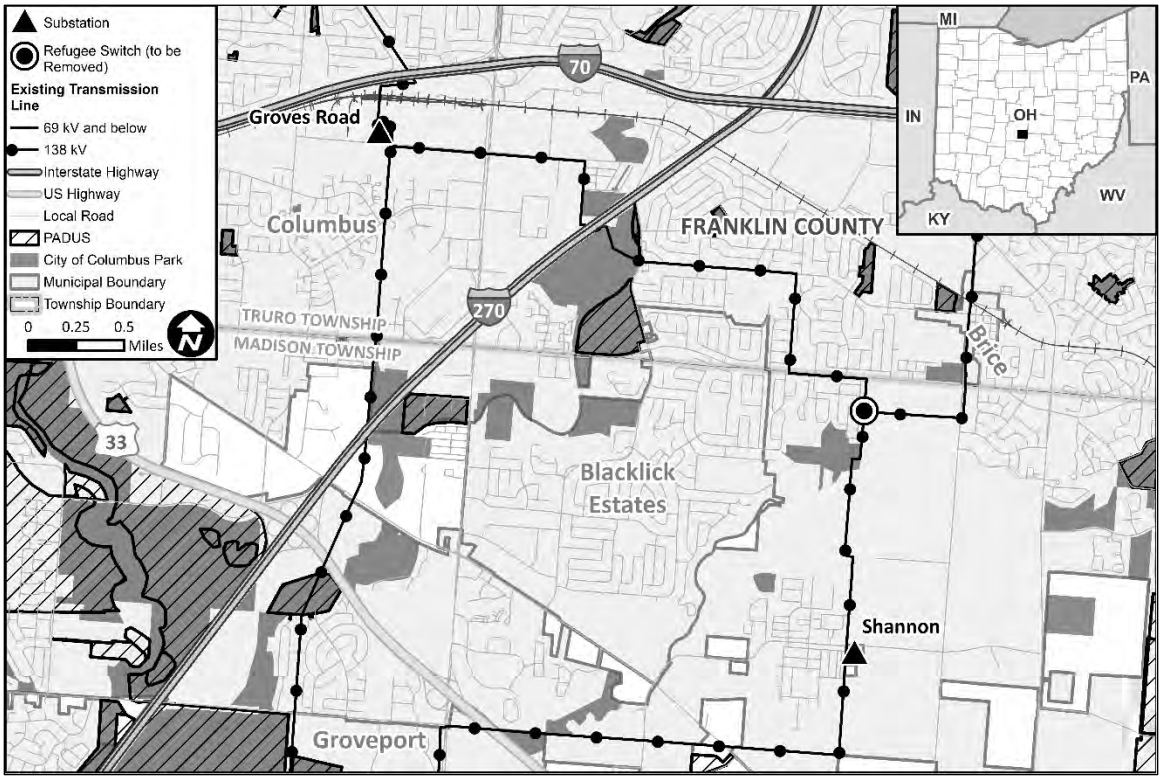


Figure 1. Project Location Map

1.2 Proposed Transmission Facilities Description

The Company proposes to retire approximately 3.2 miles of the existing Refugee – Groves Road 138 kV transmission line and construct approximately five miles of new 138 kV transmission line between their existing Groves Road and Shannon stations (the "Project Endpoints", see **Section**

3.1) within Madison and Truro townships, Franklin County, Ohio. The Project will consist of a single-circuit 138 kV transmission line, with the potential of up to approximately three miles of double-circuit 138 kV transmission line, where one of the Route Alternatives considers rebuilding part of the existing Shannon – Astor 138 kV transmission line.

The majority of proposed structures are expected to be single circuit steel monopoles (**Figure 2a**). The remaining proposed structures will consist of double circuit steel monopoles (**Figure 2b**). The proposed monopoles will average approximately 90 feet in height. Steel monopoles have a smaller footprint and were chosen due to the predominantly developed residential and mixed commercial/industrial land use of the surrounding area.

The Project is a mix of greenfield 138 kV transmission line within a new 60-foot-wide right-of-way (ROW) and rebuilding within an existing 138 kV transmission line ROW. The proposed access routes will be temporary except in key areas where long-term maintenance access is required.

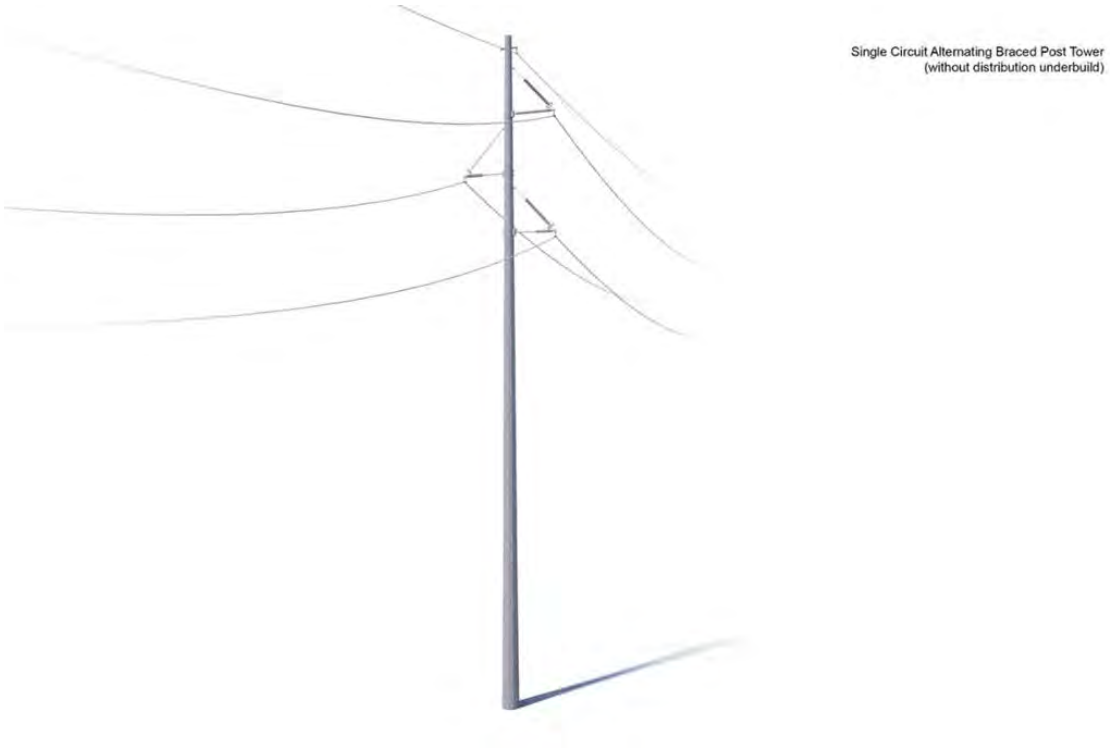


Figure 2a. Typical Single Circuit Transmission Structure

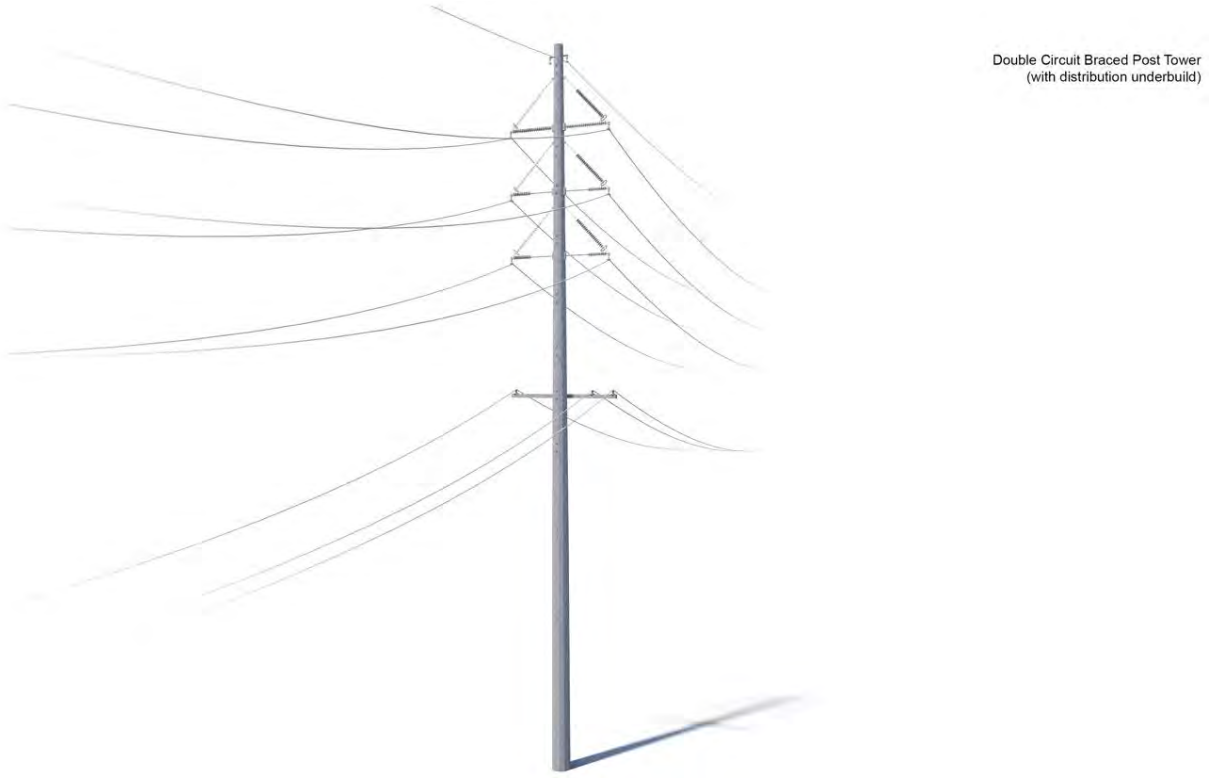


Figure 3b. Typical Double Circuit Transmission Structure

1.3 Proposed Construction Activities

Transmission construction is complex, but typically follows a regular progression of activities. Once a final route is identified, a series of field surveys and construction planning efforts begin. Initial field surveys are conducted to locate site-specific environmental features along the route in support of environmental permitting requirements, geotechnical investigations, and access road planning. Typical follow-on construction activities include ROW clearing, erosion and sediment controls installation, temporary access road construction, crane pad grading, foundation installation, structure assembly and erection, conductor and shield wire installation, and restoration following completion. All of these activities can create temporary inconvenience such as traffic delays and detours, potentially brief electrical outages to customers, increased heavy equipment traffic, dust, and noise. See **Figure 3**.

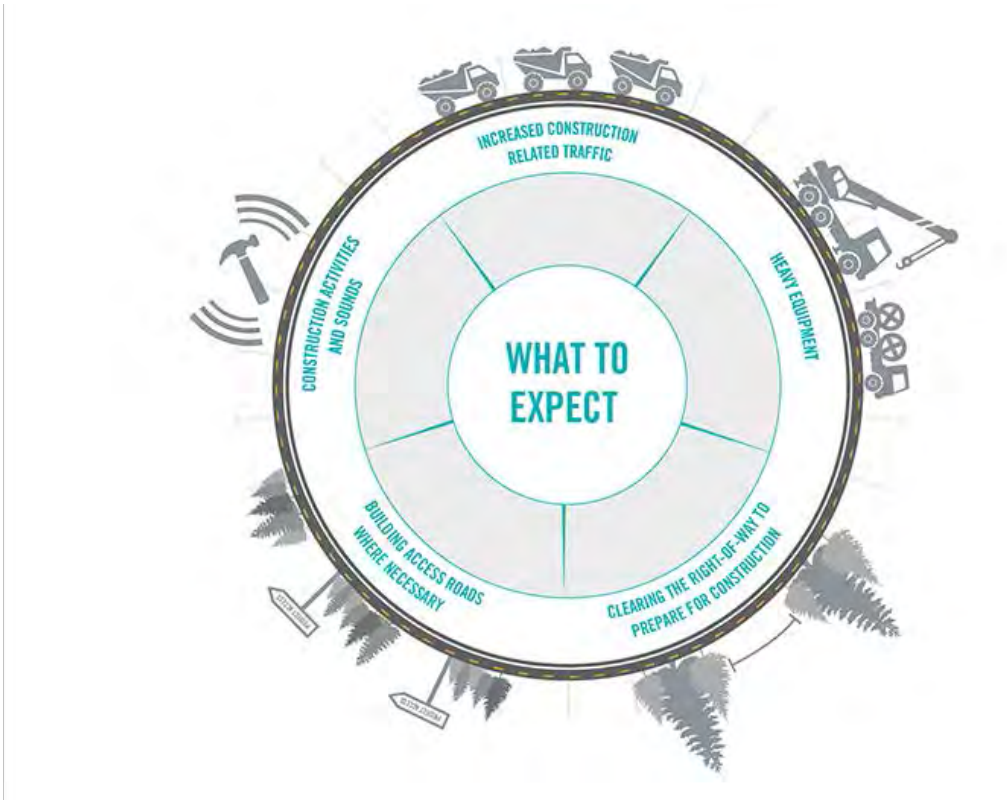


Figure 4. Typical Transmission Line Construction Activities

The Company will make every effort during construction to be respectful of the environment and existing land use. Activities will be conducted in accordance with applicable federal, state, and/or local requirements. After construction, general maintenance activities include periodic ROW vegetation management and inspections to ensure the safe and reliable operation of the transmission line.

1.4 Project Timeline and Overview of Regulatory Approvals

General Timeline – AEP Ohio Transco began the transmission siting process by developing Study Segments between late 2019 to early 2020. In October 2020, the Company began the process of introducing the Project to local and state agencies and stakeholders. Following the discussion with local and state agencies as well as other stakeholders, the Study Segments were presented to the public in November 2020. After the public open house, the Study Segments were re-evaluated and revised based on public input and compiled into Route Alternatives in early 2021. An environmental field survey was conducted on the Route Alternatives in summer of 2021 to identify ecological constraints, such as wetlands, streams, or threatened or endangered species

habitat[2]. A second public open house was conducted in December 2021. Following the open house, public comments were evaluated, and a Preferred and Alternate Route for the Project was selected in January 2022. AEP Ohio Transco engineers completed final design of the Preferred Route, as well as provided a design for the Alternate Route in January 2022. AEP Ohio Transco real estate representatives anticipate property owner negotiations for new ROW easements following the Ohio Power Siting Board's ("OPSB") decision on the Project, which is anticipated in the fourth quarter of 2022. Permitting is anticipated to take place in early spring 2022 and into the fall of 2022. Construction is expected to begin in October 2023 to meet a November 2024 in-service date.

Regulatory requirements – The Project requires a Full Standard Application (4906-5) to be filed with the OPSB, as it proposes new construction and relocation of single or multiple circuit electric power transmission lines greater than two miles in length.

Storm Water Pollution Prevention Plan ("SWP3") and Erosion and sediment control plans will be prepared in accordance with the Ohio Environmental Protection Agency ("OEPA") Permit No. OHC000005 and the City of Columbus MS4 Stormwater Drainage Manual. OEPA approval of such plans typically take up to one month.

A wetland and water resource delineation was previously conducted along the ROW of the Route Alternatives to identify wetlands or other Waters of the U.S. and streams designated as "eligible" for the OEPA Section 401 Water Quality Certification ("WQC") for the United States Army Corps of Engineers ("USACE") 2017 Nationwide Permits ("NWPs").

1.5 Goal of the Route Selection Study

The goal of the Groves Road – Shannon 138 kV Transmission Line Project Route Selection Study is to gain an understanding of the constraints and opportunity features in the study area to facilitate the development of study segments, evaluate potential impacts associated with the study segments, and identify a Preferred and Alternate Route. The Preferred Route is the route that (1) is most consistent with the siting guidelines (see **Section 2.4**); (2) reasonably minimizes adverse impacts on the natural and human environments; (3) minimizes special design requirements and unreasonable costs; and (4) can be constructed and operated in a safe, timely, and reliable manner. **Section 2.0** describes the route development process to meet the goal of the RSS.

[2] Additional delineated resources were previously identified in the Project Area in January and February 2020, for areas that coincide with the Shannon – Astor, Refugee – Groves Road, and Bixby – Shannon portions of the overall Southeast Columbus Area Improvements Project.

2.0 ROUTE AND SITE DEVELOPMENT PROCESS

2.1 Siting Team

A multi-disciplinary Siting Team performed the Route Selection Study. Team members were selected to bring a variety of experiences to the RSS to achieve a thorough review of aspects of developing the route. Members of the Siting Team have experience in transmission line siting, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management.

The Siting Team developed siting criteria, identified siting constraints and opportunity features, collected and analyzed environmental and design data, solicited stakeholder input and coordinated with resource and permitting agencies. The Siting Team then used that information to develop and revise study segments and route alternatives, analyze the route alternatives, and report on the selection of a Preferred Route. This report documents the Siting Team's process that lead to identification of the Preferred Route and Alternate Route for the Groves Road – Shannon 138 kV Transmission Line Project.

2.2 Route Development Process Overview

Route development is an iterative process, sometimes with frequent modifications as new information is identified and developed from agencies, landowners, residents, and other stakeholders, and routes are reassessed. The Siting Team uses specific vocabulary to describe the routes at different stages of development. The following provides an overview of the route development nomenclature.

Generally, the purpose of routing is to identify viable initial options, review, and refine those many options down to fewer and more appropriate options based on the siting criteria and Project scope, and to ultimately select one as the preferred route. The detailed steps for achieving this are presented below:

Initial route development starts with identification of **Project Endpoints.** Endpoints typically include stations, switch stations, tap points, or other locations defined by AEP's planners and engineers. Next, **Constraints and Opportunity Features** are identified and mapped within the **Study Area**, a defined region that includes the Project Endpoints and area between **(Figure 4, Step 1)**. Constraints and opportunities are typically identified using readily available public data sources and supplemented with stakeholder input and field review.

Once the Project Endpoints, Study Area and Constraints and Opportunity Features are identified, the **Siting Team** then develops **Conceptual Routes** for the Project, using a series of general siting and technical guidelines **(Step 2)**. Where two or more of these Conceptual Routes intersect,

Study Segments are formed between two common points of intersection. Collectively, the Study Segments are referred to as the **Study Segment Network (Step 3)**.

New information is constantly developed and evaluated by the Siting Team, such as public and stakeholder input and field inspections. Where necessary, the Study Segment Network is modified to develop a **Refined Study Segment Network (Step 4)**. **Route Alternatives** are then developed by assembling the Refined Study Segments that reasonably meet the **Siting Guidelines (see Section 2.4)** into individual routes for analysis **(Step 5)**. Route Alternatives are compared according to their relative merits and potential effects on natural and cultural resources, land use, and constructability. Ultimately, through a quantitative and qualitative analysis and comparison of the Route Alternatives, the Siting Team identifies a **Preferred Route (Step 6),** which is the most suitable route that meets the goal of the Routing Study (see **Section 1.5**).

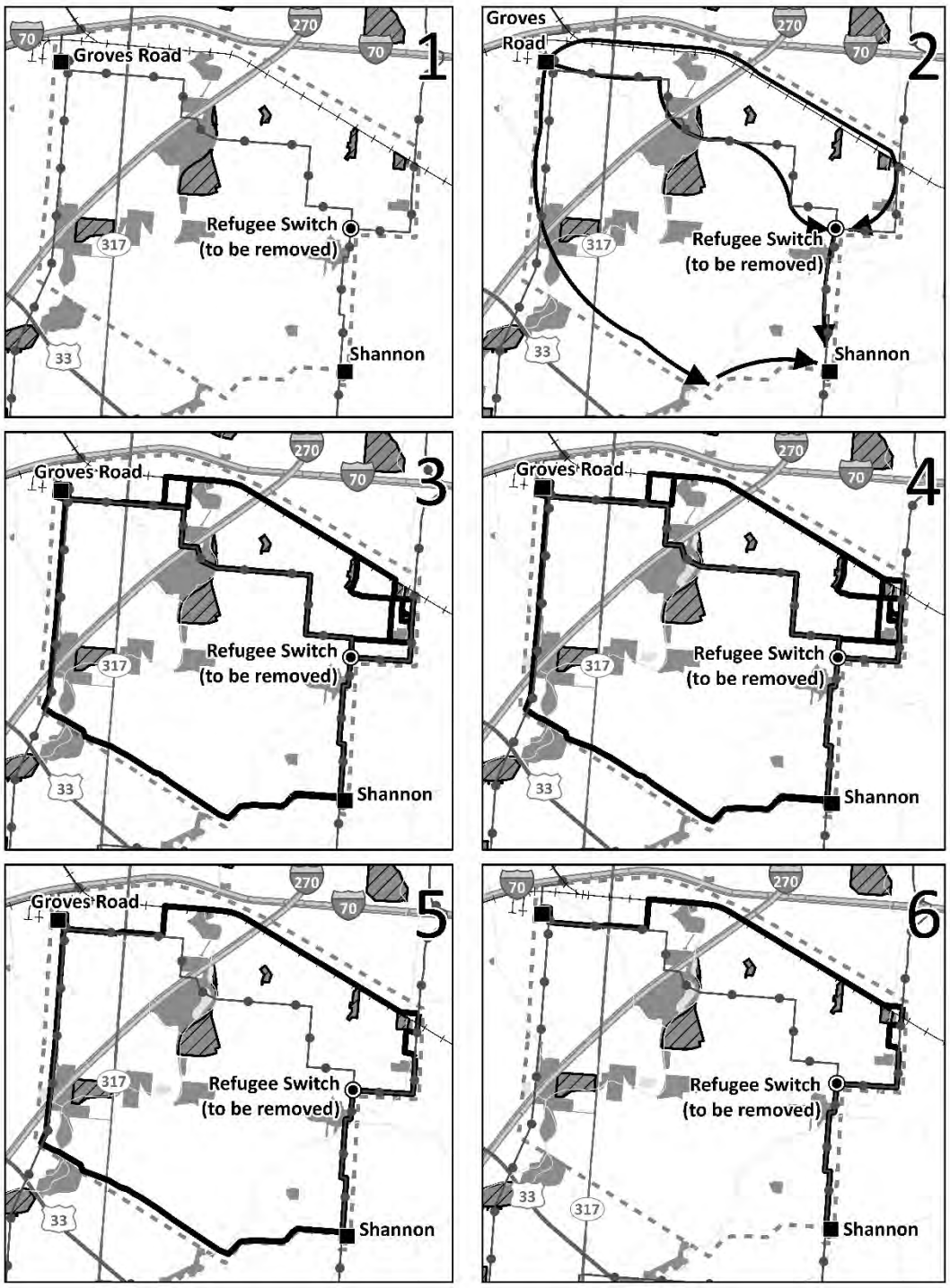


Figure 5. Route Development Process Steps

2.3 Data Collection

The following sources of information were used to develop data for the RSS. A detailed table of data sources is provided in **Attachment A**.

2.3.1 Geographic Information System (GIS) Data Collection

Digital aerial photography and geo-referenced topographic maps are both important tools for route selection and serve as essential base maps and information sources. The primary sources of aerial imagery and mapping used included:

- Ohio Georeferenced Imagery Program (OGRIP) 2019.
- United States Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP) 2019.
- U.S. Geological Survey (USGS) 7½ minute topographic quadrangle maps: Reynoldsburg and Southeast Columbus.

Initial review of the Project area by the Siting Team identified likely opportunities and constraints. As additional data were collected the opportunity and constraint landscape was modified. The study used existing GIS data sets from varied sources, including federal, state, and local governments, mostly from official agency GIS data access websites. Where data was not available, the Siting Team digitized information from digital maps or aerial photographs. The team's geographers, natural resource scientists, and siting experts interpreted the physiography, geology, vegetation and land use of the area to supplement and enhance that available data from the state/federal agencies.

A certain amount of caution should be exercised when interpreting GIS data, as the sources vary with respect to their accuracy and precision. For this reason, GIS-based calculations and maps presented in this study should be considered reasonable approximations of the resource or geographic feature they represent and not absolute measures or counts. The data and calculations presented in this study allow for relative comparisons among project alternatives. Where possible and practical, field reconnaissance is conducted to verify certain features (e.g., locations of residential, commercial and industrial buildings).

2.3.2 Federal, State and Local Government Coordination

The Siting Team obtained information from or contacted various federal, state, and local agencies and/or officials to inform them of the Project and request data for the route development process. The agencies contacted are listed below. Copies of agency correspondence are included as **Attachment C**.

Federal Agencies

- United States Fish and Wildlife Service ("USFWS")

State Agencies

- Ohio Department of Natural Resources ("ODNR")
- Ohio Department of Transportation ("ODOT")

Local Agencies and/or Officials

- Franklin County
- City of Columbus

2.3.3 Field Reconnaissance

Siting Team members field reviewed the preliminary Study Segments from public viewpoints in August 2020. The Study Segments were reviewed for compatibility with the local features and those local features were updated where it was clear there had been changes since the maps and aerial photographs were released. These features were then either edited or added to the GIS database.

In June and July of 2021, ecological field surveys were performed for the Project's route alternatives. The field delineated wetlands and waters resulting from the 2020 and 2021 ecological surveys[3] were added to the GIS database and used for analysis in lieu of national inventory databases.

2.3.4 Public and Stakeholder Input

The consideration of public and stakeholder input is critical to the route development process. Landowners and stakeholders provide information and recommendations to aid the Siting Team in the development and refinement of study segments and route alternatives. Typically, a project-specific outreach plan is developed which can include public open houses, websites, mailings, advertising, etc. More information on how public and stakeholder input was gathered and used for the Project can be found in **Section 3.6**.

[3] Additional delineated resources were previously identified in the Project Area in January and February 2020, for areas that coincide with the Shannon – Astor, Refugee – Groves Road, and Bixby – Shannon portions of the overall Southeast Columbus Area Improvements Project.

2.4 Siting Guidelines

The siting process involves first developing routes, then comparing them. To help develop those initial routes, the Siting Team uses the information developed for the area and technical requirements of the structures to help identify areas where the route cannot go, areas where the route should try to avoid (constraints), and areas where routing advantages are present (opportunities). These general and specific guidelines help refine the routing and reduce the number of potentially flawed segments. The scope is to propose viable, constructible routes from the start, and refine them logically into the most constructible and lowest impact.

The Siting Team began by identifying the existing Groves Road Station and the existing Shannon Station as the two Project endpoints (see **Section 3.1**). Conceptual routes were created between the two endpoints to avoid built environment and natural environment constraints based on knowledge of the area, field reconnaissance, and input and data received from federal, state, and local agencies and stakeholders. The Project Team then evaluated, compared, and refined various study segments to determine which is the most viable. Study Segments that are evaluated as less desirable are revised or eliminated.

2.4.1 General Guidelines

The detailed information developed, from aerial photograph, map and data review, helped form an understanding of the most influential siting factors in the area. The Siting Team used these and the technical requirements of the Project to develop the following general siting guidelines which were used to assist with route development:

- Avoid crossing or minimize conflict with designated state-owned or federal-owned lands (none were identified in the Project Area), as well as local government, private, and regional agency land, such as the Three Creeks Metropark, Brobst Memorial, Far East Recreational Center, and Elk Run, Helsel, Kirkwood, Kraner, Maybury, Nafzger, NOE-Bixby, and Walnut View parks.
- Avoid or minimize new crossings of City of Columbus park properties and easements, such as Amberfield Park, Big Walnut-Edgewater Park, Blacklick Creek Greenway Trail, Catalpa Park, Chatterton Brice Park, Deems Park, M-Five Park, Mason Run Park, Refugee Preserve, Shannon Park, Shelbourne Park, Sol Shenk Park, and Winchester Bend Park.
- Avoid or minimize new crossings of large lakes, streams (Big Walnut Creek, Blacklick Creek, and Mason Run) and their associated floodplain, floodway, and/or large wetland complexes, as well as critical and protected habitats or other unique or distinct natural resources.

- Avoid or minimize habitat fragmentation in unfragmented areas and impacts on designated areas of biodiversity concern.
- Maximize the separation distance from and/or minimize impact on dwellings and community facilities, cemeteries, schools, daycare facilities, hospitals, historic resources, and designated landmarks.
- Avoid or minimize conflict with existing land uses and future development with a proposed plan, schedule, and permitting process underway.
- Minimize interference with economic activities, natural gas activities, mining operations, and industrial facilities.
- Consider using or paralleling existing ROWs or other linear features and infrastructure when feasible, such as the AEP-owned Bixby – Groves Road, Refugee – Groves Road, and Shannon – Astor 138 kV transmission lines, in addition to existing local roads and railroad. When paralleling existing facilities, however, reliability issues and mitigation requirements must be evaluated.
- Consider paralleling property lines, land use breaks, and land cover edges.
- Consider property owner and stakeholder input.
- Avoid conflicts with designated public and military aviation facilities (none were identified within the Project Area).
- Minimize environmental impact and construction/maintenance costs by selecting shorter, direct routes.
- Consider safety with respect to construction, maintenance, and operation of the facilities.
- Consider construction concerns such as access, road traffic control, outages, pipeline mitigations, railroad interactions, existing telecommunication line and distribution line conflicts, etc.
    - Major highways within the Project Area include I-270, I-70, and OH-317. Major local roadways within the Project Area include Brice Road (CR 117), Chatterton Road (CR 340), Courtright Road (CR 114), Ebright Road (CR 118), Gender Road (CR 222), Groves Road (CR 510), Noe Bixby Road (CR 371), Old Refugee Road/Refugee Road (CR 14), Shannon Road (CR 118), and Winchester Pike (CR 376). Distribution lines are likely present along major local roads, given the predominantly mixed-use residential and commercial/industrial development in the Project Area.
    - An active Norfolk Southern railroad is within the northern portion of the Project Area, traveling in a general west-southeast direction.

  - One high-pressure gas line runs adjacent south of Winchester Pike (CR 376). No additional existing pipelines were identified within the Project Area.

- Minimize environmental impact by considering routes that minimize the overall length of access roads, length on steep slopes, tree clearing required for the ROW, and waterbody crossings. Given the existing developed land use of the Project Area, steep slopes were not identified as a significant siting factor.

2.4.2 Technical Guidelines

Technical guidelines are driven by the physical characteristics and engineering limitations of the structures and lines themselves, design criteria necessary to meet AEP Ohio Transco design standards, North American Electric Reliability Corporation ("NERC") reliability standards, National Electric Safety Code ("NESC") standards, and industry best practices for construction. The technical guidelines were informed by (1) the technical expertise of engineers and other industry professionals responsible for the reliable, safe and economical construction, operation, and maintenance of electric system facilities, (2) NERC reliability standards as implemented by PJM (the regional transmission organization that monitors the electric grid in 13 states), and (3) industry best practices.

The Siting Team considers the following technical guidelines during study segment and route development to extent practical:

- Minimize crossing high voltage transmission lines, such as the Bixby – Groves Road, Bixby – Shannon, Groves Road – Bexley, Refugee – Groves Road, and Shannon – Astor 138 kV transmission lines.
- Consider paralleling extra-high-voltage ("EHV") transmission lines, unless other operational and system reliability issues are identified (none were identified within the Project Area).
- Maintain a minimum of 50 feet of centerline-to-centerline separation when paralleling 138 kV or lower voltage transmission lines
- When paralleling existing transmission lines, such as the Bixby – Groves Road 138 kV transmission line, verify there are no reliability issues by locating two lines adjacent to each other.
- When paralleling existing pipelines, evaluate mitigation requirements and any additional impacts and associated costs for construction and/or long-term maintenance (none were identified within the Project Area).
- Minimize structure angles greater than 45 degrees.

- Minimize structures on steep slopes (generally, this is more than 20% slopes for angle structures and more than 30% for tangent structures), particularly if guy wires are required for construction (topography was not identified as a significant siting factor for the Project).

3.0 ROUTE ALTERNATIVE IDENTIFICATION

3.1 Project Endpoints

The Project Endpoints are the Company's existing Groves Road and Shannon stations. The Groves Road Station is located approximately 0.4 mile west of the intersection of Courtright Road (CR 114) and Groves Road (CR 510). The Shannon Station is located approximately 0.5 mile east of the intersection of Shannon Road (CR 118) and Brice Road (CR 117).

3.2 Study Area Description

The Study Area is defined as the area in which line route alternatives can be routed to meet the purpose of the Project while reasonably minimizing environmental/land use impacts and Project costs. The Study Area for this Project was determined by defining a broad area between the two endpoints that included all practical/logical routing opportunities, while also limiting the overall line length to avoid unnecessary impacts and costs.

Consideration of the routing opportunities and endpoints resulted in an approximately 7.7-square-mile (mi^2) study area (the "Study Area," see **Map 1, Attachment A**). The Study Area is generally bounded by I-70, railroad, and the existing Groves Road Station to the north; the existing Shannon – Astor 138 kV transmission Line, Brice Road (CR 117), and the Village of Brice to the east; the existing Shannon Station, Shannon Road (CR 118), and Winchester Pike (CR 376) to the south; as well as the existing Bixby – Groves Road 138 kV transmission line, I-270, and OH-317 to the west.

Dominant surface water features within the Study Area include Big Walnut Creek, Blacklick Creek, and Mason Run, which all generally flow southwestward and have associated Federal Emergency Management Agency ("FEMA") designated floodplains and floodways within and beyond their riparian corridors. Additionally, several USFWS National Wetland Inventory ("NWI") wetlands are mapped within the riparian corridors, floodway, and/or floodplain of Big Walnut Creek, Blacklick Creek, and Mason Run. Man-made ponds and detention basins are also mapped throughout residential and commercial/industrial areas of the Study Area.

The Study Area is predominately composed of mixed-use residential and commercial/industrial land uses. Commercial and industrial properties are generally concentrated in the northwestern portion of the Study Area, adjacent southwest of the I-70/I-270 interchange, in an area referred to as Eastland. Additional commercial and industrial properties are present within the northeastern portion of the Study Area, adjacent west of Brice Road. Single-family and multi-family residences are generally concentrated within central, southern, and eastern portions of the Study Area, in subdivided neighborhoods including but not limited to: Blacklick Estates,

Crosscreek Village, Edgewater Park, Independence Village, Shannon Green, Three Rivers, Walnut Heights, and Winchester.

Five elementary schools, one high school, one middle school, and two scholarly academies are present within or close to residential subdivisions in the Project Area. There are 11 places of worship within the Study Area, which are predominantly located along local roads near residential areas. Two cemeteries were identified in the Study Area: Asbury Cemetery is located within the southern portion adjacent southeast of Noe Bixby Road (CR 371) and Winchester Pike (CR 376) and Truro Cemetery is located approximately 400 feet southeast of the intersection of Noe Bixby Road and Refugee Road (CR 14).

Recreational areas are located throughout the Study Area, these include 12 recreational parks along the Big Walnut Creek corridor in the western portion of the Study Area: Amberfield Parkland, Big Walnut – Edgewater Parkland, the Big Walnut Corridor, Catalpa Park, Deems Parkland, Deer Lake Parkland, Elk Run/Winchester Parkland, Helsel Park, Nafzger Park, Refugee Preserve, Sol Shenk Parkland, and Winchester Bend Parkland. Along the Big Walnut corridor, the City of Columbus maps three park easements: the Bre-Kro access easement and the Refugee Preservation Area conservation easement are located within the central portion of the Study Area, and the Winding Creek conservation easement is located within the northern portion of the Study Area.

Five additional City of Columbus recreational parks are located along the Blacklick Creek corridor in the eastern portion of the Study Area: Chatterton Brice Parkland, Chatterton Parkland, M-Five Parkland, Shannon Parkland, and Shelbourne Parkland. The City of Columbus additionally maps two park easements in the southeastern portion of the Study Area along the Blacklick Creek Corridor: the Shannon Road access easement and the M-Five conservation easement. The Blacklick Creek Trail traverses the southwestern portion of the Study Area, which provides walking and biking pathways along the Blacklick Creek corridor.

In the southwestern portion of the Study Area, the City of Columbus maps Mason Run Parkland and the Williams Conservation easement approximately 0.4 mile southwest of Groves Road and I-270, along the Mason Run corridor. Of these above-listed City of Columbus parks within the Study Area, the USGS Protected Areas Database of the US (PADUS) also identifies Helsel Park, Nafzger Park, and Shelbourne Parkland, in addition to Noe-Bixby Park, Maybury Park, and Walnut View Park, which are generally located within the northern portion of the Study Area.

Two highways bisect the eastern portion of the Study Area: I-270 travels in a northeast-southwest fashion and OH-317 travels north-south. Refugee Road (CR 14)/Chatterton Road (CR 340) bisects the central portion of the Study Area east to west and Noe Bixby Road (CR 371) bisects the central portion of the Study Area north to south; Winchester Pike bisects the southwestern portion of

the Study Area northwest to southeast; Shannon Road bisects the southeastern portion of the Study Area in a general east-west direction; and Brice Road bisects the eastern-most portion of the Study Area north-south. Many smaller local township and municipal roads are also located throughout the Study Area, which generally route through subdivided residential and mixed-use commercial/industrial areas. An active Norfolk Southern railroad runs adjacent to the northern portion of the Study Area in a general northwest-southeast trend.

Three existing AEP-owned 138 kV transmission lines are within the Study Area: Astor – Shannon, Bixby – Groves Road, and Refugee – Groves Road. The existing Bixby – Groves Road 138 kV transmission line is located within a 200-foot-wide easement owned by AEP. The National Pipeline Mapping System (NPMS) does not identify any oil/gas pipelines within the Study Area. There are two Federal Communications Commissions ("FCC") towers within the northeastern portion of the Study Area (Eastland), which are generally located between Groves Road and I-70. Another FCC tower was identified in the southwestern portion of the Study Area, along the eastside of OH-317 and approximately 0.5 mile south of Refugee Road (CR 14).

3.3 Constraints and Opportunity Features

The Siting Team identified and mapped siting constraints and opportunity features within the Study Area as described below and shown on the Study Area map (**Map 1, Attachment A**).

Constraints

Constraints are specific areas that should be avoided to the extent practical during route development. Using readily available public data sources, the Siting Team initially identified large constraints during the beginning of the route development process.

Natural Features

Big Walnut Creek, Blacklick Creek, and Mason Run flow southwestward through western and eastern portions of the Study Area. These major surface water features have generally wide forested and scrub-shrub riparian corridors containing floodway and floodplain, as well as NWI-mapped wetland complexes. Smaller tributaries of Big Walnut Creek and Blacklick Creek are also mapped in limited portions of the Study Area outside of developed areas. Large contiguous areas of forested cover are generally limited to the riparian corridors and floodplains of Big Walnut Creek, Blacklick Creek, and Mason Run. The Siting Team specifically considered streams, floodway, floodplain, and NWI-mapped wetlands as constraints present within the Study Area.

Recreational Areas and Protected Lands

Several recreational areas owned by the City of Columbus Parks and Recreation Department, or private entities are present within the Study Area, which generally serve as conservation areas with open space, hiking trails, fishing ponds, sports fields, and/or playgrounds (previously described above in **Section 3.2).** The locations of recreational areas and protected lands within the Study Area, generally coincide with the natural areas previously describe above. The Siting Team considered the City of Columbus parks and park easements, local government parks, and private parks as constraints present within the Study Area.

Small Scale Constraints

As the Siting Team developed Study Segments, smaller site-specific constraints were identified (using readily available public data sources, stakeholder input, and field inspections). Through the iterative process of route development (described in **Section 2.0**), the Study Segments were adjusted to avoid small constraints where feasible. Small constraints include but are not limited to individual residences (single-family residences, mobile homes, and multi-family buildings); individual listed or eligible resources under National Register of Historic Places (NRHP); commercial and industrial buildings; outbuildings, barns, and silos; cemeteries; churches; schools; small wetlands; radio and communications towers; and oil or gas wells.

Opportunity Features

Opportunity features include existing corridors, which are areas where a transmission line would be a compatible land use or where an existing linear feature would reduce a transmission line's visual impacts. These include utility corridors, railroad, and roads, but may also include unused portions of industrial or commercial areas and parcel boundaries. Paralleling and/or rebuilding existing linear infrastructure was identified as a key siting opportunity for the Project. All siting opportunity features evaluated are presented in the Study Area map (**Map 1, Attachment A**) and are described below:

Existing Transmission Lines

The existing AEP-owned 138 kV transmission lines identified in the Study Area present potential siting opportunities for connecting the Project Endpoints (see **Section 3.1**).

Approximately 4.5 miles of the Shannon – Astor 138 kV transmission line will be rebuilt as part of the overall Southeast Columbus Area Improvements Project. With this consideration, the Siting Team evaluated rebuild and double circuit opportunities in conjunction with the Shannon – Astor 138 kV Transmission Line Rebuild Project for approximately two miles of the Project. Routing concepts also considered single circuit rebuild of the existing Refugee – Groves Road 138 kV

transmission line and single circuit 138 kV transmission line parallel to the existing Bixby – Groves Road 138 kV transmission line, within existing ROW.

Local Roads

Several local roads within the Study Area were identified as siting opportunities, including Brice Road (CR 117), Chatterton Road (CR 340), Cloverleaf Street, Groves Road (CR 510), Shannon Road (CR 118), and Winchester Pike (CR 376). Based on their availability, location, and direction, the Siting Team evaluated local road paralleling opportunities for avoidance of encroaching densely populated subdivided residential areas (i.e., Blacklick Estates).

Railroad Corridors

The active Norfolk Southern-owned railroad bisects the northern portion of the Study Area in a general northwest-southeast direction and was considered a siting opportunity as it avoids encroaching residential properties along the existing transmission line. Railroads can, however, present siting constraints for transmission line projects, such as additional permitting requirements and fees.

Property Boundaries

Where paralleling or rebuilding existing linear infrastructure was unavailable, the Siting Team prioritized paralleling property boundaries. This siting opportunity can minimize impacts to property owners by potentially reducing impacts to more usable, central portions of the property.

3.4 Routing Concepts

Using the opportunity/constraint maps and siting guidelines developed for the Project by the Siting Team, and input from the multi-disciplinary Project Team, Routing Concepts identified within the Study Area are shown on **Map 2.** Generally, the Routing Concepts used local road and cross-country options while avoiding large- and small-scale constraints where possible. For descriptive purposes, the Project is divided into two areas: northeastern and southwestern.

Northeastern

In the northeastern portion of the Study Area, primary routing concepts were developed to consider rebuilding the existing Refugee – Groves Road 138 kV Transmission Line as single circuit and rebuilding the existing Shannon – Astor 138 kV Transmission Line as double circuit, in addition to paralleling transportation corridors and parcel boundaries. Notable constraints include Big Walnut Creek, Blacklick Creek, recreational areas, subdivided residential neighborhoods, and mixed-use commercial/industrial areas.

Southwestern

The routing concepts in the southwestern portion of the Study Area were developed to parallel the existing Bixby – Groves Road 138 kV transmission line within the existing 200-foot-wide ROW and local roads. Constraints include subdivided residential neighborhoods, such as Blacklick Estates, Big Walnut Creek, Blacklick Creek, Mason Run, and recreational areas.

The next step in the siting process was to refine the Routing Concepts into Study Segments. This process is described below.

3.5 Study Segment Development

In 2020, the Siting Team developed a series of revised Study Segments based on the route development process and criteria described in **Section 2.0** and shown in **Map 3b, Attachment A**. Study Segments are partial alignments developed based on the Routing Concepts identified in the previous section.

Early in the Study Segment development process, the Siting Team noted concerns of residential encroachments for rebuilding within the existing Refugee – Groves Road 138 kV Transmission Line ROW. To address these concerns, the Siting Team used approximately 0.7 mile of the existing Refugee – Groves Road 138 kV ROW within industrial areas surrounding the Groves Road Station to develop rebuild Study Segments. In addition, the Siting Team developed greenfield Study Segments paralleling existing linear infrastructure, including roads and railroad, further away from dense residential areas. Due to the concerns noted above and the presence of viable greenfield Study Segments, the remaining 3.2 miles of the Refugee – Groves Road 138 kV Transmission Line will be retired. Similarly, some portions of the existing Shannon – Astor 138 kV Transmission Line ROW were also not suitable for rebuild near the Village of Brice due to residential encroachment concerns. To address these concerns, the Siting Team developed some greenfield Study Segments between Refugee Road (CR 14) and Chatterton Road (CR 340), which primarily paralleled parcel boundaries or local roads.

After the first virtual open house period held in November 2020, the revised Study Segments were further modified and some were removed and added, resulting in two Project Route Alternatives (**Attachment A, Map 4**). The Route Alternatives were presented during a second combined virtual and in-person open house period held in December 2021, and, afterward, were further evaluated as detailed below in **Section 5.0**.

3.6 Public Involvement Process

3.6.1 Public Communications and Open House

AEP Ohio Transco representatives mailed letters to area landowners in October 2020, for the November 2020 virtual open house meeting, to announce the Southeastern Columbus Area Improvements Project and notify them about the upcoming 35 virtual open house meeting, where they could learn more and provide feedback. The first virtual open house period took place between November 16th and December 4th, 2020, announcing a total of 35 preliminary Study Segments for the Groves Road – Shannon 138 kV Transmission Line Project (**Map 3a, Attachment A**).

After the public's commentary of the preliminary Study Segments were reviewed, evaluated, and modified, a resulting network of 31 revised Study Segments (**Map 3b, Attachment A**) were developed into two Route Alternatives for the Groves Road – Shannon 138 kV Transmission Line Project. For the second combined virtual and in-person open house meeting, AEP Ohio Transco representatives mailed letters to area stakeholders and landowners in November 2021 to notify them about the upcoming meeting and virtual open house, presenting the two Route Alternatives. The in-person open house occurred on December 15, 2021, and the virtual open house period took place between December 15 and December 20, 2021.

For both open houses, letters were sent to local stakeholders as well as property owners crossed, adjacent, or within 250 feet of the ROW of either the preliminary Study Segments or the Route Alternatives of both the Shannon – Astor 138 kV Rebuild Project and the Groves Road – Shannon 138 kV Transmission Line Project. In the Project announcement, the Project was referred to as the Southeastern Columbus Area Improvements Project, which included (1) building approximately 5 miles of 138 kV transmission line between Groves Road and Shannon Stations (2) rebuilding approximately 2 miles of 138 kV transmission line between Astor Station and an existing power line off Brice Road; and (3) Expanding Shannon Station near the intersection of Shannon Road and Brice Road. During the first open house period, AEP Ohio Transco also announced the Project via digital ads on Facebook, which specifically targeted residents of the affected area and allowed such Facebook users to comment on the ad, in addition to providing a link to the Project's website (aeptransmission.com/ohio/SoutheastColumbus/). The mailings to area stakeholders and affected property owners consisted of a letter and fact sheet, which provided an overview of the Project and a link to the Project's website. The mailings also included contact information for the AEP Ohio Transco Outreach Specialists. A news release was posted to the AEP Ohio Transco website to announce the Project and in-person/virtual open houses.

3.6.2 Project Website and Virtual Open House

The Project Team set up a Project website with a link to the each of the virtual open house components. The virtual open houses were set up similarly to an in-person open house, with virtual "stations" and information related to engineering and design of the structures, the Project need, real estate and ROW issues, and the siting process. An interactive map was provided at the virtual open house for the public to review. Participants were encouraged to document the location of their houses, places of business, properties of concern, or other sensitive resources on virtual comment cards. A combined total of 21 comments were received from property owners between the November 2020 and December 2021 open house meetings (virtual and in-person). After each public open house, digital comments were entered into a GIS database. Subjects of the comments ranged from impacts to crop production, concerns with viewshed, and questions on maintenance.

3.6.3 Consideration of Public and Stakeholder Input

Comments were cataloged and categorized based on the relevancy and topic. Most comments were related to impacts to agricultural activities and proximity of the lines to residences. Several Facebook users expressed support for the Project on the digital ads, indicating that the current system is often unreliable during weather events. Numerous comment cards expressed curiosity regarding potential outages or impacts to underground utilities resulting from the Project, and some of these landowners provided locations of undocumented underground utilities. For example, multiple landowners provided the location of an underground high-pressure gas line adjacent south of Winchester Pike (CR 376) during the in-person open house in December 2021. Fewer comment cards expressed opposition to the placement of Study Segments or the Route Alternatives, based on impacts to residential, agricultural, or commercial/industrial land uses. Upon reviewing the comments, the Siting Team incorporated the information, where applicable, when reviewing, revising, and comparing Route Alternatives.

3.7 Study Segment Evaluation and Refinement

The revised Study Segments, shown on **Map 3b, Attachment A**, were evaluated and refined to avoid or minimize impacts to resources in the Study Area. Through the Study Segment evaluation and refinement process, the Siting Team identified an option that paralleled the westside of the existing Bixby – Groves Road 138 kV Transmission Line within existing, unmaintained ROW as a feasible southward routing option to address concerns related to potential residential encroachment concerns of other greenfield Study Segments.

For descriptive purposes, the Study Segments were divided into northern and southern segments, as shown on the inset **Figures 5a and 5b** below. Study Segments in each geographic region were evaluated, modified, and some were added or removed from further consideration,

as described below. Those removed are identified with dashed black lines, those retained with solid black lines.

Northern Study Segments - Two main Study Segment corridors were considered to exit the Groves Road Station eastward and northward to cross the railroad and parallel the northside of its corridor. Rebuilding a large portion of the existing Refugee – Groves Road 138 kV transmission line was not considered viable due to potential residential encroachment concerns and was removed from further consideration. For exiting the Groves Road Station, the first Study Segment routes in a general eastward direction by rebuilding a small portion of the existing Refugee – Groves Road 138 kV transmission line in existing ROW and paralleling the northside of Groves Road. At this point, the first option (Study Segment 34) routes northward by paralleling the eastside of Cloverleaf Street and the second option (Study Segment 33) continues further eastward along the northside of Groves Road before routing northward through commercial/industrial properties. The Siting Team ultimately retained the first option because it parallels existing road ROW to the greatest extent and is farther from recreational areas (Sol Shenk Parkland and Catalpa Park) and residential properties when compared to the second option.

Several Study Segments were considered that connect from the railroad corridor to the existing Shannon – Astor 138 kV transmission line. Study Segments close to recreational areas and residential subdivisions were eliminated due to effects on the natural and built environment, while providing no benefit over other options, which paralleled the railroad for longer and used more existing ROW. Based on City of Columbus Parks input, the eastern-most Study Segment was revised to turn east, north of Shelbourne Parkland, which resulted in additional double circuit construction length, primarily within the existing Shannon – Astor 138 kV transmission line ROW (as shown on **Attachment A, Map 4**). A small portion of this section cannot use the existing Shannon – Astor 138 kV transmission line ROW. A 0.4 mile greenfield re-route (Study Segments 19 and 24) near the intersection of 117 and the railroad is needed to avoid potential residential encroachments.

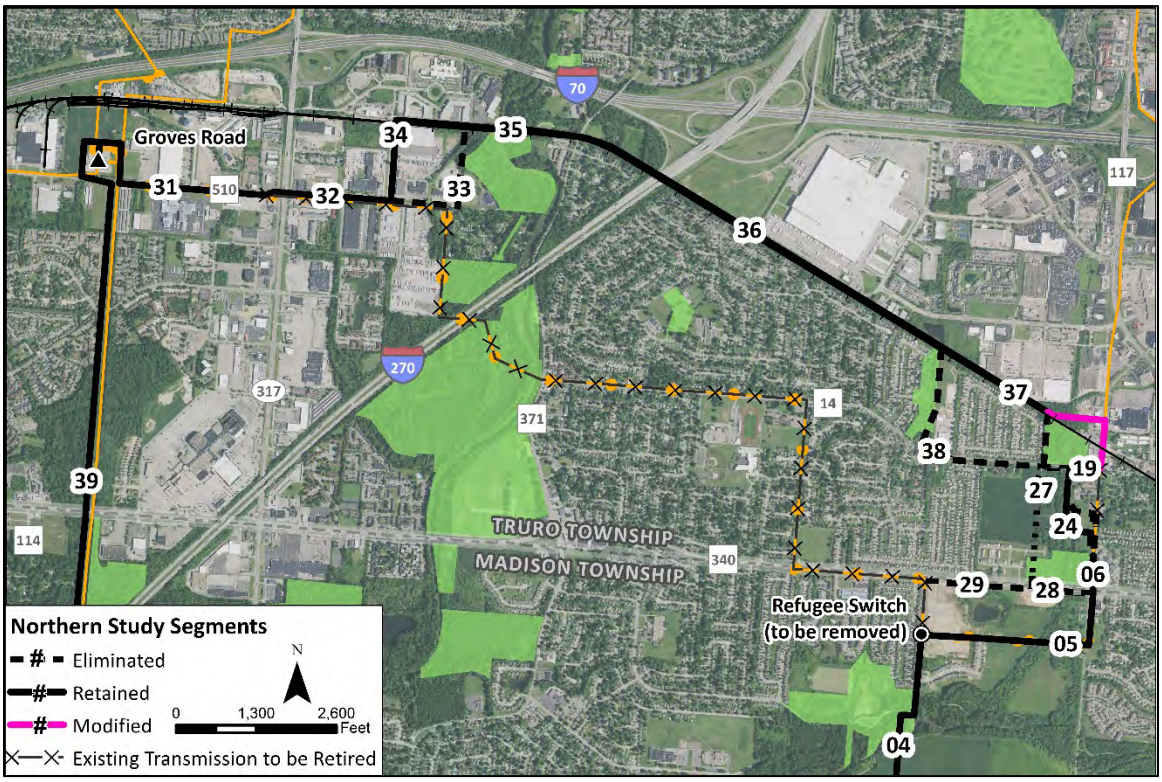


Figure 6a. Northern Study Segments

Southern Study Segments – Two main siting opportunities were used in the southern study area was using the existing unmaintained ROW adjacent to the Bixby – Groves Road 138 kV line and paralleling Winchester Pike (CR 376). In addition, two main corridors were developed to connect to the Shannon Station. One option parallels the northside of Shannon Road and the other option parallels the southside of Shannon Road. The Siting Team identified the presence of an AEP-owned distribution line on the northside of Shannon Road and supported distribution underbuild for that Study Segment. Thus, the Study Segment paralleling the southside of Shannon Road was eliminated.

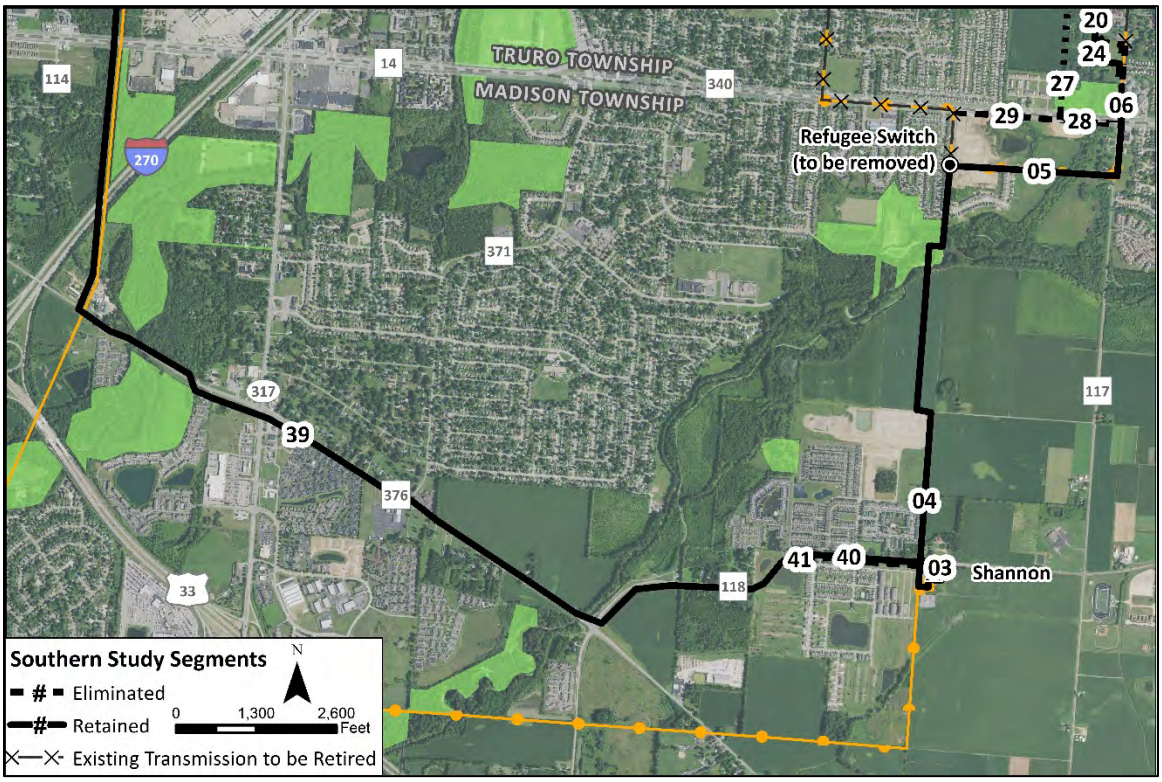
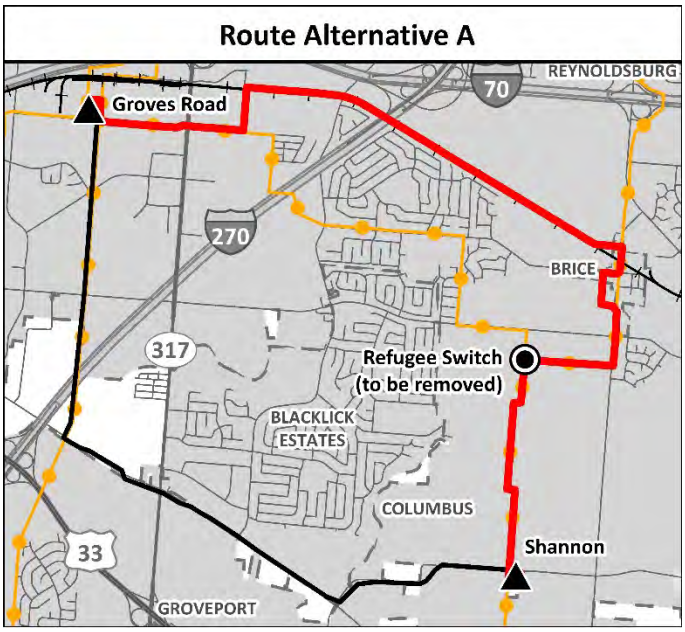


Figure 7b. Southern Study Segments

Map 4, Attachment A shows the Revised Study Segments from this review, resulting in two Route Alternatives, which are discussed in **Section 4.0** and compared in **Section 5.0**.

4.0 ROUTE ALTERNATIVES

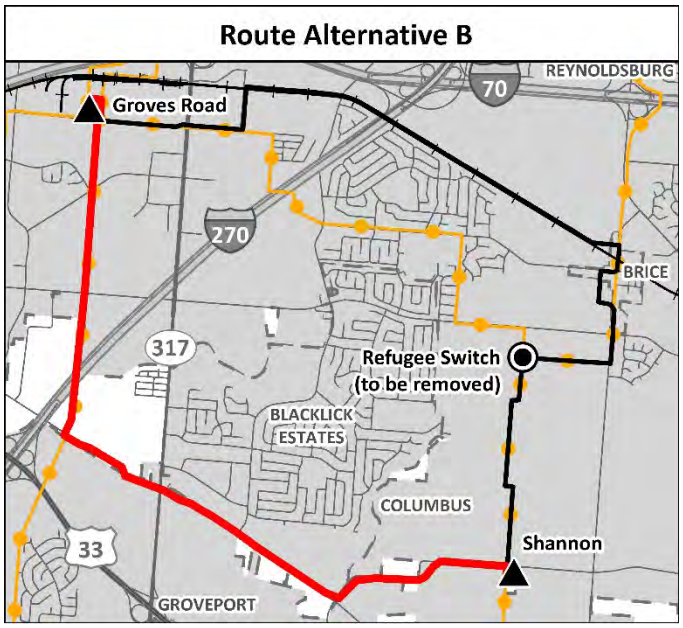
The Siting Team met and communicated frequently throughout the route development process, continually reviewing, modifying, and sometimes eliminating Study Segments based on field inspections, analysis, and engineering reviews. At the end of the process, the Siting Team compiled the remaining Study Segments into two complete Route Alternatives (Routes A and B) for analysis and comparison. These two Route Alternatives are described in the following sections and are shown in more detail on **Map 4, Attachment A**.



4.1.1 Route Alternative A

Route Alternative A is the northeastern routing option, measuring approximately 6.6 miles in length. Route Alternative A was selected for analysis because it proposes to use more existing maintained ROW, by double circuiting with a portion of the Shannon – Astor 138 kV transmission line. Route Alternative A begins at the Groves Road Station and proposes to rebuild approximately 0.7 mile of the existing Refugee – Groves Road 138 kV transmission line as double circuit and in existing ROW. Before crossing OH-317, Route Alternative A shifts to single circuit construction on new ROW and parallels Groves Road to the north. At Cloverleaf Street, Route Alternative A turns north towards the railroad corridor. At this point, Route Alternative A travels in a general southeastward direction for approximately 2.3 miles by paralleling the northside of the railroad corridor. For its remaining approximately 3 miles, Route Alternative A is a double circuit rebuild of the Shannon – Astor 138 kV transmission line and the Project, mostly within existing, maintained ROW. A small portion of this three mile section cannot use the existing Shannon – Astor 138 kV transmission line ROW. A 0.4 mile greenfield re-route area near the intersection of 117 and the railroad is needed to minimize impacts to a residential area; the greenfield re-route is parallel to road and parcel boundaries. Lastly, a 0.1 mile greenfield portion is needed where the circuits split at the Shannon Station and is fully located on AEP Ohio Transco property. Route Alternative A would require approximately 27.3 acres of new ROW and would use approximately 21 acres of existing, maintained 138 kV transmission line ROW.

4.1.2 Route Alternative B



Route Alternative B is the southwestern and shortest routing option, approximately 5.2 miles long. Route Alternative B parallels local roads and an existing 138 kV transmission line within existing, unmaintained ROW owned by the Company for approximately half of the route's entire length. Route B begins at Groves Road Station and routes southward by rebuilding the existing Refugee – Groves Road 138 kV transmission line for 0.2 mile. Route Alternative B continues south for approximately two miles by paralleling the westside of the existing Bixby – Groves Road 138 kV transmission line within unmaintained ROW. At this point, Route Alternative B turns southeastward primarily paralleling Winchester Pike and Shannon Road for approximately three miles; Route Alternative B crosses from one side of the road to the other to avoid encroaching residential or commercial properties. The remaining 0.1 mile of Route Alternative B proposes rebuild within the existing Astor-Shannon 138 kV transmission line ROW for tie-in to Shannon Station. Route Alternative B would require approximately 21.3 acres of new ROW and would use approximately 16.2 acres of an existing AEP-owned 200-foot-wide easement.

5.0 ROUTE ALTERNATIVE COMPARISON

The Route Alternative comparison provides a quantitative and qualitative analysis of potential impacts to local communities, environment, and cultural resources and considers engineering and constructability concerns. The Route Alternatives were reviewed in detail and compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team.

5.1 Natural Resources

Natural resource considerations include potential effects on vegetation and habitat, surface waters, threatened and endangered species, and conservation and recreation lands. Potential effects discussed in this section are based on publicly available maps and data as well as consultation with federal and state agencies. A comparison of the natural environment considerations for the Route Alternatives is presented at the end of this section in **Table 1**.

5.1.1 Geological, Soil, and Water Resources

Resource Characteristics

The US Environmental Protection Agency (USEPA) maps the Study Area within the Loamy, High Lime Till Plains Level IV Ecoregion (55b) of the Eastern Corn Belt Plains Level III Ecoregion (55) [4]. The Loamy, High Lime Till Plains Level IV Ecoregion contains soils that developed from loamy, limy, glacial deposits of the Wisconsinan age, which support natural drainage and fertility. There are 46 USDA National Resources Conservation Service (NRCS) soil mapping units of the Alexandria, Bennington, Cardington, Celina, Crosby, Eel, Eldean, Genesee, Kendallville, Kokomo, Medway, Miamian, Pewamo, Ross, Shoals, Sleeth, Thackery, Udorthents, or Westland consociations and/or complexes within the Study Area. Soil mapping units within the Study Area do not exceed slopes greater than 12 percent. Elevation within the Study Area ranges from approximately 725 to 800 feet above mean sea level (msl).

The US Army Corps of Engineers ("USACE") and OPEA regulates lakes, rivers, streams, wetlands, and ponds in Ohio. The Study Area is within the USACE Huntington District and the Upper Scioto [Hydrologic Unit Code ("HUC") 05060001] watershed. As shown on **Map 5, Attachment A,** the USGS National Hydrology Database ("NHD") maps Mason Run flowing southward through the western portion of the Study Area, in addition to Big Walnut Creek and Blacklick Creek flowing generally southwestward through the central and eastern portions of the Study Area,

[4] USEPA Level III and Level IV Ecoregions of Ohio and Indiana, https://gaftp.epa.gov/EPADataCommons/ORD/Ecoregions/oh/ohin_eco_lg.pdf

respectively. The NHD also identifies smaller unnamed headwater tributaries of Big Walnut Creek, Blacklick Creek, and Mason Run sparingly throughout the Study Area.

The FEMA National Flood Hazard Layer ("NFHL") maps regulatory floodway and 100-year floodplains within the Study Area, primarily along riparian corridors of Big Walnut Creek, Blacklick Creek, and Mason Run. The USFWS National Wetland Inventory ("NWI") also identifies several palustrine emergent ("PEM"), palustrine forested ("PFO"), palustrine scrub-shrub ("PSS"), and palustrine unconsolidated bottom ("PUB") wetlands throughout the Study Area, primarily along riparian corridors or floodplains of Big Walnut Creek, Blacklick Creek, and Mason Run. No designated waters for special protection are located within the Study Area.

In addition to a desktop review of available wetland and water databases, a Wetland and Waters Delineation of an approximately 362-acre Environmental Survey Corridor ("ESC") of the Route Alternatives occurred in June and July 2021[5]. During the pedestrian surveys, ecologists verified the locations and lengths of Big Walnut Creek, Blacklick Creek, and Mason Run within the ESC, and delineated 5 additional streams within the ESC. The Wetland and Waters Delineation pedestrian surveys also identified 8 PEM wetlands, two PSS wetlands, three PFO wetlands, two PEM/PFO wetland complexes, one PEM/PSS wetland complex, one PEM/PUB wetland complex, and 17 ponds within the Project's ESC. The locations of these field verified wetlands and waters were utilized for analyzing streams and waterbodies crossed by the proposed centerline and wetlands in the proposed ROW (see **Table 1**).

Transmission line construction activities, such as vegetation clearing, access road construction, grading, and foundation construction, can affect soil and water resources by disturbing the native structure of the soil, and thereby creating areas of higher erosion potential, compaction, and lower soil permeability/fertility, and by delivering eroded soil to nearby streams through sedimentation. Therefore, flat terrain is preferred to mitigate erosion potential, and the Routing Study considers prime farmland soils[6] and slopes as factors when comparing routes.

Wetland disturbance can be minimized by avoiding wooded wetlands and avoiding or spanning PEM and PSS designated wetlands. Spanning PFO wetlands does not avoid impacts as the trees must be removed within new uncleared ROW, changing the wetland status. AEP Ohio Transco will obtain all necessary permits and employ specified best management practices ("BMPs") to minimize potential impacts on jurisdictional wetlands, as well as soil erosion and sedimentation during construction activities. Areas cleared within the ROW will be re-vegetated with compatible

[5] Additional delineated resources were previously identified in the Project Area in January and February 2020, for areas that coincide with the Shannon – Astor, Refugee – Groves Road, and Bixby – Shannon portions of the overall Southeast Columbus Area Improvements Project.

[6] Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops.

species and maintained in accordance with AEP's Vegetation Management Plan. Constructability and geotechnical issues are discussed in **Section 4.3**. In general, flat terrain away from rivers, streams, and waterbodies with good access and minimal hydric soil is desired.

PFO wetlands are an important constraint for overhead transmission siting, as they are typically the only wetland type that is permanently altered by ROW clearing. PFO wetlands within the ROW are permanently cleared of trees, changing PFO to PEM or PSS, and would likely require permitting from the USACE and OEPA. A goal during siting is to minimize the need for wetland permitting through reducing wetland acreage impact and minimize impacts to forested (or wooded/PFO) wetlands. AEP Ohio Transco often uses synthetic or wood matting for temporary access across such areas, requiring a pre-construction notification ("PCN") with the USACE for the temporary impact to wetlands. AEP Ohio Transco will minimize in-stream and wetland impacts, regardless of the route selected, by spanning or avoiding them to the best extent practical. Wetland, riparian, and flood hazard mitigation for permanent impacts to regulated areas are required, regardless of the route selected.

Route Alternative Comparison

Route Alternatives were compared in terms of number of delineated stream crossings, number of field delineated waterbodies crossed, acres of field delineated PEM, PSS, or PFO wetlands within the ROW, acres of FEMA-designated floodway or 100-year floodplains within the ROW, and acres of prime farmland within the ROW. A field wetland delineation was conducted for the route alternatives to account for any un-inventoried wetlands and/or streams, in addition to confirming the actual acreage of any wetlands and/or streams within the Project's ESC.

As shown in **Table 1**, Route Alternative B would require fewer delineated stream crossings (4), compared to Route Alternative A (7 total). Of the 7 stream crossings by Alternative Route A, one is located within the existing Refugee – Groves Road 138 kV Transmission Line ROW and two others are located within the existing Shannon – Astor 138 kV ROW, which are already within maintained ROW.

Route Alternative B parallels existing road for over half of its alignment (2.7 miles), where existing culverts and bridges were observed during field surveys. Route Alternatives A and B cross a similar amount of PFO wetlands in the ROW (0.3 and 0.2 acres, respectively); however, Route Alternative B contains more PEM wetlands (0.8 acres) in the ROW.

Route Alternative A contains less 100-year floodplain in the ROW (4.8 acres) and Route Alternative B contains 7.6 acres. By contrast, Route Alternative A contains more FEMA-designated floodway in the ROW (4.9 acres to 4.0 acres). Route Alternative A contains more prime farmland soils (41.8 acres); however, the majority of these soils are already either located

within commercial/industrial properties and/or within the existing Shannon – Astor 138 kV Transmission Line ROW.

Preliminary engineering plans for the Project estimates that Route Alternative B will require installing nine structures within FEMA-designated floodway areas and 19 structures within FEMA-designated 100-year floodplain. Route Alternative A will require the installation of 11 structures within FEMA-designated floodway areas and 13 structures within FEMA-designated 100-year floodplain; of these combined 24 structures, nine will be replaced in locations already disturbed by existing Shannon – Astor 138 kV Transmission Line structures. Therefore, Route Alternative A proposes less impact to FEMA-designated areas when compared with Route Alternative B.

Route Alternative B fares slightly more favorably for soil and hydrological criteria, as the proposed centerline crosses fewer streams and the ROW crosses a lesser amount prime farmland soils, PFO wetlands, and FEMA regulatory floodway.

5.1.2 Wildlife Habitat and Sensitive Species

Resource Characteristics

The potential for disturbance to vegetation and wildlife habitats can be generally assessed by comparing tree clearing along each Route Alternative. Other than in areas requiring tree clearing, permanent vegetation loss is limited to the transmission structure footprint, and construction of the Project would result in minimal permanent habitat changes. No karst features, sinkholes, or caves are documented within the Study Area. Contiguous areas of forest cover are generally limited to the riparian corridors of Big Walnut Creek, Blacklick Creek, and Mason Run. Small patches of urban forest are scattered throughout the Study Area, primarily along local roads and in residential areas. Agricultural land is generally confined to the southeastern portion of the Study Area.

Agency coordination was initiated with the Ohio Department of Natural Resources (ODNR) and USFWS in August 2021 to inform them of the Project and request data to assist route planning. Responses were received by ODNR and USFWS on September 13, 2021 and August 27, 2021, respectively. Copies of agency correspondence letters for the Study Area are included in **Attachment C**, in addition to the Project's threatened and endangered species field survey results. The ODNR Environmental Review response included comments and recommendations from the Division of Wildlife ("DOW") and results of an Ohio Natural Heritage Database ("ONHD") search. The ONHD identified four managed areas within a one-mile radius of the Project: Pickerington Ponds Metro Park, Three Creeks Metro Park, Big Walnut Greenway, and Blacklick Creek Greenway Trail – Columbus and Franklin County Metro Parks. USFWS indicated that there are no federal wildlife refuges, wilderness areas, or critical habitat within the vicinity of the Project.

Freshwater Mussel Species

The ODNR response was typical in its recommendation of implementing seasonal tree cutting; avoidance or minimize impacts to streams, wetlands, and other water resources to the fullest extent possible; and that best management practices be used to minimize erosion and sedimentation. The ONHD identified records of identified two state-listed mussel species: the state species of concern elktoe (*Alasmidonta marginata*) and the state species of concern wavy-rayed lampmussel (*Lampsilis fasciola*), in addition to the state threatened Tippecanoe darter (*Etheostoma tippecanoe*) fish within a 1-mile radius of the Study Area.

The DOW further identified that the Study Area is within the ranges of 15 additional state or federally listed freshwater mussels: the federally endangered purple cat's paw (*Epioblasma o. obliquata*), the federally endangered clubshell (*Pleurobema clava*), the federally endangered northern riffleshell (*Epioblasma torulosa rangiana*), the federally endangered rayed bean (*Villosa fabalis*), the federally endangered snuffbox (*Epioblasma triquetra*), the federally threatened rabbitsfoot (*Quadrula c. cylindrica*), the state endangered elephant-ear (*Elliptio c. crassidens*), the state endangered long solid (*Fusconaia maculate maculate*), the state endangered Ohio pigtoe (*Pleurobema cordatum*), the state endangered pocketbook (*Lampsilis ovata*), the state endangered washboard (*Megalonaias nervosa*), the state threatened black sandshell (*Ligumia recta*), the state threatened fawnsfoot (*Truncilla donaciformis*), the state threatened pondhorn (*Uniomerus tetralasmus*), and the threehorn wartyback (*Obliquaria reflexa*).

Ohio Mussel Survey Protocol Group 2, 3, and 4 streams will require a mussel survey. Group 1 streams and unlisted streams with a watershed greater than five square miles (mi^2) (e.g., Big Walnut Creek, Blacklick Creek) should be assessed using a reconnaissance survey to determine the presence of freshwater mussels. Further mussel surveys may be recommended for Group 1 streams following completion of a reconnaissance effort. Requirements of freshwater mussel reconnaissance and survey efforts are explained in the Ohio Mussel Survey Protocol. If in-water work is planned in any stream with a watershed greater than 5 mi^2 at the point of impact, DOW recommends that information indicating that mussel impacts will not occur be provided. If this is not possible, the DOW recommends that a professional malacologist conduct survey and relocation efforts in accordance with the Ohio Mussel Survey Protocol. No in-water work is anticipated for the Project; therefore, no adverse impacts to protected mussel species is anticipated.

Freshwater Fish Species

The DOW indicated that the Study Area is within the ranges of 11 state or federally listed freshwater fish species: the federally endangered Scioto madtom (*Noturus trautmani*), the state threatened goldeye (*Hiodon alosoides*), the state threatened Iowa darter (*Etheostoma exile*), the

state threatened popeye shiner (*Notropis ariommus*), the state endangered northern brook lamprey (*Ichthyomyzon fossor*), the state endangered spotted darter (*Etheostoma maculatum*), the state endangered shortnose gar (*Lepisosteus platostomus*), the state endangered tonguetied minnow (*Exoglossum laurae*), the state threatened lake chubsucker (*Erimyzon sucetta*), the state threatened paddlefish (*Polyodon spathula*), and the state threatened Tippecanoe darter. The DOW recommends in-water work restriction dates from April 15 to June 30 in perennial streams to avoid adverse impacts to these species. During the previous waters and wetland delineation for the Project, eight perennial streams were identified within the ESC, including Big Walnut Creek, Blacklick Creek, and Mason Run. If no in-water work is proposed in a perennial stream, the Project is not likely to affect these fish or other aquatic species.

Bird Species

The DOW also indicated that the Study Area is located within ranges of 8 state listed bird species: the state endangered American bittern (*Botaurus lentiginosus*), the s the state endangered cattle egret (*Bubulcus ibis*), the state threatened black-crowned nigh-heron (*Nycticorax nycticorax*), the state threatened least bittern (*Ixobrychus exilis*), the state endangered northern harrier (*Circus cyaneus*), the state endangered lark sparrow (*Chondestes grammacus*), and the state threatened sandhill crane (*Grus canadensis*). Results of the threatened and endangered species portion of the Environmental Survey Report indicate that no suitable habitat for these bird species were identified within the ESC; therefore, no adverse impacts to the state or federally listed bird species or their habitat are anticipated as a result of the Project.

Bat Species

As anticipated, the DOW indicated that the entire state of Ohio is within the range of the Indiana bat, northern long-eared bat, little brown bat, and tricolored bat. Between April 1 and September 30, these species predominantly roost in trees behind loose, exfoliating bark, in crevices and cavities, or in leaves; however, the DOW advised that these species are also dependent on the forest structure surrounding roost trees. Therefore, the DOW recommends that any tree cutting activity occurs only between October 1 through March 31, conserving suitable roost trees as well as trees greater than 20 inches dbh whenever possible.

Similarly, USFWS identified the Indiana bat and northern long-eared bat in their response. USFWS also recommends seasonal tree clearing for the Project. Both agencies require presence/absence surveys if suitable habitat is present and seasonal tree clearing cannot be implemented. In addition to seasonal tree cutting recommendations, the DOW also recommended that a desktop assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the Project area. As part of the Project's threatened and

endangered species survey, ecologists performed a desktop review to address this recommendation. The desktop review did not identify any potential hibernacula for the Project.

The potential for disturbance to vegetation and wildlife habitats can be generally assessed by comparing each Route Alternative with respect to the anticipated acreage of tree clearing. As previously mentioned, other than in areas requiring tree clearing, permanent vegetation loss is limited to the transmission structure footprint, and construction of the Project would result in minimal permanent changes to habitat. Where required by the USFWS and/or ODNR, AEP Ohio Transco will complete species-specific field surveys and submit a survey report to the USFWS and/or ODNR. To minimize potential construction-related effects on federal and state listed plant and wildlife species, AEP Ohio Transco would adhere to permit conditions imposing seasonal work restrictions based on sensitive life stages.

Route Alternative Comparison

Although both alternatives use existing ROW for most of their alignment, Route Alternative A would require more tree clearing (11.2 acres), which is predominantly located along the northside of the railroad corridor. Consequently, Route A has the greatest potential to impact state and/or federally protected bat habitat due to the additional tree clearing. As shown below in **Table 1**, Route Alternative B would require less amount of tree clearing (2.8 acres); therefore, Route Alternative B has less potential to impact state and/or federally protected bat species habitat; however, for either route alternative trees will be cut between October 1 through March 31 to minimize impacts. Additionally, as previously mentioned above, no potential hibernacula were identified for the Project as part of a desktop review.

Neither of the route alternatives cross any other known federal wilderness area, wildlife refuge, or critical habitat area designated by the USFWS.

Table 1. Natural Resource Evaluation Criteria

Route Alternative	Unit	A	B
General			
Length	miles	6.6	5.2
Total 60-foot ROW	acres	48.3	37.5
Greenfield ROW	acres	27.3	21.3
Water Resources			
Field Delineated Streams Crossed by Centerline	count	7	4
Field Delineated Waterbodies Crossed by Centerline	count	1	1
Field Delineated PEM Wetlands in the ROW	acres	0.3	0.8
Field Delineated PFO Wetlands in the ROW	acres	0.3	0.2
Field Delineated PSS Wetlands in the ROW	acres	0	0.02
FEMA-designated Floodway Crossed by ROW	acres	4.9	4.0

Table 1. Natural Resource Evaluation Criteria			
Route Alternative	**Unit**	**A**	**B**
FEMA-designated 100-year Floodplain Crossed by ROW	acres	4.8	7.7
Geological, Topographical, and Soil Resources			
Not Prime Farmland in the ROW[7]	acres	12.2	15.7
All Areas Are Prime Farmland in the ROW	acres	5.6	4.5
Prime Farmland Under Specific Conditions in the ROW	acres	30.5	17.3
Wildlife and Habitat			
Tree clearing required in the ROW (based on field survey observation)	acres	11.2	2.8
Pasture/rangeland crossed within 1,000 feet (based on NLCD data)	percent	2.5	1.3

5.2 Human Environment

Land use considerations may include direct and indirect effects on residential, commercial, and industrial development, institutional uses (e.g., schools, places of worship, cemeteries, and hospitals), cultural resources, and land use. Construction of a new transmission line can result in changes in land use and aesthetic impacts to residents, commuters and travelers, employees, and recreational users. A comparison of the land use considerations for the Route Alternatives is presented at the end of this section in **Table 2.** Land use within the Study Area is shown on **Map 6.**

5.2.1 Existing and Proposed Developed Land Use

The human environment impacts may include direct and indirect impacts to residential, commercial, and industrial development, institutional uses (e.g., schools, places of worship, cemeteries, and hospitals), cultural resources, and land use. A RSS goal is to avoid or minimize conflicts with existing and proposed land uses that are not compatible with a new transmission line. A comparison of the human environment considerations for the Route Alternatives is presented at the end of this section in **Table 2.** Land use within the Study Area is shown on **Map 6, Attachment A.**

Resource Characteristics

The Study Area is located within Madison and Truro townships, Franklin County, Ohio. The Study Area contains the Census Designated Place ("CDP") of Blacklick Estates as well as portions of the Village of Brice and City of Columbus. As shown on **Map 6, Attachment A**, much of the Project Area is developed, ranging from open space/low to high intensity. Subdivided residential neighborhoods, such as Blacklick Estates, Crosscreek Village, Edgewater Park, Independence

[7] Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops.

Village, Shannon Green, Three Rivers, Walnut Heights, and Winchester, are generally concentrated southeast of I-270 and mixed-use commercial/industrial land use areas are generally concentrated to the north, adjacent to the southwest and southeast of the I-70/I-270 interchange. Additional commercial and industrial properties occur but at a lower density in the southwestern portion of the Study Area along OH-317 and Winchester Pike (CR 376). Agricultural land is generally confined to the southeastern portion of the Project area near the Shannon Station; however, recent residential development is visible within these areas on recent and current aerial imagery and site reconnaissance.

13 schools or academies are located within the Study Area:

- A+ Arts Academy [formerly known as ("FKA") Maybury Elementary School] – addressed 2633 Maybury Road, located approximately 0.5-mile northeast of Noe Bixby Road (CR 371) and Old Refugee Road (CR 14).
- Ashbury Elementary School – addressed 5127 Harbor Boulevard, distanced approximately 0.9-mile northwest of OH-317 and Winchester Pike (CR 376).
- Columbus Arts and Technology Academy – addressed 2255 Kimberly Parkway East, distanced approximately 0.3 mile southwest of Groves Road (CR 510) and South Hamilton Road (OH-317).
- Dunloe Elementary School – addressed 3200 Dunloe Road, distanced approximately 0.4 mile southeast of Refugee Road (CR 14) and Noe Bixby Road (CR 371).
- Eastland Performance Academy – addressed 2220 South Hamilton Road (OH-317), located adjacent southeast of OH-317 and Groves Road (CR 510).
- First Class Driving Academy – addressed 3456 South Hamilton Road (OH-317), distanced approximately 0.3 mile north of Winchester Pike (CR 376) and OH-317.
- Groveport-Madison Middle School – addressed 5474 Sedalia Drive, distanced approximately 0.8 mile southwest of Chatterton Road (CR 340) and Noe Bixby Road (CR 371).
- Independence High School – addressed 5175 Refugee Road, distanced approximately 0.6-mile northeast of Chatterton Road (CR 340) and Noe Bixby Road (CR 371).
- Liberty Elementary School – addressed 2901 Whitlow Road, located adjacent southeast of Independence High School.
- Little Scholars Club Early Childhood Development Center (FKA Lindora Children's Academy) – addressed 5000 Lindora Road, distanced approximately 0.4-mile northeast of Noe Bixby Road (CR 371) and Old Refugee Road (CR 14).
- Madison Elementary School – addressed 4600 Madison School Drive, located approximately 0.6 mile southeast of South Hamilton Road (OH-317) and Refugee Road (CR 14).

- Sedalia Elementary School – addressed 5400 Sedalia Drive, located adjacent west of Groveport-Madison Middle School.
- Zenith Academy East – addressed 2261 South Hamilton Road (OH-317).

Two cemeteries and 11 places of worship are within the Study Area:

- Asbury South United Methodist Church – addressed 4760 Winchester Pike (CR 376).
- Asbury Methodist Episcopal Cemetery is located adjacent south across Winchester Pike.
- Brice United Methodist Church – addressed 3160 Brice Road (CR 117), distanced approximately 0.1-mile northeast of Chatterton Road (CR 340).
- Ebenezer Baptist Church – addressed 4500 Refugee Road, distanced approximately 0.3-mile northwest of the intersection of Refugee Road (CR 14) and South Hamilton Road (OH-317).
- Faithway Baptist Church – addressed 3001 Brice Road (CR 117), located adjacent southwest of the intersection of Brice Road and Old Refugee Road (CR 14).
- Fellowship Baptist Church – addressed 4701 Winchester Pike, located adjacent west of Asbury Methodist Episcopal Cemetery.
- Gethsemane United Methodist Church – addressed 5081 Carbondale Road, distanced approximately 0.5-mile northeast of Noe Bixby Road (CR 371) and Old Refugee Road (CR 14).
- Iglesia tabernáculo de fuego (Church) – addressed 2234 South Hamilton Road (OH-317), distanced approximately 0.1-mile southeast of the intersection of OH-317 and Groves Road (CR 510).
- Meeting Point Ministries Church – addressed 2866 Noe Bixby Road (CR 371), distanced approximately 0.2-mile north of the intersection of Noe Bixby Road and Old Refugee Road (CR 14).
- New Faith Church – addressed 2879 Brice Road (CR 117), distanced approximately 0.1-mile north of the intersection of Brice Road and Old Refugee Road (CR 14).
- Our Lady of the Miraculous Medal Church – addressed 5225 Refugee Road (CR 14), located adjacent east of Independence High School.
- Truro Cemetery is located approximately 320 feet southeast of the intersection of Noe Bixby Road (CR 371) and Refugee Road (CR 14).
- Watpa Thavone Dhammaram (Buddhist Temple) – addressed 5810 Shannon Road (CR 118), distanced approximately 0.1-mile north of the Shannon Station.

Open space, recreational parks, and easements are common throughout the Project area, especially along riparian corridors and floodplains of Big Walnut Creek, Blacklick Creek, and Mason Run (see **Attachment A, Map 1**). As previously described above in **Section 3.2**, 12 City of

Columbus parks and three park easements are located along the Big Walnut Creek corridor in the western portion of the Study Area; five parks and two park easements are present along the Blacklick Creek corridor in the eastern portion of the Study Area; as well as one park and one park easement along the Mason Run corridor in the southwestern portion of the Study Area. The Blacklick Creek Trail also traverses the southeastern portion of the Study Area, providing walking and biking paths adjacent to Blacklick Creek. Three additional locally or privately owned parks identified within the northern portion of the Study Area.

An active Norfolk Southern railroad runs along the northern boundary of the Study Area, which has smaller spurs splitting off to industrial properties north and east of the Groves Road Station. No inactive railroads, active or abandoned quarries, or active or abandoned mines are within the Study Area. Two FCC towers are within the northeastern portion of the Study Area (Eastland), which are generally located between Groves Road and I-70. One additional FCC tower was identified in the southwestern portion of the Study Area, along the eastside of OH-317 and approximately 0.5 mile south of Refugee Road (CR 14). One private helipad is within one mile of Route Alternative A, distanced approximately 0.16-mile northwest of Brice Road (CR 117) and I-70. No pipelines were identified on the National Pipeline Mapping System (NPMS); however, during the public communications and open house period (see **Section 3.6.1**), landowners confirmed the presence of a high-pressure gas line along the southside of Winchester Pike (CR 376). No active or abandoned oil/gas wells were identified within the Study Area.

Route Alternative Comparison

Land uses along the routes were identified based on a desktop review of aerial imagery and USFWS National Land Cover Database ("NLCD") coverage, in addition to field site reconnaissance. Route Alternative A is primarily composed of mixed-use commercial/industrial land uses from Groves Road Station to the Shannon – Astor 138 kV transmission line. Residential, recreational, or agricultural land uses dominate the rebuild area along the existing Shannon – Astor 138 kV transmission line. Route Alternative B is primarily located near residential, recreational, and forested land use areas where it is parallel to the existing Bixby – Groves Road 138 kV transmission line. The remainder of Route Alternative B primarily parallels Winchester Pike (CR 376) or Shannon Road (CR 118) and thus is primarily composed of residential and mixed-use commercial/industrial land uses, with smaller amounts of agricultural or recreational land uses.

The Siting Team previously noted that Route Alternative A is in proximity to denser populated areas when compared to Route Alternative B. As shown in **Table 2**, Route Alternative A subsequently crosses more parcels (123) and more landowners (86), while Route Alternative B crosses almost half as many (54 and 40, respectively). It is worthy to note, however, that 87 of the 123 parcels and 64 of the 86 landowners are currently crossed by the Shannon – Astor 138 kV Transmission Line ROW. Route Alternative A also contains more single-family and multi-family

dwellings within 100 feet and more single-family dwellings within 250 feet of the centerline compared to Route Alternative B. Route Alternative A also contains two outbuildings and a walk up restaurant within the 60-foot ROW, while Route Alternative B contains none. Neither route contains any single-family or multi-family dwellings within the 60-foot ROW.

Overall, Route Alternative A is longer and generally in closer proximity to developed land uses compared to Route Alternative B; however, it is within an existing, maintained 138 kV ROW for almost half its length. Route Alternative B is within an existing, unmaintained 138 kV ROW for less than half of its length. Neither alternative cross any protected land identified in PADUS. The land use impacts of both routes are generally mitigated by paralleling and rebuilding existing infrastructure for the majority of their alignments.

Table 2. Land Use Evaluation Criteria

Route Alternative	Unit	A	B
General			
Length	miles	6.6	5.2
Number of parcels[8] crossed by ROW	count	123	54
Landowners crossed by ROW	count	86	40
Residential			
Barns, Outbuildings, Sheds, Garages and silos in the ROW (excludes abandoned features)	count	2	0
Single-Family Dwellings within 100 feet of the Centerline	count	18	0
Multi-Family Dwellings within 100 feet of the Centerline	count	10	0
Single-Family Dwellings within 250 feet of the Centerline	count	236	132
Multi-Family Dwellings within 250 feet of the Centerline	count	31	43
Commercial/Industrial			
Commercial/Industrial Buildings within the ROW	count	1	0
Commercial/Industrial Buildings within 250 feet of the Centerline	count	50	18
Railroads Paralleled	miles	2.3	0
Community/Recreational Facilities			
Schools within 500 feet of the Centerline	count	1	0
Places of Worship within 500 feet of the Centerline	count	5	3
Cemeteries within 500 feet of the Centerline	count	0	1
City of Columbus Park Easements within the ROW	acres	0	0.03
City of Columbus Park Properties within the ROW	acres	1.1	0

[8] The number of parcels crossed refers to the number of individual plots of owned land recorded by each County. The number of landowners within the ROW represent the number of individual landowners, who each may own one or more parcels.

Table 2. Land Use Evaluation Criteria			
Route Alternative	**Unit**	**A**	**B**
City of Columbus Parks within 500 feet of the Centerline	count	5	6
Protected Land			
No protected lands crossed by the ROW			
Agriculture and Forestry			
Pasture/rangeland and cropland in the ROW (based on NLCD data)	acres	7.9	3.6
Forested land cover in the ROW (based on field survey observation)	acres	11.2	2.8
Cultural Resources			
NRHP-eligible architectural sites within 0.25 mile of the centerline	count	0	1
Known architectural sites within 0.25 mile of centerline*	count	14	7
NRHP-eligible architectural sites within one mile of the centerline	count	0	1
Known architectural sites within one mile of centerline*	count	38	27
Known archaeological sites within the ROW*	count	0	3
Known archaeological sites within 0.25 mile of the centerline*	count	4	36

*known architectural and archaeological sites do not have a designated status and therefore could not be dismissed at this time, as potentially NRHP-eligible.

5.2.2 Agricultural and Forestry Resources

Resource Characteristics

Agricultural land use is generally limited to the southeastern portion of the Study Area (**Map 6, Attachment A**). During construction there are potential impacts, but these are considered temporary, and agricultural production can continue after the new 138 kV transmission line is made operational. Impacts to agricultural land use can be ranked by general degree of potential impact, with less potential impact occurring in areas where cultivation is not the primary use (pastureland/grassland), followed by cultivated croplands, which have a higher degree of potential impact. Contiguous areas of forested cover are generally limited to the riparian corridors of Big Walnut Creek, Blacklick Creek, and Mason Run. Urban forestry is scattered throughout the Study Area in smaller amounts, primarily located along local roads and within subdivided residential areas. According to publicly accessible data, none of the forested areas consists of federal or state forested lands, as most appear to be reserved for either recreational areas or screening between agricultural fields and residential neighborhoods.

Route Alternative Comparison

As shown above in **Table 2**, Route Alternative A crosses approximately 3.5 acres more agricultural land than Route Alternative B; however, the majority of these areas (concentrated north, east, and south of Shannon Station) are already impacted by the existing Shannon – Astor 138 kV Transmission Line ROW (see **Map 6, Attachment A**). Therefore, Route Alternative B proposes more new permanent impacts to agricultural properties. The route alternatives do not cross areas designated as agricultural easements or security areas based on the National Conservation Easement Database (NCED). Minimal vegetation clearing is required in agricultural areas and permanent impacts would be limited to the foundations of the structures and areas requiring permanent access roads. Access to these agricultural areas is adequate, as farm tracks and adjacent local roads are present. Furthermore, the terrain is flat, reducing complications related to construction on steep slopes. Design and engineering efforts will be made to reduce impacts to the agricultural fields by reducing the number of heavy angled structures, increasing span distances, and placing fewer structures in farm fields.

Neither of the route alternatives require crossing large areas of forested cover, given the dominant residential and mixed-use commercial/industrial land uses of the Study Area. As shown above in **Table 1**, Route Alternative A would require more tree clearing (11.2 acres), largely due to the northside of the railroad corridor. Route Alternative B significantly reduces impacts to forestry resources within the Study Area as it requires 2.8 acres of ROW tree clearing. Neither route alternative proposes new impacts to forestry resources within parks or easements designated by the City of Columbus or PADUS. Approximately 1.1 acres of Route Alternative A crosses the City of Columbus Chatterton Parkland; however, this area is already periodically maintained within the existing Shannon – Astor 138 kV Transmission Line ROW. If tree clearing would be required for the selected route, the cleared area would be maintained in accordance with AEP's Vegetation Management Program.

5.2.3 Aesthetic Impacts to Recreation and Conservation Lands

Resource Characteristics

As previously discussed throughout this report, recreational parks and conservation land are a dominant land use within the Study Area and are generally located either along riparian corridors and/or near subdivided residential neighborhoods (see **Attachment A, Map 5**). The City of Columbus Williams Park and Mason Run Parkland conservation easement are located within the southwestern portion of the Study Area, along Mason Run.

The following recreational or conservation areas or easements are located within the central portion of the Study Area along the Big Walnut Creek riparian corridor, listed from north to south:

- Sol Shenk Parkland – a City of Columbus conservation park
- Winding Creek – a City of Columbus conservation easement
- Deer Lake Parkland – a City of Columbus conservation park
- Catalpa Park – a City of Columbus park
- Nafzger Park – a City of Columbus park, also identified as a private-owned scenic area (PADUS)
- Noe Bixby Park – a locally owned park (PADUS)
- Amberfield Parkland – a City of Columbus conservation park
- Refugee Preservation Area – a City of Columbus conservation easement
- Refugee Preserve – a City of Columbus conservation park
- Big Walnut Creek Corridor – a City of Columbus conservation park
- Deems Parkland – a City of Columbus conservation park
- Helsel Park – a City of Columbus par, also identified as a locally owned scenic area (PADUS)
- Big Walnut-Edgewater Parkland – a City of Columbus conservation park

The following recreational or conservation areas or easements are located within the southeastern portion of the Study Area along the Blacklick Creek riparian corridor, listed from northeast to southwest:

- Shelbourne Parkland – a City of Columbus conservation park area, also identified as a locally owned park (PADUS)
- Chatterton Brice Parkland – a City of Columbus park
- Chatterton Parkland – a City of Columbus park
- Shannon Parkland – a City of Columbus conservation park
- Shannon Road – a City of Columbus park access easement
- M-Five Parkland – a City of Columbus conservation park and easement

In addition to the above-listed recreational areas, the City of Columbus and PADUS also identify Maybury Park and Walnut View Park within the Walnut Heights neighborhood of the northern portion of the Study Area.

Construction of transmission lines can have impacts on access to recreational areas by temporarily: (1) blocking access roads, trails, or other facility entrances; (2) closing roads during specific construction activities; (3) disrupting traffic; and (4) creating detours, possibly making access more difficult. The proposed transmission line will be supported on new, steel monopole structures with an average height of 90 feet above ground level. The topography within the Study Area is characterized as flat terrain. Existing topography and the relative location of a transmission line can affect the scenic integrity of the Project area. Scenic integrity refers to the

degree of intactness and wholeness of the landscape character. Routes that use or parallel existing transmission lines would generally result in fewer land use or aesthetic impacts than those that parallel roads, railroads, or require greenfield ROW.

Route Alternative Comparison

As shown above in **Table 2**, Route Alternative B has one more City of Columbus parks or easements within 500 feet of the proposed centerline (6) compared to Route Alternative A. Route Alternative B crosses within 30 feet of the southern-most portion of the existing City of Columbus' Shannon Road park easement, where the route is parallel to Shannon Road (CR 118) west of the existing Shannon Station. Route Alternative A proposes rebuilding approximately 3.1 miles of the Shannon – Astor 138 kV transmission line in maintained, existing ROW, of which approximately 0.2-mile (or 1.1 acres) crosses the City of Columbus Chatterton Parkland. Neither route crosses any protected land identified in PADUS. Route Alternative A is anticipated to result in fewer aesthetic impacts to recreational and conservation lands because it uses a maintained existing 138 kV transmission ROW and has less recreational and conservation areas within 500 feet of the proposed alignment.

Constructing greenfield transmission line adjacent to residences or commercial/industrial dwellings that do not currently have a view of an electrical line will result in new aesthetic impacts. Route Alternative A proposes approximately 3.1 miles of transmission line within existing 138 kV ROW and approximately 3.4 miles of greenfield transmission line, which parallels existing transportation ROW or parcel boundaries to the highest extent practicable. Route Alternative B proposes approximately 1.9 miles of transmission line within existing unmaintained ROW and 2.9 miles of greenfield transmission line, which parallels roads to the highest extent practicable.

Although Route Alternative A contains more single-family and multi-family dwellings within 100 feet of the proposed centerline and more commercial/industrial buildings and single-family dwellings within 250 feet of the proposed centerline, many of these properties already have a view of the existing Refugee – Groves Road or Shannon – Astor 138 kV transmission line. No homes are located within the proposed 60-foot ROW for either Route Alternative. The length of rebuild within existing maintained 138 kV ROW proposed for Route Alternative A is approximately 1.2 miles more than the 1.9 miles of transmission line parallel to existing 138 kV within existing unmaintained ROW proposed for Route Alternative B. The new structures needed for the rebuilt 138 kV transmission line will look different than the existing structures, as they would be double circuit, where they are now single circuit. It is important to note that if Route Alternative B was selected the Shannon-Astor 138 kV transmission would still need to be rebuilt as single-circuit line. Additionally, the existing railroad bed is raised and the southside of its corridor is primarily forested, reducing viewshed impacts to many of the residential and

commercial buildings within 100 and 250 feet of Route Alternative A. Therefore, Route Alternative B has the potential for more aesthetic changes to adjacent developed land use areas when compared to Route Alternative A.

5.2.4 Historic and Archaeological Resources

Resource Characteristics

Cultural resources generally refer to historic and prehistoric archaeological resources and historic architectural resources. Known architectural resources (i.e., historic buildings, structures, districts, and roads) in the vicinity of the Route Alternatives are shown on **Map 7**. Known archaeological resources are not shown on the figures in this study to protect any such sites.

Potential effects on historic properties would likely be primarily visual resulting from the construction of new structures and transmission line. The visual landscape change would vary based on local topography, height of existing vegetation, current infrastructure, and any intervening recent development. Physical impacts to historic architectural properties are not anticipated.

Initial analysis of the Project's potential to affect cultural resources involved a review of data provided by Ohio State Historic Preservation Office. There are 20 known architectural resources within the Study Area, one of which is eligible for the National Register of Historic Places (NRHP). Two cemeteries are present within the Study Area according to Ohio State Historic Preservation Office data; the Asbury Cemetery is identified as a historic cemetery.

Buried archaeological resources can generally be avoided as the poles can be sited to avoid specific sites and the impact footprint is small. Further, matting can be used during construction to protect any underground resources. Above-ground archaeological sites can also be avoided where possible. Where practical, archeological resources identified in the transmission line corridor, in the direct path of any needed access roads, or at the locations of proposed work areas will be avoided by spanning the resource or, if necessary, by shifting tower positions, re-routing roads, and reconfiguring or relocating work areas. Cultural resource surveys will be completed to identify and mitigate any resources found.

Route Alternative Comparison

No architectural sites are located within the ROW of the route alternatives. As shown above in **Table 2**, Route Alternative A does not contain any NRHP-eligible architectural sites within a one-mile buffer area of the proposed alignment; however, Route Alternative A contains more known architectural sites within 0.25 mile (14) and one mile of the proposed alignment (38). Route Alternative B contains one NRHP-eligible architectural site within 0.25 mile of its proposed

alignment. The Graham House, addressed 4680 Winchester Pike, is approximately 60 feet northeast of Route Alternative B (**Attachment A, Map 7**). Route Alternative B contains less architectural resources within 0.25 mile (7) and one mile of the proposed alignment (27).

As summarized above in **Table 2**, Route Alternative B contains more archaeological resources within 30 feet (3) and 0.25 mile of its proposed alignment (36). A total of 38 known archaeological resources were identified within 0.25 mile of the route alternatives, which are identified below in **Table 3**, with their distances listed in measurements of linear feet. Route Alternative A appears to present the more favorable option regarding cultural resources, as there are no nearby eligible architectural sites and no known archaeological resources crossed by the ROW. However, archaeological data should be treated with caution, as resources are only identified where they have been actual studies. Lack of recorded sites does not necessarily mean none are present. None of the identified archaeological resources have been determined to be NRHP-listed, eligible, or potentially eligible at this time. AEP Ohio Transco may conduct further evaluations for the Preferred Route to determine the eligibility and impacts to these resources.

Table 3. Archaeological Resources within 0.25 mile

Resource No.	Distance from Route A	Distance from Route B	NRHP Status
FR0128	> 0.25 mile	40 feet	Unknown
FR0129	> 0.25 mile	Crossed by Route	Unknown
FR0130	> 0.25 mile	300 feet	Unknown
FR0131	> 0.25 mile	150 feet	Unknown
FR0132	> 0.25 mile	380 feet	Unknown
FR0133	> 0.25 mile	170 feet	Unknown
FR0134	> 0.25 mile	Crossed by Route	Unknown
FR0135	> 0.25 mile	Crossed by Route	Unknown
FR0136	1,100 feet	150 feet	Unknown
FR0137	> 0.25 mile	750 feet	Unknown
FR0419	630 feet	> 0.25 mile	Unknown
FR0420	520 feet	> 0.25 mile	Unknown
FR1650	> 0.25 mile	1,280 feet	Unknown
FR1651	> 0.25 mile	1,150 feet	Unknown
FR1652	> 0.25 mile	1,040 feet	Unknown
FR1653	> 0.25 mile	960 feet	Unknown
FR1654	> 0.25 mile	850 feet	Unknown
FR1655	> 0.25 mile	870 feet	Unknown
FR1656	> 0.25 mile	720 feet	Unknown
FR1657	> 0.25 mile	650 feet	Unknown
FR1658	> 0.25 mile	810 feet	Unknown
FR1659	> 0.25 mile	600 feet	Unknown
FR1660	> 0.25 mile	570 feet	Unknown
FR1661	> 0.25 mile	520 feet	Unknown

Table 3. Archaeological Resources within 0.25 mile			
Resource No.	**Distance from Route A**	**Distance from Route B**	**NRHP Status**
FR1662	> 0.25 mile	450 feet	Unknown
FR1663	> 0.25 mile	550 feet	Unknown
FR2044	> 0.25 mile	210 feet	Unknown
FR2045	> 0.25 mile	350 feet	Unknown
FR2088	> 0.25 mile	890 feet	Unknown
FR2089	> 0.25 mile	380 feet	Unknown
FR2091	> 0.25 mile	720 feet	Unknown
FR2297	> 0.25 mile	860 feet	Unknown
FR2298	> 0.25 mile	760 feet	Unknown
FR2299	> 0.25 mile	630 feet	Unknown
FR2300	> 0.25 mile	270 feet	Unknown
FR2443	> 0.25 mile	530 feet	Unknown
FR2539	> 0.25 mile	220 feet	Unknown
FR2907	530 feet	530 feet	Unknown

5.2 Constructability

Potential engineering and construction challenges are important to consider when routing a transmission line. Major factors that affect constructability include, but are not limited to, condensed ROWs, sharp turn angles, existing infrastructure, distance, and safety. These are all elements that could require extensive or non-standard engineering and lead to increases in impacts and overall cost. A comparison of the engineering and construction considerations for the Route Alternatives is presented at the end of this section in **Table 4**.

5.2.1 Engineering

Land features and characteristics that require more complicated design or construction are considered engineering constraints. These include elements of the terrain (slope, valleys/waterbodies requiring long spans), nearby communication towers, access for construction and maintenance, route turns that require more robust angle structures, and crossing of non-compatible land uses, or those needing supplemental engineering design (e.g., crossing other high-voltage transmission lines). Engineering constraints often need to be considered from multiple perspectives, since some impacts may be offset by other benefits. For example, paralleling existing infrastructure and crossing over/under transmission lines, distribution lines, and pipelines can require specialized construction techniques and scheduled outages on the existing lines. At the same time, paralleling existing infrastructure like roads and transmission lines can also reduce access road construction needs and can reduce overall right of way acquisition.

Overall, AEP Ohio Transco attempted to minimize route length and ROW acquisition by paralleling existing 138 kV transmission line or rebuilding existing 138 kV transmission line, both within existing ROW. As previously described in **Section 3.2**, there are three existing AEP-owned 138 kV transmission lines traversing the Study Area: Astor – Shannon, Bixby – Groves Road, and Refugee – Groves Road, all of which presented suitable siting opportunities for the Project. Two additional AEP-owned 40 kV transmission line and one additional AEP-owned 138 kV transmission line cross the northwestern-most portion of the Study Area, connecting to Groves Road Station; however, these transmission lines were not identified as suitable siting opportunities for the Project due to their direction and location.

Approximately 3.2 miles of the Refugee – Groves Road 138 kV transmission line will be retired as a result of the Project, regardless of the selected route. Paralleling the existing Bixby – Groves Road 138 kV transmission line within existing ROW was identified as a routing opportunity, in addition to rebuilding portions of the existing Refugee – Groves Road and Shannon – Astor 138 kV transmission lines within existing ROW. Approximately 2.8 miles of double-circuit transmission line is anticipated for Route Alternative A and approximately 0.1 miles of double-circuit transmission line is anticipated for Route Alternative B. Regardless of the route chosen, the Project will require the outage of the Shannon – Astor 138 kV Transmission Line since both route alternatives propose some amount of double circuit rebuild of Shannon – Astor; however, the outage for Route Alternative A would be longer.

Major transport corridors in the area include I-270, which runs northeast to southeast through the western half of the study area, as well as OH-317, which travels north to south. Central portions of the Study Area are crossed by Noe Bixby Road (CR 371), which travels north to south, as well as Refugee Road (CR 14) and Chatterton Road (CR 340), which run east to west. Groves Road (CR 510) and an active Norfolk Southern-owned railroad both travel in a general east to west direction within the northern portion of the Study Area; Brice Road (CR 117) runs north to south within the eastern portion of the Study Area, and Winchester Pike (CR 376) and Shannon Road (CR 118) are within the southern portion of the Study Area, which both travel in a general east to west fashion. Additional smaller township or municipal roads are visible throughout residential and mixed-use commercial/industrial land use areas of the Study Area. The Siting Team noted several opportunities to parallel existing major and local transportation corridors, including Groves Road (CR 510), Cloverleaf Street, Refugee Road (CR 14), the Norfolk Southern railroad, Shannon Road (CR 118), and Winchester Pike (CR 376). The Siting Team also sought to minimize the number of highway or railroad crossings to the highest extent practicable.

Three existing communications towers are located within the western half of the Study Area: two are within the northwestern portion, within 0.75 mile northeast of the Groves Road Station, and one is within the southwestern portion, approximately 0.5-mile north of Winchester Pike (CR

376) and South Hamilton Road (OH-317). Based on their locations the communication towers did not affect the placement of route alternatives (see **Attachment A, Map 1**). According to landowner input (see **Section 3.6.**4), a high-pressure gas line runs along the southside of Winchester Pike (CR 376), which was considered during the development of Route Alternative B.

No terrain constraints or geological hazards were identified in the study area.

Route Alternative Comparison

Paralleling existing straight roads can provide opportunities to reduce the number of angled structures. However, in some cases, paralleling road can also conflict with existing aboveground and underground utilities, bridges, and building clearances. Furthermore, not all roads are straight, and following roads that change direction and frequent requirements to cross to the other side of the road to avoid structures significantly increase the number of more expensive angle structures and greater land use impacts.

As shown below in **Table 4**, Route Alternative B parallels existing local roads (Winchester Pike and Shannon Road) for a greater extent (2.7 miles) than Route Alternative A. During the public open house (see **Section 3.6.4**), landowners indicated that an underground high-pressure gas line is located adjacent south of Winchester Pike. Landowners along the northside of Winchester Pike between OH-317 and Noe Bixby Road (CR 371) also indicated that underground telecommunication lines were recently installed along the northside of Winchester Pike. These landowner-provided locations of underground utilities are likely to negatively affect the constructability of Route Alternative B.

Although railroads can present siting constraints for transmission line projects, such as additional permitting requirements, fees, or studies, the Siting Team considered paralleling the northside of the Norfolk Southern railroad as a siting opportunity to reduce potential aesthetic changes to nearby residences. Route Alternative A requires one railroad crossing at Cloverleaf Street to parallel the northside of the railroad for approximately 2.3 miles before requiring an additional railroad crossing at Brice Road to continue southward. Route Alternative B does not cross or parallel an existing railroad.

As shown below in **Table 4**, both alternatives cross I-270 once, OH-317 once, and eleven (11) local roads. Route Alternative B does not cross any railroads but would require two high-voltage (“HV”) transmission line crossings: one crossing of the existing Bixby – Groves Road 138 kV transmission line south of the Groves Road Station is required to parallel the westside of Bixby – Groves Road 138 kV within existing, unmaintained ROW and a second crossing of the Bixby – Groves Road 138 kV is required at Winchester Pike (CR 376) to route southeastward parallel to the road. Route

Alternative A would not require any existing HV transmission line crossings for its proposed alignment.

Each alternative crosses a few large agricultural properties in the southeastern portion of the Study Area. Based on the availability of existing farm tracks and adjacent local roads in this area, no access concerns were identified. It is possible that longer spans and access from existing dirt roads may reduce the number of access roads required.

Both alternatives either parallel existing transportation corridors and parallel or rebuild existing linear transmission infrastructure within existing ROW for the majority of their alignment. Based on preliminary engineering, Route Alternative B is the shortest route (5.2 miles) and requires substantially fewer heavy angle structures (greater than 45°) than Route Alternative A (**Table 4**). Still, Route Alternative A presents a more favorable option regarding constructability criteria, as it involves more rebuild within maintained 138 kV transmission line ROW. Additionally, Route Alternative A does not require any existing HV transmission line crossings by using maintained 138 kV transmission line ROW for approximately 3.1 miles and requiring approximately 2.8 miles of double-circuit 138 kV transmission line along the Shannon – Astor rebuild portion of its alignment.

Table 4. Constructability Evaluation Criteria			
Route Alternative	**Unit**	**A**	**B**
General			
Total Length	miles	6.6	5.2
Single Circuit 138 kV Length	miles	3.8	5.1
Double Circuit 138 kV Length	miles	2.8	0.1
Total 60-foot ROW	acres	48.3	37.5
Greenfield ROW	acres	21.3	27.3
Transportation Resources			
Interstate Highways Crossed	count	1	1
State Highways Crossed	count	1	1
Local Roads and Streets Crossed	count	11	11
Railroad Crossed	count	2	0
Utility Resources			
Existing 138 kV Transmission Line Crossings	count	0	2
Heavy angles, greater than 45°	count	26	10
Rights-of-Way Parallel/Rebuild			
Existing 138 kV Parallel (within existing, unmaintained ROW)	miles	0	1.9
Existing 138 kV Rebuild (within existing, maintained ROW)	miles	3.1	0.3
Road Parallel	miles	0.7	2.7
Railroad Parallel	miles	2.3	0
Parcel Boundary Parallel	miles	0.3	0
Total length paralleled	miles	6.3	4.9
Total percentage paralleled	percent	96%	96%

5.2.2 Topographic and Geotechnical

Topography in the Study Area is relatively flat. The Study Area is within the Ohio Shale, which is characterized by a black-shale, carbonaceous to clayey laminated to thin bedded, fissile parting, carbonate and/or siderite concretions in the lowermost 50 feet, petroliferous odor, ranging 250 to 500+ feet thick (USGS, n.d.)[9]. Ohio Shale is not characterized by karst and no significant geologic hazards were identified. No sinkholes, mines, or quarries are located within the Study Area.

Route Alternative Comparison

From a topographic and geotechnical perspective, both routes cross similar conditions. Since the landscape is generally flat with no sinkholes, mines, or quarries present within the Study Area.

[9] U.S. Department of the Interior, United States Geologic Survey (USGS), n.d. Geologic maps of US states. Retrieved on December 21, 2021 from: https://mrdata.usgs.gov/geology/state/

5.2.3 Access Roads

Permanent access roads are not anticipated for the Project. Access to routes across agricultural fields could pose a challenge if conditions become wet, compared to access across those same fields to routes that parallel local road. In some cases, existing dirt access roads and local roads may require improvements to accommodate construction equipment. Permanent and temporary earth disturbance may require appropriate National Pollutant Discharge Elimination System (NPDES) and other permits with federal, state, and local jurisdictions.

Route Alternative Comparison

Proximity to existing roads is important for construction access and future maintenance. Given the predominant developed land uses within the Study Area, both route alternatives traverse areas with adjacent local roads suitable for access for the majority of their alignment. As previously mentioned above in **Section 5.2.1**, both route alternatives cross agricultural properties in the southeastern portion of the Study Area; however, there are several existing dirt or gravel tractor paths suitable for structure access. Several wetlands and streams were field delineated within the unmaintained portion of the 200-foot-wide Bixby – Groves Road 138 kV Transmission Line corridor, which could require possibly longer access roads as this area is more remote without existing maintained roads in close proximity. Overall, Route Alternative A is most favorable for suitable access, as it proposes more rebuild in maintained 138 kV transmission line ROW.

5.2.4 Right-of-Way

During the conceptual route development phase of the Project, existing compatible linear ROWs (roads, electrical transmission lines, and property boundaries) were identified and utilized or paralleled when feasible. From an engineering/construction perspective, advantages to utilizing or paralleling these features typically include readily available access for construction and maintenance and limited additional conflicts with airfields and airport airspace. At the same time, long parallel alignments and/or multiple crossings of other high-voltage transmission lines can increase the potential for localized severe weather events to damage both lines, or damage one line in a manner that forces outages on both lines.

Route Alternative Comparison

Both Route Alternatives require a 60-foot-wide ROW. As shown above in **Table 4**, Route Alternative B requires less amount of new ROW (21.3 acres), and Route Alternative A requires more (27.3 acres). Route Alternative A uses maintained 138 kV transmission ROW for approximately 3.1 miles and Route Alternative B parallels the existing Bixby – Groves Road 138 kV transmission line within unmaintained ROW for approximately 1.9 miles. Route Alternative A

contains more outbuildings (2) and commercial buildings (1) within the ROW. The commercial structure is within the existing Shannon – Astor 138 kV Transmission Line ROW and has been deemed an allowable encroachment by the Company's Engineering and ROW departments. One outbuilding is located on residential property and would be removed. The second outbuilding is a maintenance shed located in the Norfolk Southern railroad corridor and the Preferred Route would be designed around the feature.

The proposed ROW for Route Alternative A also crosses more parcels (130) and more landowners (86); however, the majority of these parcels and landowners are already impacted by the Shannon – Astor 138 kV Transmission Line Project, which would need to be rebuilt as part of the larger Southeast Columbus Area Project regardless, as mentioned above in **Section 5.2.3**. Neither route alternative contains residential dwellings within the ROW.

5.2.5 Operation, Maintenance, and System Considerations

Paralleling existing transmission lines is regarded as a routing opportunity but crossing other high voltage transmission lines presents a routing constraint. Crossing HV transmission can pose reliability concerns and require potential higher structures, which could require additional coordination with the FAA. After reviewing the three existing 138 kV transmission lines in the Study Area: Bixby – Groves Road (north to south within the western portion), Refugee – Groves Road (northwest to southeast in the northern portion), and Shannon – Astor (north to south in the eastern portion), the Siting Team identified suitable rebuild opportunities for portions of the Shannon – Astor and Refugee – Groves Road 138 kV transmission line and suitable paralleling opportunities for the Bixby – Groves Road 138 kV transmission line within the existing AEP-owned 200-foot-wide easement.

For human environment criteria, paralleling existing railroad corridors is considered an opportunity to reduce viewshed impacts; however, paralleling active railroads often requires additional permitting requirements, fees, or studies which may constrain the Project construction schedule. Based on landowner-provided information (see **Section 3.6.4**), an underground high-pressure gas line passes through the southern portion of the Study Area, adjacent south of Winchester Pike (CR 376). No other infrastructure exists within the Study Area that the Siting Team deemed viable for parallel.

Route Alternative Comparison

As previously mentioned, the Shannon – Astor 138 kV Transmission Line will experience an outage regardless of the selected route. Route Alternative A uses maintained 138 kV transmission line ROW for approximately 3.1 miles and would require approximately 2.8 miles of double-circuit 138 kV transmission line along the Shannon – Astor rebuild portion of its alignment. However, Route Alternative B would only require approximately 0.1 miles of double

circuit with the Shannon-Astor 138 kV Transmission Line, which would require a shorter outage on the line. In addition, Route Alternative B requires one existing transmission line crossing over the Bixby – Groves Road 138 kV transmission line in order to parallel Winchester Pike (376). The southern portion of Route Alternative B that parallels the southside of Winchester Pike (CR 376) may encounter the existing underground high-pressure gas line. Overall, Route Alternative B presents less favorable option regarding reliability concerns from a high-voltage transmission line perspective.

6.0 IDENTIFICATION OF THE PREFERRED AND ALTERNATE ROUTE

At the beginning of this report, AEP's stated goal was to find a Preferred Route and Alternate Route for the Project, per the OPSB application requirements. The Preferred Route presents the Route Alternative that minimizes potential impacts on the natural and human environment while avoiding indirect routes, unreasonable costs, and special design requirements. However, in practice, it is not usually possible to minimize all potential impacts at all times.

AEP Ohio Transco conducted a routing study and collected, reviewed, and interpreted information before even beginning to generate potential routes. Although a majority of the route segments proved to be viable, there were noteworthy differences between the proposed options. The rationale presented below is derived from the accumulation of the routing decisions made throughout the process, the local knowledge and experience of the Siting Team, input provided by landowners and stakeholders, and the comparative analysis of potential impacts presented in **Section 4.0**.

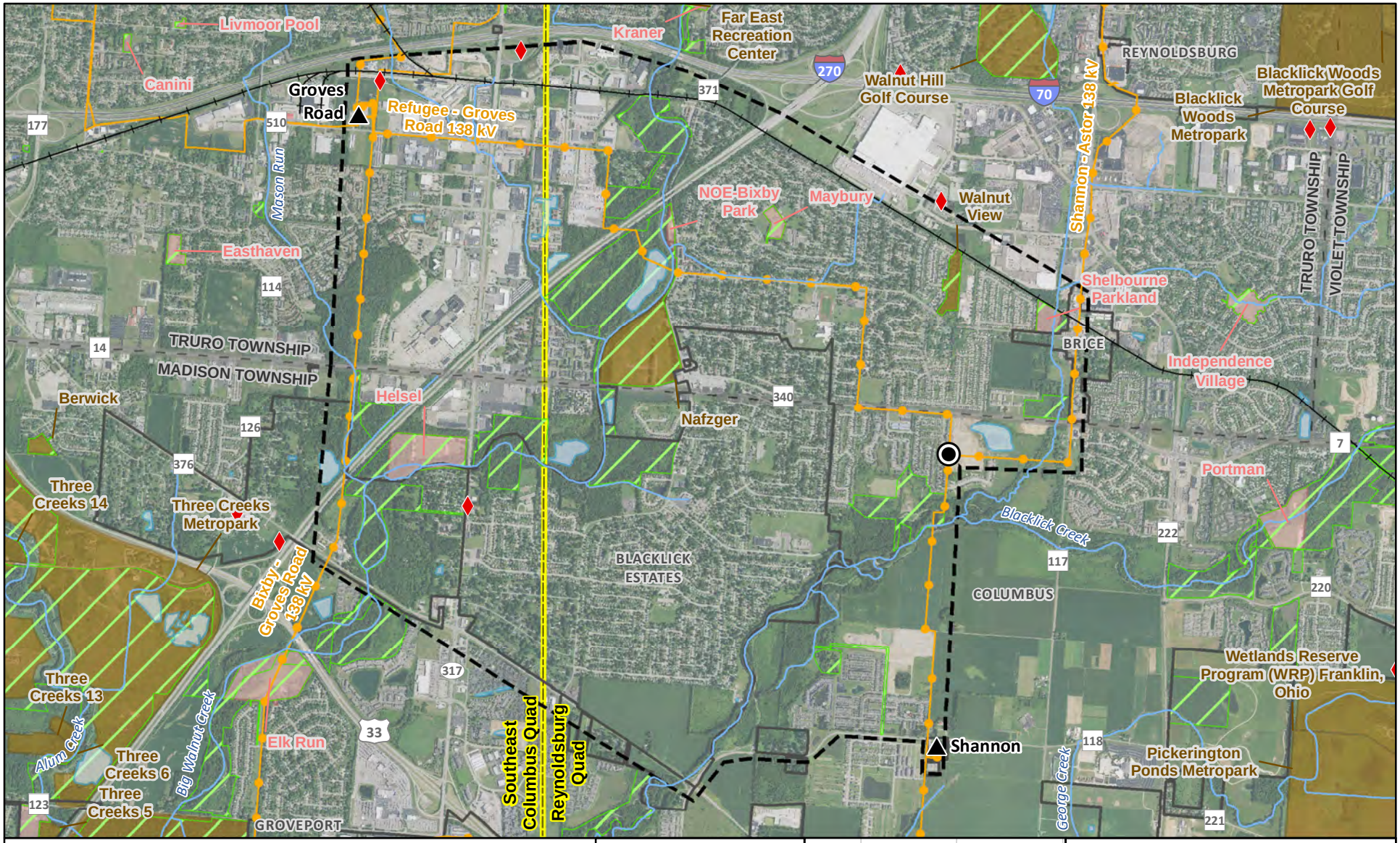
Based on the data gathered, route development, and the comparative analysis process completed to date, the Routing Team identified **Route Alternative A as the Preferred Route**, as shown in **Map 8**, **Attachment A**. Route Alternative B is identified as the **Alternate Route.**

- Route A minimizes effects on existing buildings, visual aesthetics, and existing aboveground and underground utilities, thereby reducing overall effects on the natural and built environments, for the following reasons:
    - Route A proposes rebuilding within existing maintained 138 kV transmission ROW to the highest extent practicable.
    - Route A parallels the northside of an existing railroad corridor for 2.3 miles. The existing railroad bed is raised and the southside of its corridor is primarily forested, which will reduce viewshed impacts to many of the residential and commercial buildings within 100 and 250 feet of Route Alternative A.
    - Route A reduces effects on existing residential and commercial properties, as most parcels and landowners crossed by the Route A ROW are currently impacted by the Company's Shannon – Astor 138 kV Transmission Line ROW.
- Route A presents a more favorable option for overall constructability because it does not require any high-voltage transmission crossings and proposes rebuilding within existing maintained 138 kV transmission ROW to the highest extent practicable.

- Route A proposes to rebuild 2.8 miles of the existing Shannon – Astor 138 kV Transmission Line, which needs to be rebuilt as part of the larger Southeast Columbus Area Improvements.

Although all routes are constructible, based on the comparison conducted for this Route Selection Study, AEP Ohio Transco believes the Preferred Route is (1) most consistent with the siting guidelines; (2) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment; (3) minimizes special design requirements and unreasonable costs; and (4) can be constructed and operated in a safe, timely, and reliable manner.

Attachment A: Maps



Station
Refugee Switch
FCC Tower
Railroad

Existing Transmission Line

69 kV and below
138 kV

NHD Stream or River
Study Area
NHD Waterbody
Municipal Boundary
Township Boundary
USGS Quad Boundary

City of Columbus Park Boundary or Easement

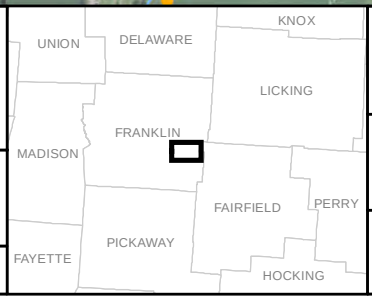
PADUS

Private or Regional Agency Special District
Local Government

Data Sources:
Census Boundaries (ESRI 2021)
NHD & PADUS (USGS 2021)
Topo Quads (USGS 2013)
Transmission (AEP 2017)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

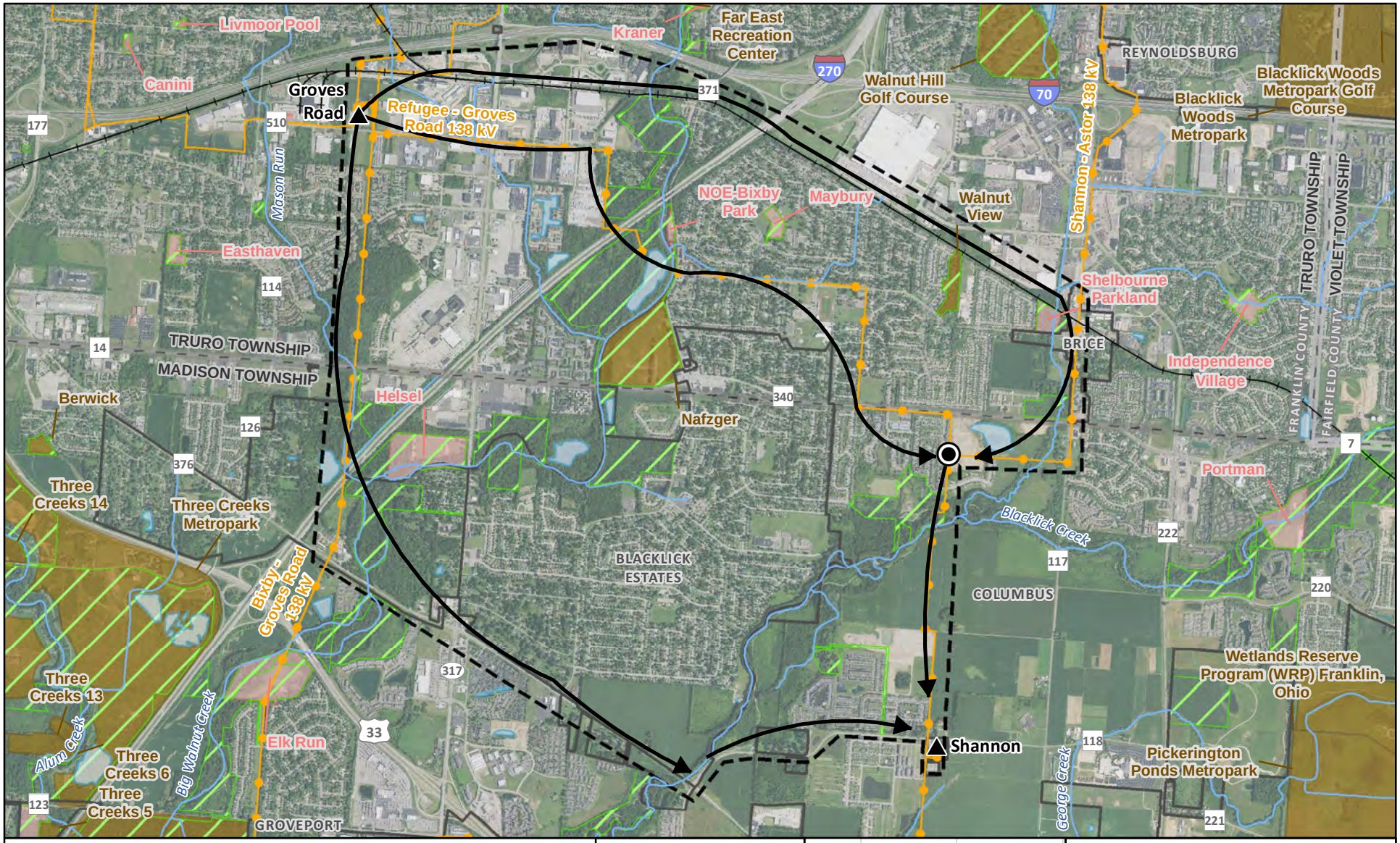


Map 1
Study Area

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.55 1.1
Miles



Station
Refugee Switch
Railroad
Conceptual Route

Existing Transmission Line

69 kV and below
138 kV
NHD Stream or River
Study Area
NHD Waterbody
Municipal Boundary
Township Boundary
County Boundary
City of Columbus Park Boundary or Easement

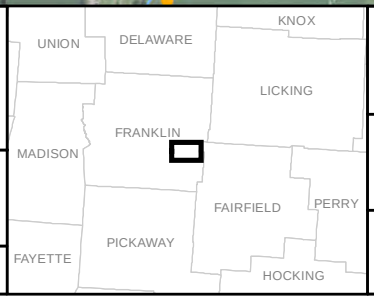
PADUS

Private or Regional Agency Special District
Local Government

Data Sources:
Census Boundaries (ESRI 2021)
NHD & PADUS (USGS 2021)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

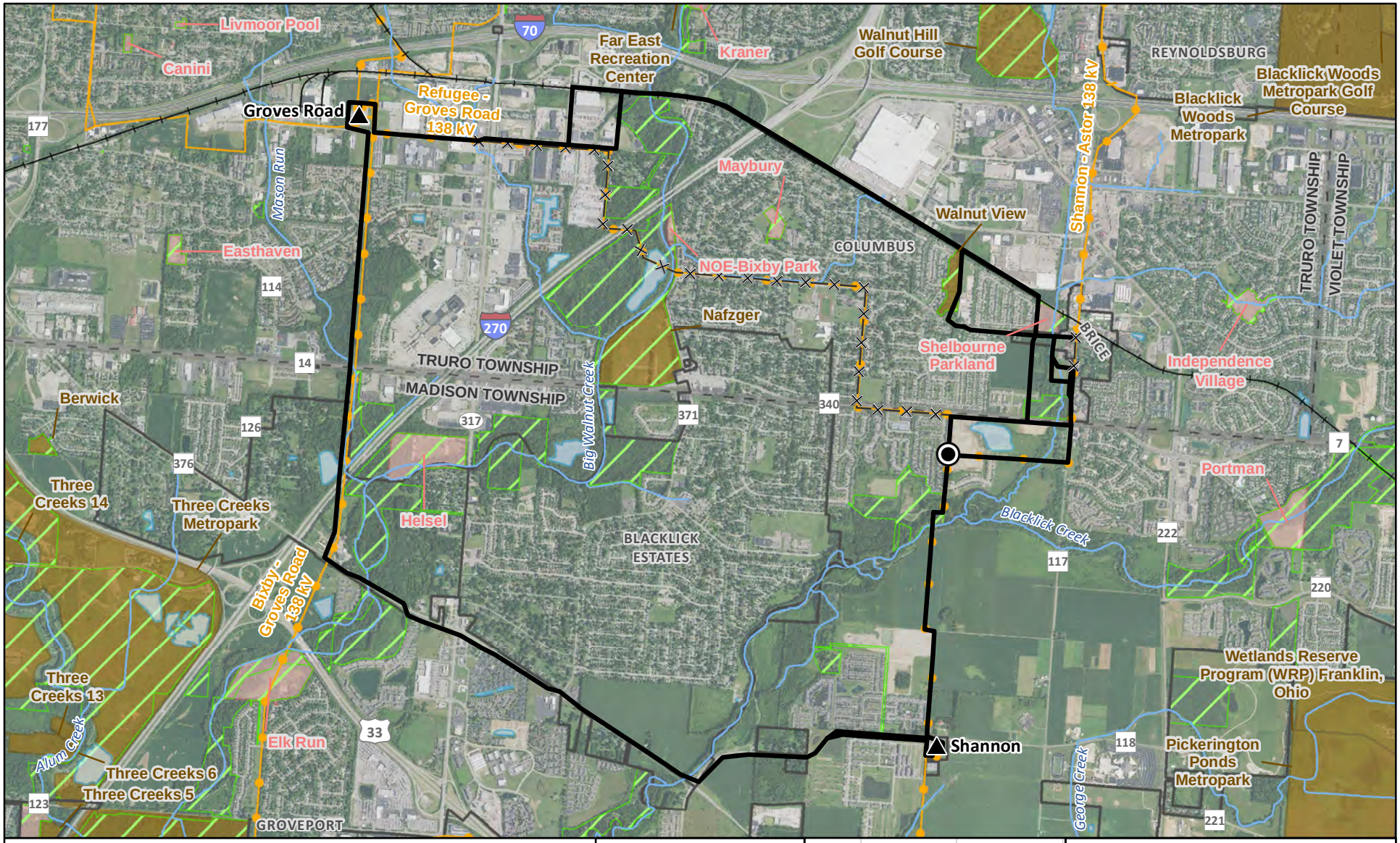


Map 2
Conceptual Routes

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.55 1.1
Miles



Station
Refugee Switch (to be removed)
Railroad
Preliminary Study Segment
Existing Transmission to be Retired

Existing Transmission Line
69 kV and below
138 kV
NHD Stream or River
NHD Waterbody
Municipal Boundary
Township Boundary

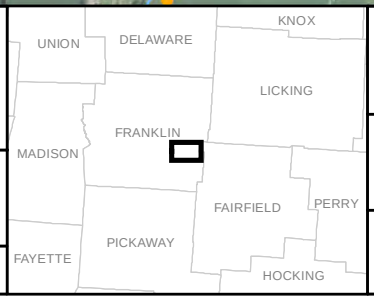
City of Columbus Park Boundary or Easement

PADUS
Private or Regional Agency Special District
Local Government

Data Sources:
Census Boundaries (ESRI 2021)
Imagery (OGRIP 2019)
NHD & PADUS (USGS 2021)
Transmission (AEP 2017)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

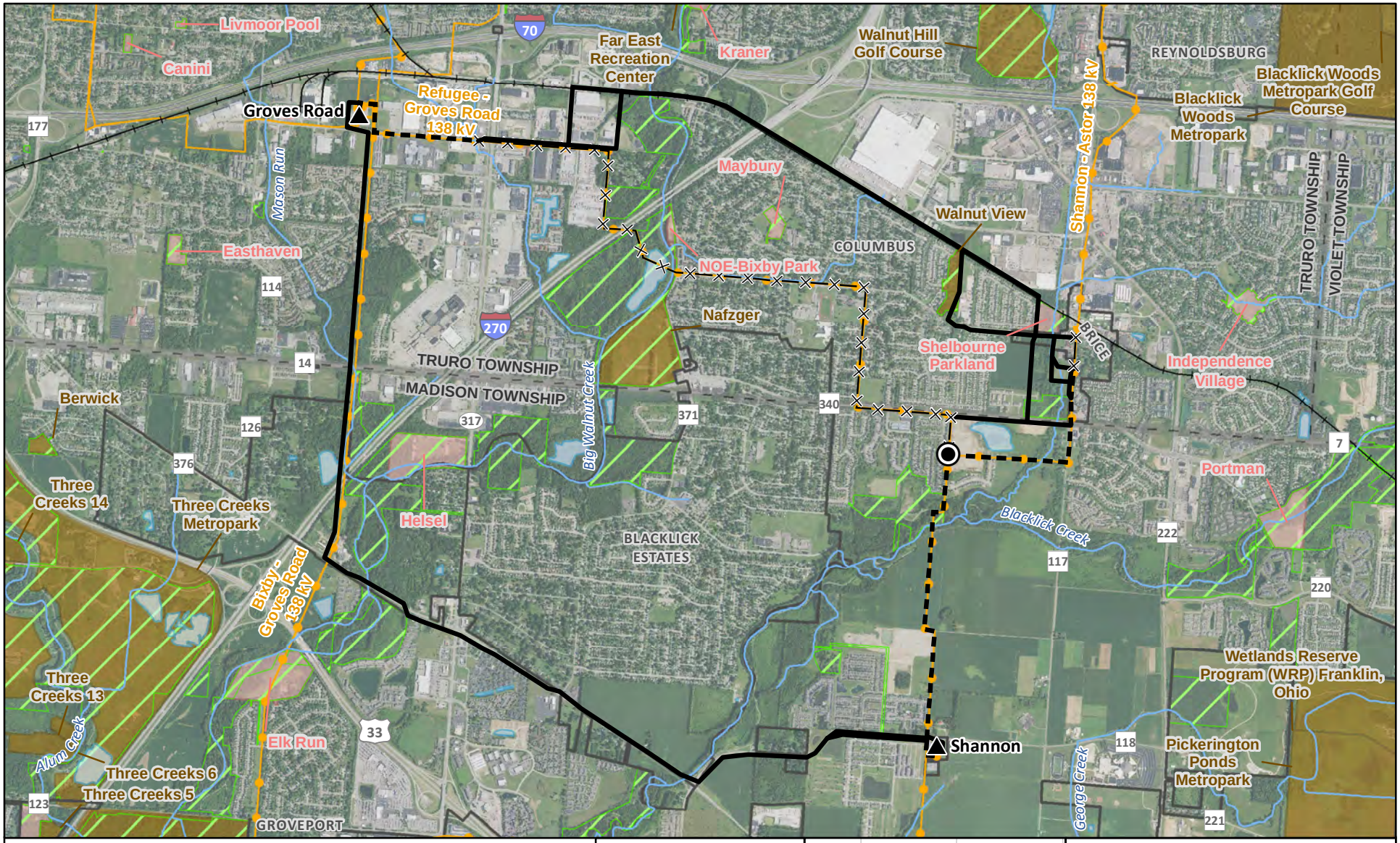


Map 3a
Preliminary Study Segment Network

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.55 1.1
Miles



Station
Refugee Switch (to be removed)
Railroad
Existing Transmission to be Retired
Greenfield Study Segment
Rebuild Study Segment

Existing Transmission Line
69 kV and below
138 kV
NHD Stream or River
NHD Waterbody

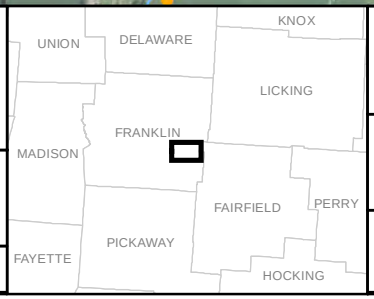
Municipal Boundary
Township Boundary
City of Columbus Park Boundary or Easement

PADUS
Private or Regional Agency Special District
Local Government

Data Sources:
Census Boundaries (ESRI 2021)
Imagery (OGRIP 2019)
NHD & PADUS (USGS 2021)
Transmission (AEP 2017)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

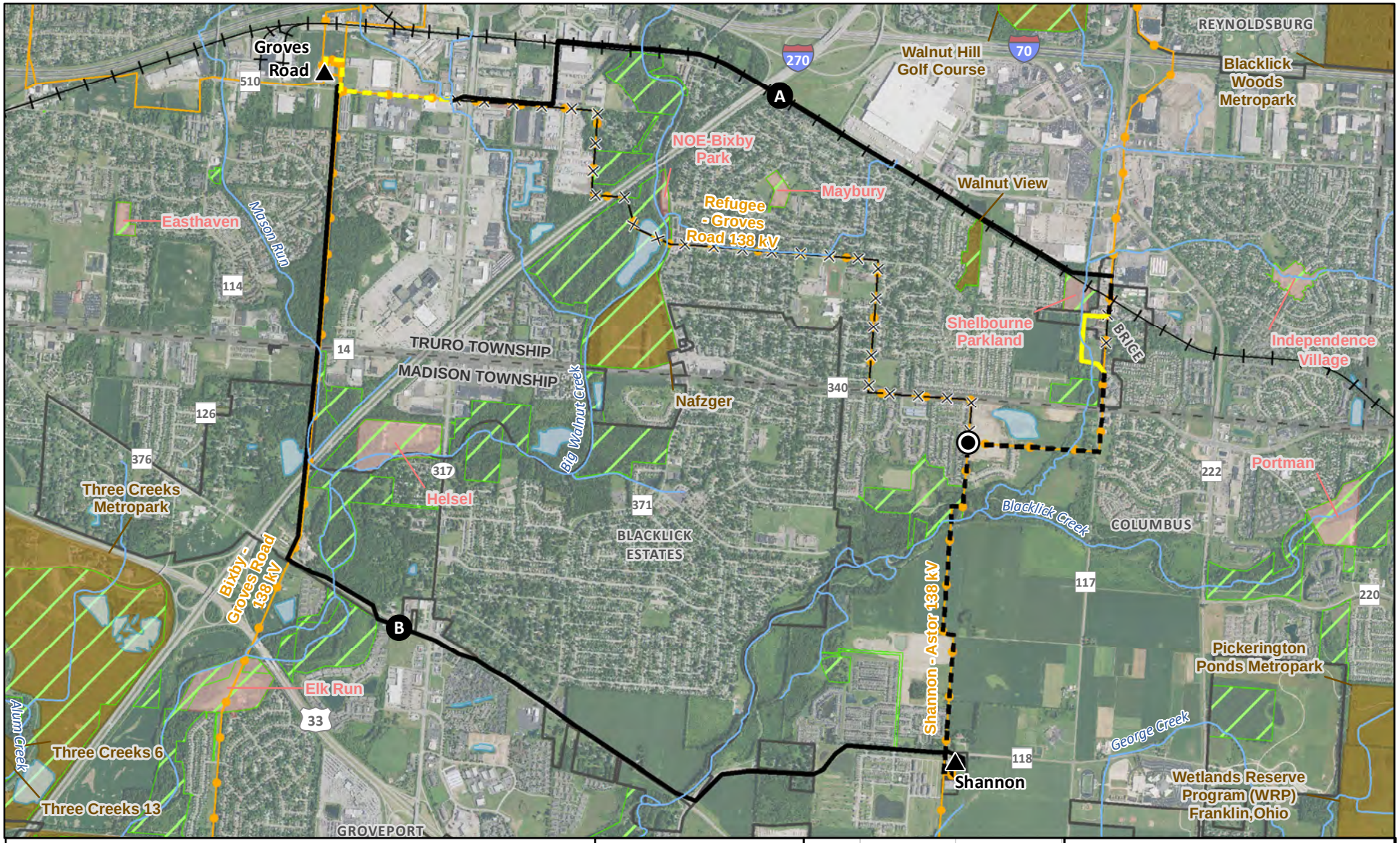


Map 3b
Revised Study Segment Network

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.55 1.1
Miles



Station
Refugee Switch (to be Removed)
NHD Stream or River
Railroad

Route Alternative

Double Circuit, Greenfield
Double Circuit, Rebuild
Single Circuit, Greenfield
Single Circuit, Rebuild
Existing Transmission to be Retired

Existing Transmission Line

69 kV and below
138 kV
345 kV
NHD Waterbody
Municipal Boundary
City of Columbus Park Boundary or Easement

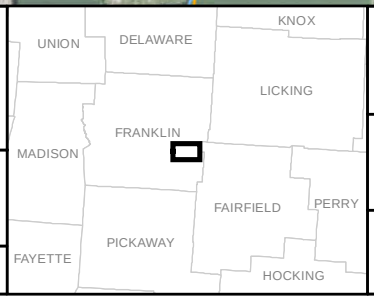
PADUS

Private or Regional Agency Special District
Local Government
Township Boundary

Data Sources:
Census Boundaries (ESRI 2021)
Imagery (OGRIP 2019)
NHD & PADUS (USGS 2021)
Topo Quads (USGS 2013)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

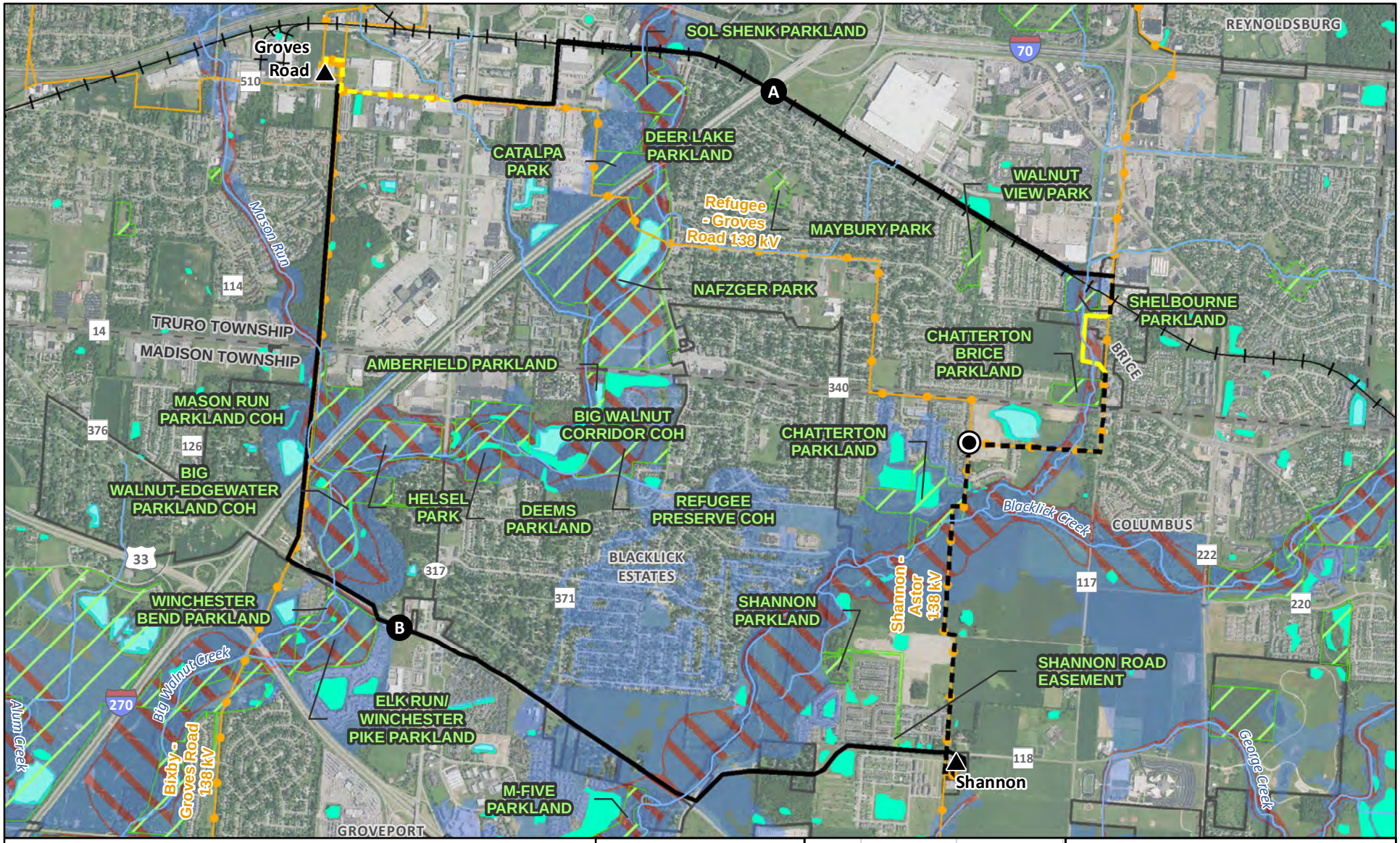


Map 4
Route Alternatives

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.5 1
Miles



Station
Refugee Switch (to be Removed)
Railroad

Route Alternative
Double Circuit, Greenfield
Double Circuit, Rebuild

Single Circuit, Greenfield
Single Circuit, Rebuild

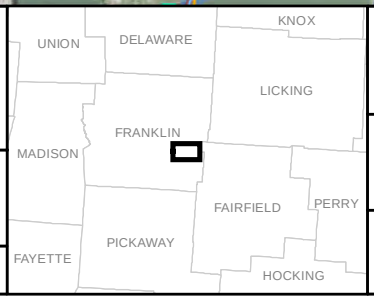
Existing Transmission Line
69 kV and below
138 kV
NHD Stream or River
NHD Waterbody
NWI Wetland

NFHL 100-year Floodplain
NFHL Regulatory Floodway
City of Columbus Park Boundary or Easement
Municipal Boundary
Township Boundary

Data Sources:
Census Boundaries (ESRI 2021)
Imagery (OGRIP 2019)
NFHL (FEMA 2021)
NHD & PADUS (USGS 2021)
NWI (USFWS 2021)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

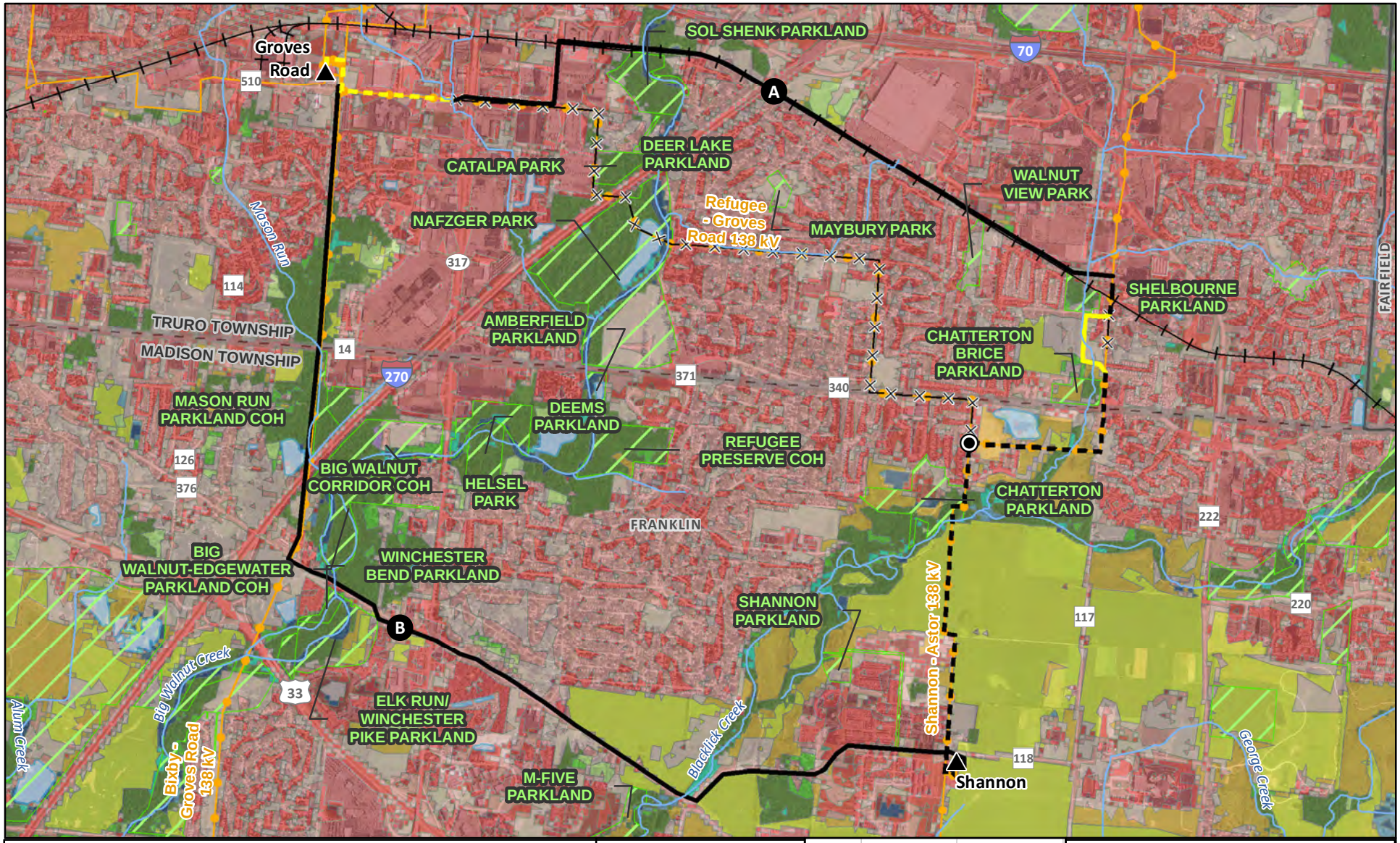


Map 5
Natural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.5 1
Miles



Station
Refugee Switch (to be Removed)
NHD Stream or River
Railroad

Route Alternative

Double Circuit, Greenfield
Double Circuit, Rebuild
Single Circuit, Greenfield
Single Circuit, Rebuild
Existing Transmission to be Retired
City of Columbus Park Boundary or Easement

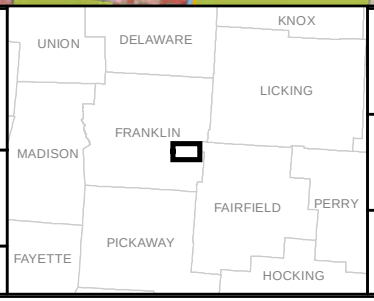
NCLD Description

Barren Land
Cultivated Crops
Deciduous Forest
Developed, High Intensity
Developed, Low Intensity
Developed, Medium Intensity
Developed, Open Space
Emergent Herbaceous Wetlands
Evergreen Forest
Grassland/ Herbaceous
Mixed Forest
Open Water
Pasture/Hay
Shrub/Scrub
Woody Wetlands
Municipal Boundary
Township Boundary

Data Sources:
Census Boundaries (ESRI 2021)
Imagery (OGRIP 2019)
NCLD (USGS 2016)
NHD (USGS 2021)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

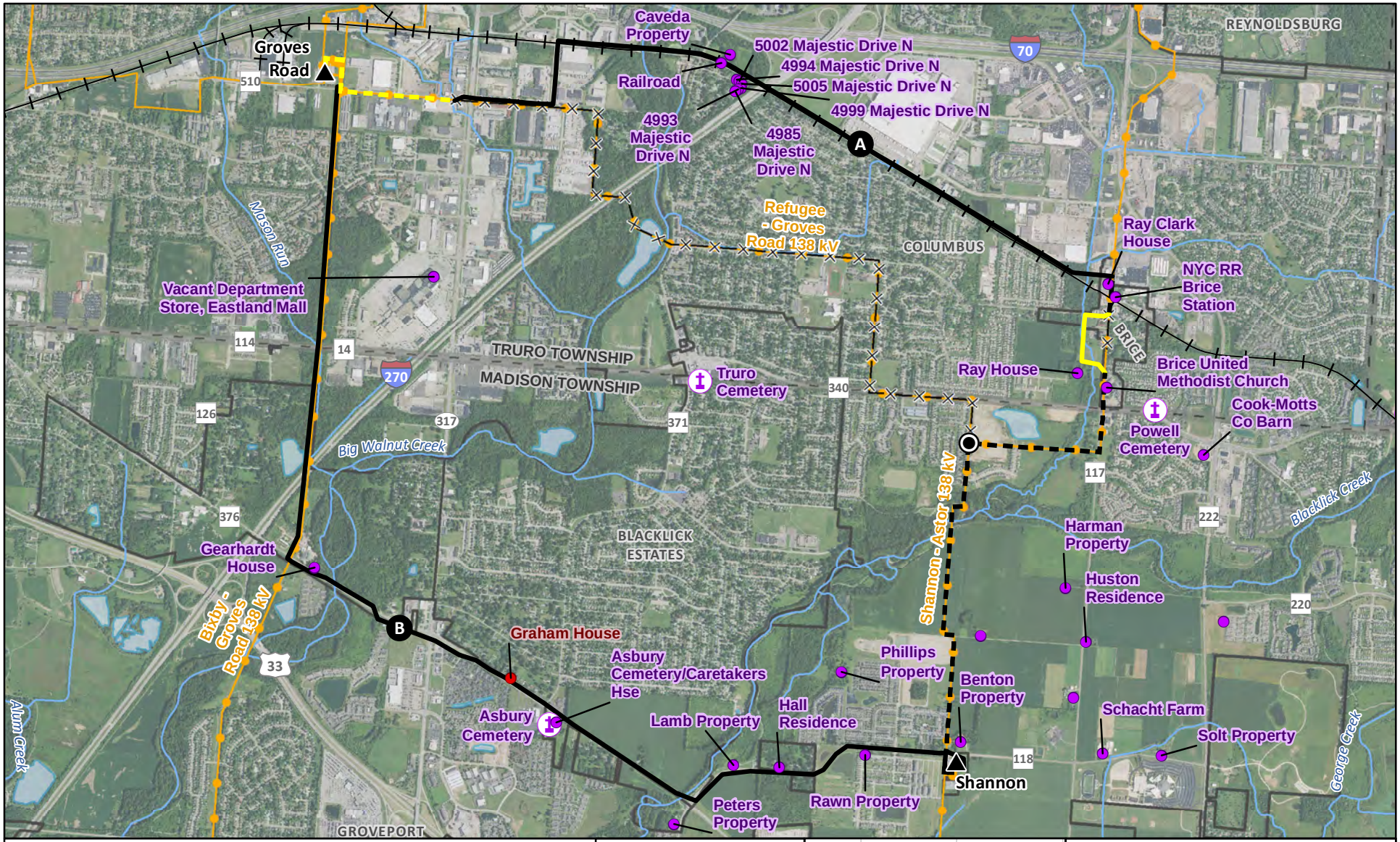


Map 6
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.5 1
Miles



- Station
- Refugee Switch (to be Removed)
- NRHP Eligible Architectural Site
- Known Architectural Site
- Cemetery
- Railroad

Route Alternative

- Double Circuit, Greenfield
- Double Circuit, Rebuild
- Single Circuit, Greenfield
- Single Circuit, Rebuild
- Existing Transmission to be Retired

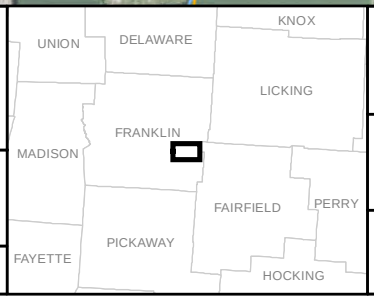
Existing Transmission Line

- 69 kV and below
- 138 kV
- NHD Stream or River
- NHD Waterbody
- Municipal Boundary
- Township Boundary

Data Sources:
Architectural Sites (OSHPO 2021)
Cemeteries (USGS 2021)
Census Boundaries (ESRI 2021)
Imagery (OGRIP 2019)
NHD & PADUS (USGS 2021)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022

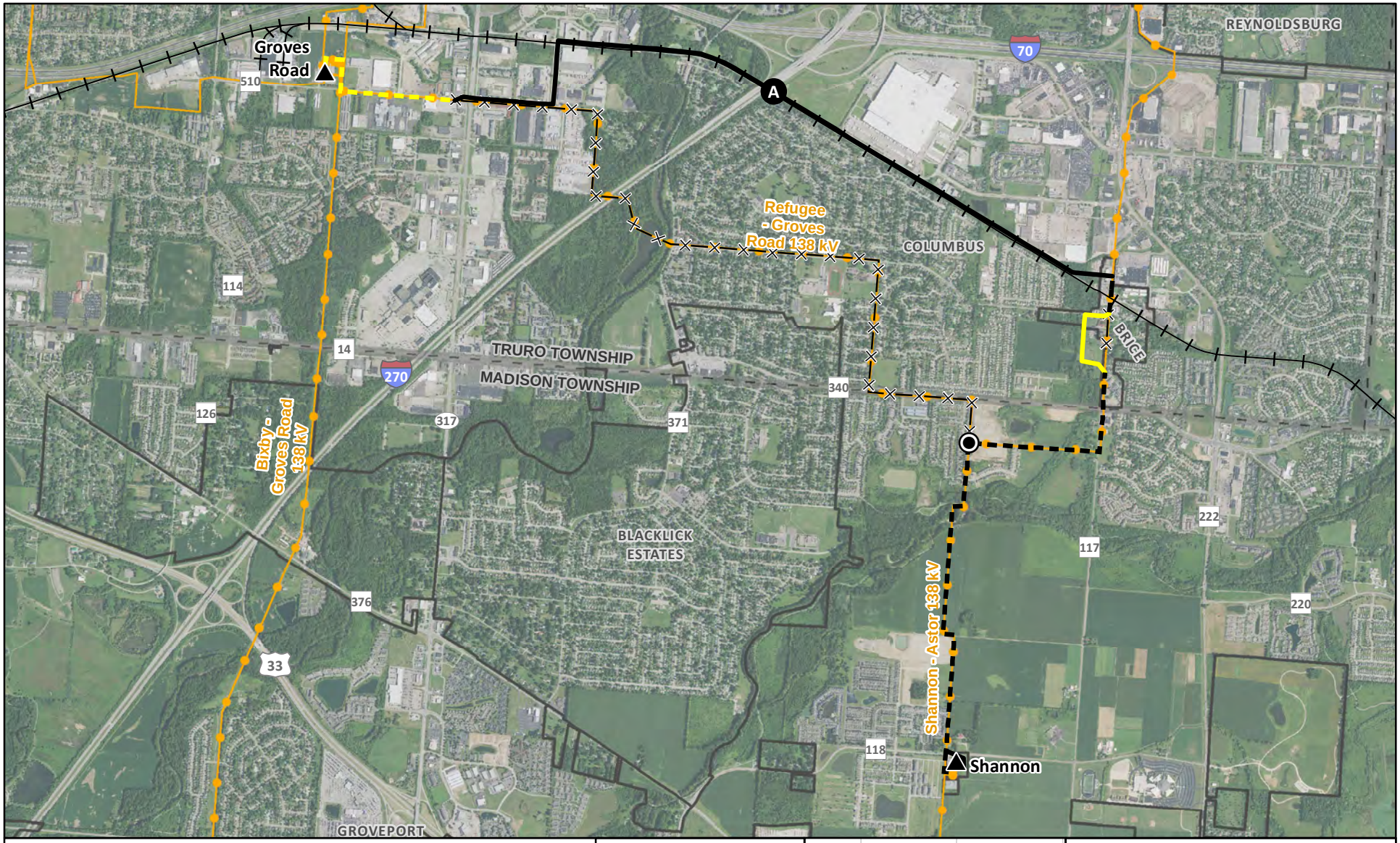


Map 7
Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV Transmission Line Project

0 0.5 1
Miles



Station
Refugee Switch (to be Removed)
Railroad

Preferred Route

Double Circuit, Greenfield

Double Circuit, Rebuild
Single Circuit, Greenfield
Single Circuit, Rebuild

Existing Transmission to be Retired

Existing Transmission Line

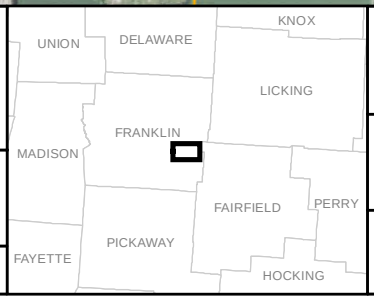
69 kV and below
138 kV
345 kV

Municipal Boundary
Township Boundary

Data Sources:
Census Boundaries (ESRI 2021)
Imagery (OGRIP 2019)
NHD & PADUS (USGS 2021)
Transportation (ODOT 2021)

State Plane Ohio South
NAD 83

March 03, 2022



Map 8
Preferred Route

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 0.5 1
Miles

Attachment B: GIS Data Sources

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Land Use		
Number of parcels and landowners crossed by the ROW	Franklin County (2021)	Count of the number of parcels crossed by the ROW
Number of outbuildings or residential dwellings within 250 feet of the route centerline	Microsoft "US Building Footprints" downloaded 2019 and field verified from points of public access.	Count of the number of single-family and multi-family dwellings within the ROW, within 100 and 250 feet of potential routes
Number of commercial/industrial buildings within 250 feet of the route centerline	Microsoft "US Building Footprints" downloaded 2019 and field verified from points of public access.	Count of the number of commercial/industrial buildings within the ROW, within 100 and 250 feet of potential routes
Land use acreage and distance crossed by the ROW	National Land Cover Database (NLCD) (2016)	The NLCD 2016 (NLCD 2016) compiled by the Multi-Resolution Land Characteristics (MRLC) Consortium includes 15 classes of land cover from Landsat satellite imagery
Acres of conservation easements crossed	National Conservation Easement Database (NCED) (2020)	Private conservation easements crossed by the routes from the NCED which is comprised of voluntarily reported conservation easement information from land trusts and public agencies
Number of archeological resources within the ROW and within 1 mile	Ohio State Historic Preservation Office (SHPO) (2021)	Previously identified archeological resources listed or eligible on the National Register of Historic Places (NRHP) acquired through the state historic preservation office.
Number of historic architectural resources within the ROW and within 1 mile	SHPO (2021)	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP or included in the Indiana Historic Sites and Structures Inventory
Institutional uses (schools, places of worship and cemeteries) within 500 feet of the route centerline	U.S. Geological Survey (USGS) Geographic Names Information System (GNIS) (2021)	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools. Features within 1,000 feet of potential routes were field verified.
Airfield and heliports within 1 mile of the route centerline	GNIS (2021) and the Federal Aviation Administration (FAA) database (2020)	Distance from airfields and heliports
Natural Environment		
Forest clearing within the ROW	WSP	Acres of forest within the ROW observed by ecologists

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Field delineated streams and waterbodies crossed	WSP	Count the number of streams and waterbodies delineated by ecologists via Trimble Global Navigation Satellite System (GNSS)
Field delineated wetlands within the ROW	WSP	Acres of wetlands delineated by ecologists via Trimble GNSS
Acres of 100-year floodplain and regulatory floodway within the ROW	National Flood Hazard Layer (NFHL) (FEMA) (2019)	Acres of FEMA-designated 100-year floodplain (Zone A) and regulatory floodway (Zone AE) within the ROW
Miles of public lands crossed by the route	The Protected Areas Database of the United States (PAD-US) (2019)	Miles of federal, state and local lands crossed by the ROW
Percent of prime farmland soils and soils of statewide importance within the ROW	USDA-NRCS SSURGO Database (2019)	Percent of soil associations crossed by the ROW characterized as prime farmland or farmland of statewide importance
Technical		
Route length	Measured in GIS	Length of route in miles
Number and severity of angled structures	Developed in GIS	Anticipated number of angled structures < 3 degrees, 3 to 45 degrees and over 45 degrees based on preliminary design
Number of road crossings	Ohio Department of Transportation (ODOT) Transportation Information Mapping System (TIMS) (2021)	Count of federal, state and local road crossings
Number of pipeline crossings	U.S. Department of Transportation National Pipeline Mapping System (2021)	Number of known pipelines crossed by the transmission ROW
Number of transmission line crossings	AEP Ohio Transco (2017)	Number of high voltage (100 kV or greater) transmission lines crossed by the ROW
Length of transmission line parallel	AEP Ohio Transco (2017)	Miles of the route parallel to existing high voltage transmission lines
Length of pipeline parallel	U.S. Department of Transportation National Pipeline Mapping System (2019)	Miles of the route parallel to existing pipelines
Length of road parallel	ODOT TIMS (2021)	Miles of the route parallel to existing roads

Attachment C: Agency Correspondence

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

September 13, 2021

Bradley Rolfes
WSP USA
Suite 2500
312 Vine Street
Cincinnati, OH 45202

Re: 21-0780; Groves Road – Shannon 138 kV Transmission Line Rebuild Project Preferred Route

Project: The proposed project involves the extension of the existing transmission line exiting Groves Road Station east and south to existing transmission lines in the vicinity and ultimately to the Shannon Station.

Location: The proposed project is located in Madison Township, Franklin County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following data at or within a one mile radius of the project area:

Tippecanoe darter (*Etheostoma tippecanoe*), T
Pickerington Ponds Metro Park – Columbus & Franklin Co. Metro Parks
Blacklick Greenway Trail – Columbus & Franklin Co. Metro Parks

The review was performed on the project area specified in the request as well as an additional one mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity. Additional comments on some of the features may be found in pertinent sections below.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federal endangered, and FT = federal threatened.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Erin Hazelton at Erin.hazelton@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH $\geq$ 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "*Range-wide Indiana Bat Survey Guidelines*." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Erin Hazelton for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered
purple cat's paw (*Epioblasma o. obliquata*)
clubshell (*Pleurobema clava*)
northern riffleshell (*Epioblasma torulosa rangiana*)
rayed bean (*Villosa fabalis*)
snuffbox (*Epioblasma triquetra*)

Federally Threatened
rabbitsfoot (*Quadrula cylindrica cylindrica*)

State Endangered
elephant-ear (*Elliptio crassidens crassidens*)
Long solid (*Fusconaia maculata maculate*)
Ohio pigtoe (*Pleurobema cordatum*)
pocketbook (*Lampsilis ovata*)
washboard (*Megalonaias nervosa*)

State Threatened
black sandshell (*Ligumia recta*)
fawnsfoot (*Truncilla donaciformis*)
pondhorn (*Uniomerus tetralasmus*)
threehorn wartyback (*Obliquaria reflexa*)

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2020) can be found at:
https://ohiodnr.gov/static/documents/wildlife/permits/dow-protocol-ohio-mussel-survey.pdf

The project is within the range of the following listed fish species.

Federally Endangered
Scioto madtom (*Noturus trautmani*)

State Endangered
goldeye (*Hiodon alosoides*)
Iowa darter (*Etheostoma exile*)
popeye shiner (*Notropis ariommus*)
northern brook lamprey (*Ichthyomyzon fossor*)
spotted darter (*Etheostoma maculatum*)
shortnose gar (*Lepisosteus platostomus*)
tonguetied minnow (*Exoglossum laurae*)

State Threatened
lake chubsucker (*Erimyzon sucetta*)
paddlefish (*Polyodon spathula*)
Tippecanoe darter (*Etheostoma tippecanoe*)

The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the American bittern (*Botaurus lentiginosus*), a state endangered bird. Nesting bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. They occasionally occupy bogs, large wet meadows, and dense shrubby swamps. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, the project is not likely to impact this species.

The project is within the range of the black-crowned night-heron *(Nycticorax nycticorax*), a state-threatened bird. 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. 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 night-herons nest in small trees, saplings, shrubs, or sometimes on the ground, near bodies of water and wetlands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the cattle egret (*Bubulcus ibis*), a state endangered bird. Cattle egrets are not strictly wetland birds. They often forage in dry pastures and fields. Egrets nest in colonies and will build a nest out of sticks and other materials wherever it can be supported. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 through August 15. If no wetland habitat will be impacted, the project is not likely to impact this species.

The project is within the range of the lark sparrow (*Chondestes grammacus*), a state endangered bird. This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the least bittern (*Ixobrychus exilis*), a state threatened bird. This secretive marsh species prefers dense emergent wetlands with thick stands of cattails, sedges, sawgrass or other semiaquatic vegetation interspersed with woody vegetation and open water. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the sandhill crane (*Grus canadensis*), a state threatened species. Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing water or moist bottomlands. On breeding grounds they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through august 31. If this habitat will not be impacted, this project is not likely to have an impact on this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. 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). If this type of habitat will be impacted, construction

should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator (Acting)

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

September 13, 2021

Bradley Rolfes
WSP USA
Suite 2500
312 Vine Street
Cincinnati, OH 45202

Re: 21-0781; Groves Road – Shannon 138 kV Transmission Line Rebuild Project Alternate Route

Project: The proposed project involves the extension of the line from the Groves Road Station south and east to Shannon Station.

Location: The proposed project is located in Madison Township, Franklin County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following data at or within a one mile radius of the project area:

Elktoe (*Alasmidonta marginata*), SC
Wavy-rayed lampmussel (*Lampsilis fasciola*), SC
Tippecanoe darter (*Etheostoma tippecanoe*), T
Three Creeks Metro Park – Columbus & Franklin Co. Metro Parks
Blacklick Creek Greenway Trail – Columbus & Franklin Co. Metro Parks
Big Walnut Greenway – Columbus & Franklin Co. Metro Parks

The review was performed on the project area specified in the request as well as an additional one mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity. Additional comments on some of the features may be found in pertinent sections below.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that

rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federal endangered, and FT = federal threatened.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Erin Hazelton at Erin.hazelton@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH $\geq$ 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "*Range-wide Indiana Bat Survey Guidelines*." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Erin Hazelton for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered	Federally Threatened
purple cat's paw (*Epioblasma o. obliquata*)	rabbitsfoot (*Quadrula cylindrica cylindrica*)
clubshell (*Pleurobema clava*)	
northern riffleshell (*Epioblasma torulosa rangiana*)	
rayed bean (*Villosa fabalis*)	
snuffbox (*Epioblasma triquetra*)	

State Endangered
elephant-ear (*Elliptio crassidens crassidens*)
Long solid (*Fusconaia maculata maculate*)
Ohio pigtoe (*Pleurobema cordatum*)
pocketbook (*Lampsilis ovata*)
washboard (*Megalonaias nervosa*)

State Threatened
black sandshell (*Ligumia recta*)
fawnsfoot (*Truncilla donaciformis*)
pondhorn (*Uniomerus tetralasmus*)
threehorn wartyback (*Obliquaria reflexa*)

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2020) can be found at:
https://ohiodnr.gov/static/documents/wildlife/permits/dow-protocol-ohio-mussel-survey.pdf

The project is within the range of the following listed fish species.
Federally Endangered
Scioto madtom (*Noturus trautmani*)

State Endangered
goldeye (*Hiodon alosoides*)
Iowa darter (*Etheostoma exile*)
popeye shiner (*Notropis ariommus*)
northern brook lamprey (*Ichthyomyzon fossor*)
spotted darter (*Etheostoma maculatum*)
shortnose gar (*Lepisosteus platostomus*)
tonguetied minnow (*Exoglossum laurae*)

State Threatened
lake chubsucker (*Erimyzon sucetta*)
paddlefish (*Polyodon spathula*)
Tippecanoe darter (*Etheostoma tippecanoe*)

The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the American bittern (*Botaurus lentiginosus*), a state endangered bird. Nesting bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. They occasionally occupy bogs, large wet meadows, and dense shrubby swamps. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, the project is not likely to impact this species.

The project is within the range of the black-crowned night-heron *(Nycticorax nycticorax*), a state-threatened bird. 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. 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 night-herons nest in small trees, saplings, shrubs, or sometimes on the ground, near bodies of water and wetlands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the cattle egret (*Bubulcus ibis*), a state endangered bird. Cattle egrets are not strictly wetland birds. They often forage in dry pastures and fields. Egrets nest in colonies and will build a nest out of sticks and other materials wherever it can be supported. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 through August 15. If no wetland habitat will be impacted, the project is not likely to impact this species.

The project is within the range of the lark sparrow (*Chondestes grammacus*), a state endangered bird. This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the least bittern (*Ixobrychus exilis*), a state threatened bird. This secretive marsh species prefers dense emergent wetlands with thick stands of cattails, sedges, sawgrass or other semiaquatic vegetation interspersed with woody vegetation and open water. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the sandhill crane (*Grus canadensis*), a state threatened species. Sandhill cranes are primarily a wetland-dependent species. On their wintering grounds, they will utilize agricultural fields; however, they roost in shallow, standing water or moist bottomlands. On breeding grounds they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. If grassland, prairie, or wetland habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through august 31. If this habitat will not be impacted, this project is not likely to have an impact on this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. 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). If this type of habitat will be impacted, construction

should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator (Acting)

Rolfes, Brad

From: Ohio, FW3 <ohio@fws.gov>
Sent: Friday, August 27, 2021 10:07 AM
To: Rolfes, Brad
Cc: nathan.reardon@dnr.state.oh.us; Parsons, Kate; Thomayer, Matthew; Grant S Stuller
Subject: AEP - Groves Road – Shannon Transmission Line Rebuild Alternate Route, Franklin County, Ohio

TAILS# 03E15000-2021-TA-2140

Dear Mr. Rolfes,

The U.S Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees ≥3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.
If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and

conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

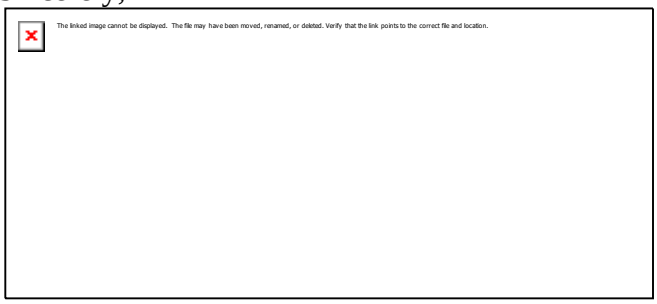
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,



Patrice M. Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Kate Parsons, ODNR-DOW

Rolfes, Brad

From: Ohio, FW3 <ohio@fws.gov>
Sent: Friday, August 27, 2021 10:11 AM
To: Rolfes, Brad
Cc: nathan.reardon@dnr.state.oh.us; Parsons, Kate; Thomayer, Matthew; Grant S Stuller
Subject: AEP - Groves Road – Shannon Transmission Line Preferred Route, Franklin County, Ohio

TAILS# 03E15000-2021-TA-2141

Dear Mr. Rolfes,

The U.S Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees ≥3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.
If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and

conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

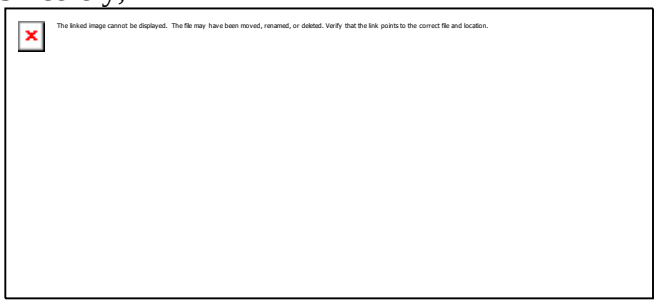
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,



Patrice M. Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Kate Parsons, ODNR-DOW

4906-5-05 PROJECT DESCRIPTION

(A) PROJECT AREA DESCRIPTION

This section provides a description of the Project area's geography, topography, populated centers, major industries, and landmarks.

(1) Project Area Map

Figure 5-1A through **Figure 5-1J** provides maps at 1:12,000 scale, showing an overview of the Preferred and Alternate Routes for the Project. These maps include the area 1,000 feet on each side of the proposed transmission centerlines. These maps depict the proposed transmission line, roads, parks, and recreational areas that are publicly owned, existing electric transmission line corridors, named lakes, reservoirs, streams, canals, rivers, and land use.

The information on the maps were updated through review of digital and georeferenced aerial photography, property parcel data from the Franklin County Auditor, and field reconnaissance completed in August 2020. The aerial photographs are georeferenced, orthocorrected color images derived from ESRI ArcGIS Online.

(a) Proposed Transmission Line Alignments: The proposed alignments for the Preferred and Alternate Routes for the Project, including the proposed turning points, are shown in **Figure 5-1A** through **Figure 5-1J**. Detailed descriptions of the routes are provided in Section 4906-5-02(A) (3).

(b) Proposed Station Locations: This section is not applicable for this Project.

(c) Major Highways and Railroad Routes: Major highways within 1,000 feet of the Preferred and Alternate Routes include Interstate Highway 70 (I-70), which crosses the Project area in an east-west direction, is located north of the Preferred Route and is not crossed by either route. Interstate Highway 270 (I-270) travels northeast to southwest across the Project and is crossed by both routes once. South Hamilton Road/State Highway 317 (OH-317) crosses the western portion of the Project area and is crossed by both routes once. Several county, township, and other local roads are also located within 1,000 feet of the routes.

One active railroad is located within 1,000 feet of the Preferred and Alternate Routes. The Norfolk Southern West Virginia Branch Railroad is active and crosses the Project area from west to southeast. Several shorter branch lines are also present within the main railroad corridor and adjacent south of the West Virginia Branch, beginning approximately 1,600 feet east of Cloverleaf Street (MR 451) and continuing west until splitting off to the south and terminating at industrial properties west of the Groves Road Station. The Preferred Route parallels the railroad corridor to the north between Cloverleaf Street (MR 451) and Brice Road (CR 117). Overall, the Preferred Route requires two railroad corridor crossings, and the Alternate Route does not require any railroad corridor crossings. Major roads and railroads are shown on **Figure 5-1A** through **Figure 5-1J**.

(d) Publicly identified and owned institutions, parks and recreational areas: Two government offices are located within 1,000 feet of the Preferred Route. The Brice Government Office is approximately 270 feet northeast of Old Refugee Road (CR 14) and Brice Road (CR 117), addressed 5990 Columbus Street, and the Brice Post Office is located approximately 575 feet southwest of Old Refugee Road (CR 14) and Brice Road (CR 117), addressed 3045 Brice Road. No other public buildings were identified in the Project area.

Five public, City of Columbus, parks are located within 1,000 feet of the Preferred Route, including: (1) Sol Shenk Parkland, located approximately 0.3 mile northeast of Cloverleaf Street (MR 451) and Groves Road (MR 957); (2) Walnut View Park, located approximately 0.5 mile northwest of Old Refugee Road (CR 14) and Brice Road (CR 117); (3) Shelbourne Parkland, located approximately 360 feet northwest of Old Refugee Road (CR 14) and Brice Road (CR 117); (4) Chatterton Brice Parkland, located adjacent northwest of the intersection of Chatterton Road (CR 340) and Brice Road (CR 117), and (5) Chatterton Parkland, located approximately 0.6 mile southwest of Chatterton Road (CR 340) and Brice Road (CR 117). Two of these five public parks are also identified on the United States Geological Survey (USGS) Protected Areas Database of the US (PADUS): Walnut View Park is identified as a private recreation or education scenic area and Shelbourne Parkland is identified as a local government park.

Six public City of Columbus parks are located within 1,000 feet of the Alternate Route: Mason Parkland COH, Helsel Park, and Big Walnut Parkland are located approximately 0.4 mile northeast

of I-270 and Winchester Pike (CR 376); Winchester Bend Parkland and Elk Run Park are located approximately 0.4 mile southeast of I-270 and Winchester Pike (CR 376), and M-Five Parkland is located approximately 0.2 mile west of Winchester Pike (376) and Shannon Road/Ebright Road (CR 118). Of these six public parks, Helsel Park is also identified on PADUS; however, the PADUS boundaries are not located within 1,000 feet of the Alternate Route.

(e) Utility Corridors: There are seven existing transmission line corridors within 1,000 feet of the Preferred and Alternate Routes. The Bixby – Groves Road 138 kV Transmission Line traverses south to north along the western portion of the Project area and connects into the Groves Road Station. The Bixby – Shannon 138 kV Transmission Line intersects the southeastern-most portion of the Project area, connecting to the Shannon Station from the south. The Groves Road – Bexley 138 kV, Groves Road – Etna 40 kV, and Groves Road – Livingston Avenue 40 kV transmission lines intersect the northwestern-most portion of the Project area, connecting to Groves Road Station either from the north or east. The Refugee – Groves Road 138 kV Transmission Line crosses the central Project area southeast to northwest, connecting to the Groves Road Station. The Shannon – Astor 138 kV Transmission Line traverses southwest to northeast along the eastern portion of the Project area and connects into the Shannon Station.

The Preferred Route includes a proposed rebuild of approximately 2.4 miles of the existing Shannon – Astor 138 kV Transmission Line and approximately 0.6 mile of the existing Refugee – Groves 138 kV Transmission Line within existing and maintained ROW. The Alternate Route includes a proposed rebuild of approximately 0.2 mile of the existing Refugee – Groves Road 138 kV Transmission Line and approximately 0.1 mile of the existing Shannon – Astor 138 kV Transmission Line within existing and maintained ROW. The Alternate Route also proposes paralleling the westside of the existing Bixby – Groves Road 138 kV Transmission Line for approximately 1.9 miles within existing, unmaintained ROW.

According to the National Pipeline Mapping System (“NPMS”), there are no known natural gas pipelines or hazardous liquid pipelines within the Study Area.

The alignments of existing transmission lines are identified on **Figure 5-1A** through **Figure 5-1J**.

(f) Lakes, Ponds, Reservoirs, Streams, Canals, and Rivers: There are no named lakes, reservoirs, or canals within the Project area. There are three named major streams within 1,000 feet of the Preferred and Alternative Routes: Big Walnut Creek flows north to southwest through the central portion of the Project area, Blacklick Creek flows northeast to southwest through the eastern portion of the Project area, and Mason Run flows northwest to south through the western portion of the Project area. The Preferred Route and Alternate Route both require one crossing of Big Walnut Creek and Blacklick Creek. The Alternate Route requires one crossing of Mason Run.

A full description of the lakes, ponds, reservoirs, streams, canals, rivers, and swamps (i.e. wetlands) located within 1,000 feet of the Preferred and Alternate Routes is provided in Section 4906-05-08(B)(1) of this Application. Maps at 1:6,000 scale showing water bodies mapped by the USGS and in the Project area, in addition to streams, ponds, and wetlands delineated within 260 feet of the Preferred and Alternate Routes are included displayed in **Figure 8-2A** through **8-2J**.

(g) Population Centers and Legal Boundaries: Population centers and legal boundaries within the vicinity of the proposed transmission line locations are shown on **Figure 5-1A** through **Figure 5-1J**. Legal boundaries within 1,000 feet of the Preferred and Alternate Routes include Truro and Madison Townships; the City of Columbus, the Village of Brice Village, and the Census Designated Place (CDP) of Blacklick Estates in Franklin County, Ohio.

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

The Preferred Route is 6.6 miles long and crosses 123 parcels. Of these 123 parcels, 74 are currently within the ROW of the existing Shannon – Astor 138 kV Transmission Line, and 5 are currently within the ROW of the existing Groves Road – Refugee 138 kV Transmission Line, which are proposed to be rebuilt as part of the Preferred Route. The Alternate Route is 5.2 miles long and crosses 54 parcels. Of these 54 parcels, four are currently within the ROW of the existing Shannon – Astor 138 kV Transmission Line, where rebuild is proposed, and 11 are within the existing Bixby – Groves Road 138 kV Transmission Line ROW. Both Route Alternatives have a proposed ROW width of 60 feet and use some amount of existing 138 kV transmission ROW. The Preferred Route requires 27.3 acres of greenfield ROW and uses 21 acres of existing, maintained

ROW, for a total ROW of 48.3 acres. The Alternate Route requires 21.3 acres of greenfield ROW and uses 16.2 acres of existing, unmaintained ROW, for a total ROW of 37.5 acres.

(B) ROUTE OR SITE ALTERNATIVE FACILITY LAYOUT AND INSTALLATION

(1) Proposed clearing, construction methods, and reclamation operations

The following paragraphs describe the proposed site clearing, construction methods, and reclamation operations of the Project.

(a) Surveying and Soil Testing

The Preferred Route has been surveyed to establish the centerline, ROW, and pole locations. The survey was completed using conventional and/or aerial methods. Topographic features and man-made structures in the vicinity of the Preferred Route that may affect the design were located during the survey. Offsets were used to survey around large trees and other large obstructions. Profile measurements were obtained by conventional or aerial methods. If the Alternate Route is selected surveying will be required using the same process outlined above. The centerline and ROW will be staked prior to construction.

Soil and rock tests may be performed along portions of the final approved route, if foundations for poles are necessary. Augered test borings will be achieved using a machine-driven auger at least 4 inches in diameter. Soil samples will be obtained continuously to an approximately 11-foot depth and then 5-foot intervals below 11 feet, and at any change in subsurface strata. Sampling will include split barrel samples in non-cohesive soils and thin-walled tube samples in cohesive soils. Typically, the testing will perform to a depth of 30 to 40 feet. If rock is encountered, a carbide-tipped bit will be drilled 5 to 10 feet into the rock.

(b) Grading and Excavation

Soil surface grading for the Project is not anticipated. It is anticipated that several self-supporting steel pole locations will be installed by direct-embed methods. Due to site-specific requirements, some self-supporting steel poles may require concrete foundations. The excavation for each

foundation will be approximately 5.5 to 8 feet in diameter and 20 to 35 feet deep. The Company will backfill around the foundation as necessary with clean fill, which consists of stone and stand. The remaining excavated material will be hauled off-site to an approved soils disposal site.

(c) Construction of Access Roads and Trenches

Construction access will be required for installation of the pole structures and stringing of the conductor cable or wire. Access roads will require the landowner's input and approval. Preliminary access roads are presented on **Figure 8-2A** through **Figure 8-2J**. Note that these access roads cannot be fully planned and identified until after a final route is approved and contact with affected landowners for the transmission line easements has been completed by the Company. Where access across wetlands or streams is necessary, timber mats or equivalent will be used where possible to minimize the environmental impacts. If field conditions necessitate the modification of the finalized access road locations during construction, the concurrence of the property owner will be obtained, necessary environmental field studies will be performed, and necessary permits will be updated.

(d) Stringing of Cable

During wire stringing operations, areas along the transmission line will be used as setup locations for the wire pulling equipment (such as conductor reels, groundwire reels, and the wire tensioner). Conductor will be installed using the tension stringing method. Lightweight cables or ropes will be fed through the stringing sheaves mounted on the poles. Conductors will be pulled through under sufficient tension to keep the conductor off the ground to prevent any damage to the conductor. Temporary guard or clearance poles will be used as a safety precaution at locations where the conductors could create a hazard to either crewmembers or the public. The locations and heights of clearance poles will be such that conductors are held clear of other electric distribution lines, communication cables, railroads and roadways. The stringing operation will be under the observation of transmission line construction crewmembers at all times. The observers will be in radio or visual contact with the operator of the stringing equipment.

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

The Project will be constructed using steel poles of varying types. Most pole locations will involve direct embed installation. Where necessary, due to site-specific conditions, installation of a concrete foundation may be used. The excavation of each concrete foundation will be approximately 5.5 to 8 feet in diameter and 20 to 35 feet deep.

(f) Post Construction Reclamation

Topsoil at pole excavations will be stockpiled when necessary and protected from erosion. Topsoil will be redistributed over disturbed areas to foster re-vegetation following construction (except in wetland areas). Restoration, including temporary and permanent seeding, will be coordinated with the construction activities to provide re-vegetation and soil stabilization at the earliest reasonable time. Following construction, all pole locations, material storage sites, and temporary access roads will be seeded with a suitable grass seed mixture as specified in the erosion and sediment control plan.

Re-vegetation techniques will enhance the ROW for use as possible wildlife habitat. Where stream banks are disturbed, they will be restored by planting of low-growing species, where necessary in order to reduce bank erosion. Lawn or garden areas, or paved areas damaged during the construction of the transmission line, will be restored to pre-construction conditions. Landscaping or landscape plantings damaged during construction will also be restored to pre-construction conditions or replaced as directed by affected property owners. After restoration is complete, the Company will periodically inspect the ROW for areas of erosion, sedimentation and inadequate re-vegetation conditions, if any. If such conditions are identified, corrective actions will be implemented.

(2) Facility Layout

No new associated facilities such as new stations or switch stations are proposed for the Project.

(a) Transmission Line Route Map

Figure 8-2A through **Figure 8-2J** show maps at 1:12,000 scale of the Preferred and Alternate Routes. These maps illustrate the data required by OAC 4906-5-05(A)(1). Although the additional information required by OAC 4906-5-05(B)(2)(a) (e.g., pole structure locations) will not be

finalized until a final route is approved by the OPSB and the final engineering design is complete, preliminary locations are provided for the Preferred and Alternate Routes. The data and information defined in OAC 4906-5-05(B)(2)(a) includes temporary access roads and proposed locations for transmission line poles. No buildings or fenced-in or secured areas are planned for the transmission line 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) Reasons for Proposed Layout and Unusual Feature

A detailed description of the reasons for the proposed layout (i.e., the Preferred Route and Route Alternative) are presented in the RSS in **Appendix 4-1**. There are no unusual features within the Project area beyond the generally developed land use.

(c) Future Modification Plans: The Company's planning engineers generally forecast future transmission projects in a five-year planning window. The Company currently has no plans for future modifications of the proposed Groves Road-Shannon 138 kV Transmission Line.

(C) TRANSMISSION EQUIPMENT

(1) Electric Transmission Line Data

(a) Design Voltage: The Groves Road-Shannon 138 kV Transmission Line will be designed for and operated at 138 kV.

(b) Pole, Conductor, and Insulator Design: The majority of the line will be composed of a tangent, Alternating Delta monopole structures (Figure 5-1) with an estimated aboveground height of 86 feet (116 feet total length). The conductor used for the new transmission line will be a 795 thousand circular mil ("kcm") 26/7 aluminum conductor steel-reinforced cable ("ACSR") per phase. This conductor has a maximum strength of approximately 31,500 pounds ("lbs."). The new line will utilize one 7#10 Alumoweld shield wire. The 7#10 shield wire has a maximum strength of 10,020 lbs. Both the phase conductors and the shield wire will be installed in accordance to the

latest version of the National Electric Safety Code. The conductors will be supported by aluminum clamps which will be attached to the insulators. Aluminum suspension clamps will support the shield wires. At dead-end locations, compression dead-end clamps will be used on both the conductor and the shield wire.

(c) Base and Foundation Design: All medium to heavy angle locations may require installation of one concrete foundation. The excavation for each concrete foundation will be approximately 5.5 to 8 feet in diameter and 20 to 35 feet deep.

(d) Underground Cable: There are no underground cables associated with this Project; therefore, this section is not applicable.

(e) Other Major Equipment or Special Structures: There is no other major equipment or special structures associated with this Project; therefore, this section is not applicable.

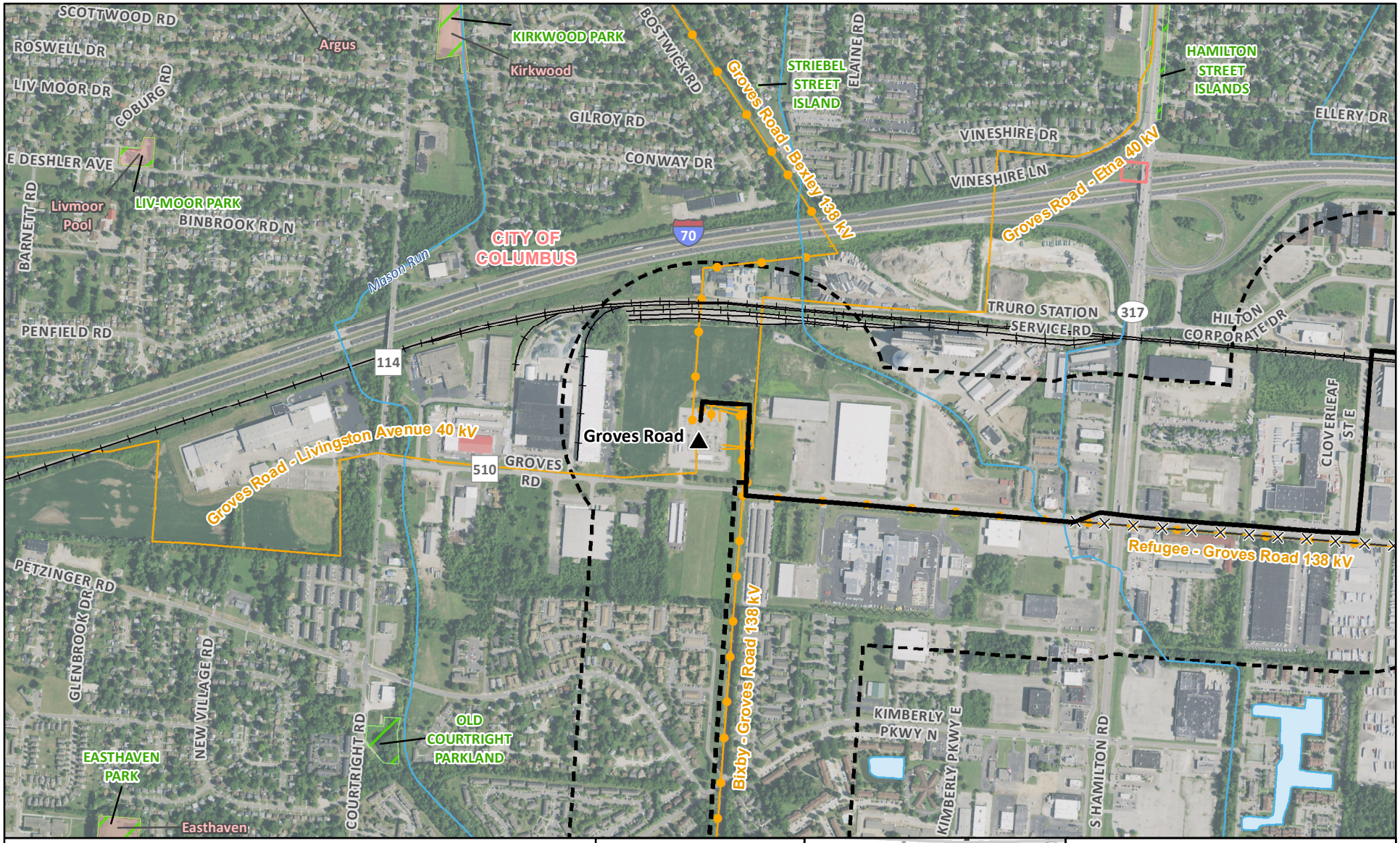
(2) Electric Transmission Station Data

Not applicable.

(3) Gas Transmission Line Data

Not applicable.

FIGURES



- Existing Station
- Railroad
- Preferred Route
- Alternate Route
- Existing Transmission to be Retired

Existing Transmission Line

- 69 kV and below
- 138 kV
- Railroad
- NHD Stream or River
- 1,000 Foot Buffer
- NHD Waterbody
- City of Columbus Park or Easement Boundary

Protected Areas - Ownership Type

- Local Government
- Township Boundary
- Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South NAD 83

March 03, 2022

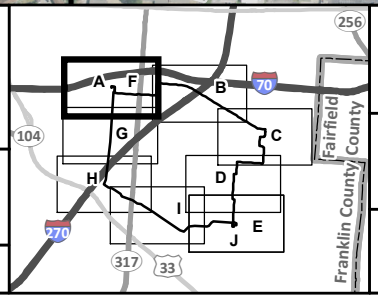
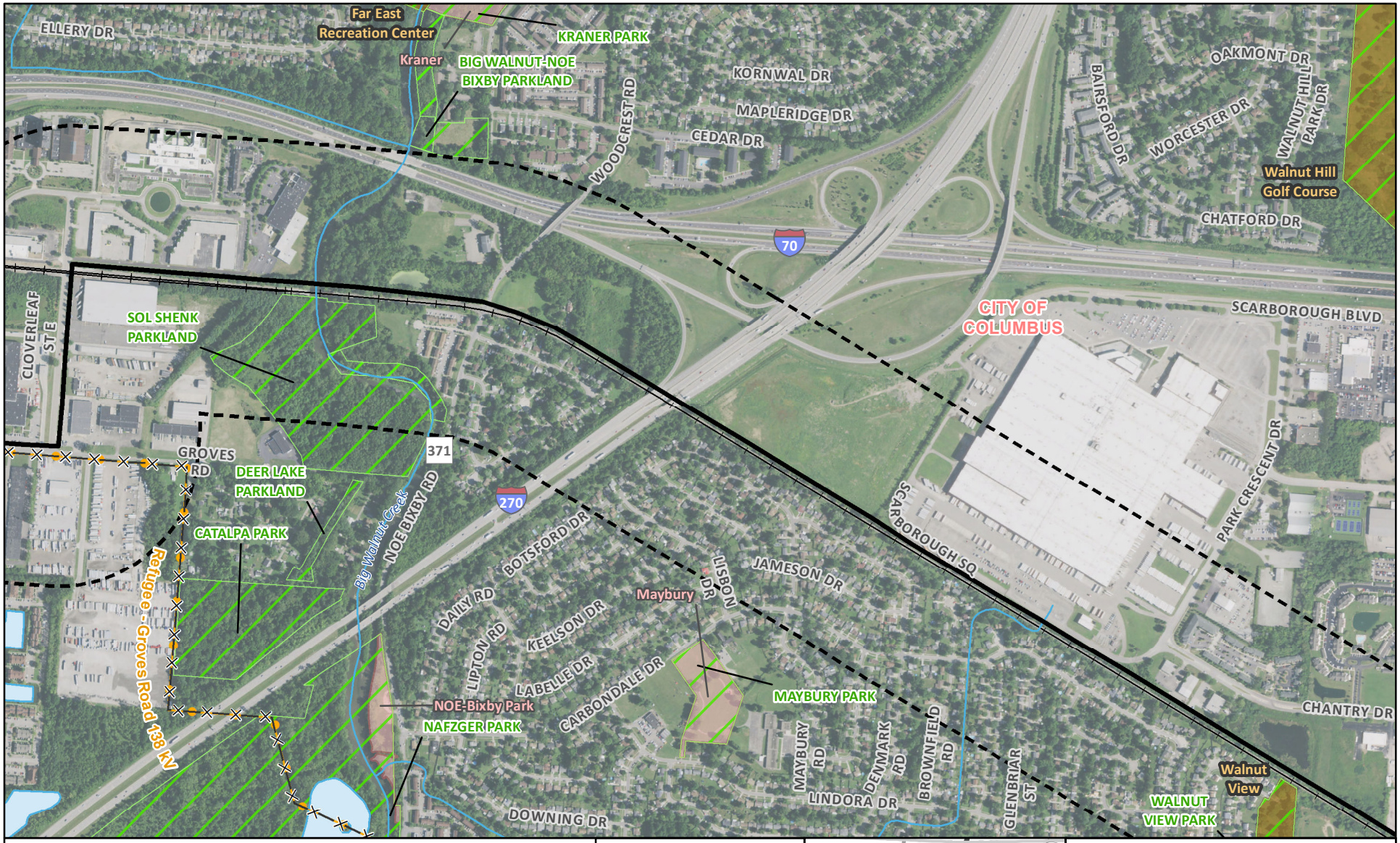


Figure 5-1A
Alternative Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Railroad
Preferred Route
Existing Transmission to be Retired

Existing Transmission Line
138 kV
Railroad
NHD Stream or River
1,000 Foot Buffer

NHD Waterbody
City of Columbus Park or Easement Boundary

Protected Areas - Ownership Type
Local Government
Private Land

Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

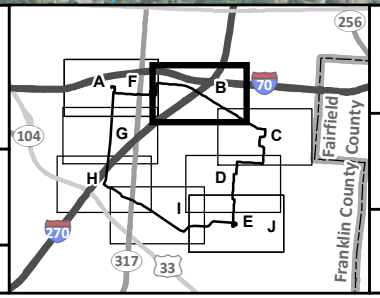
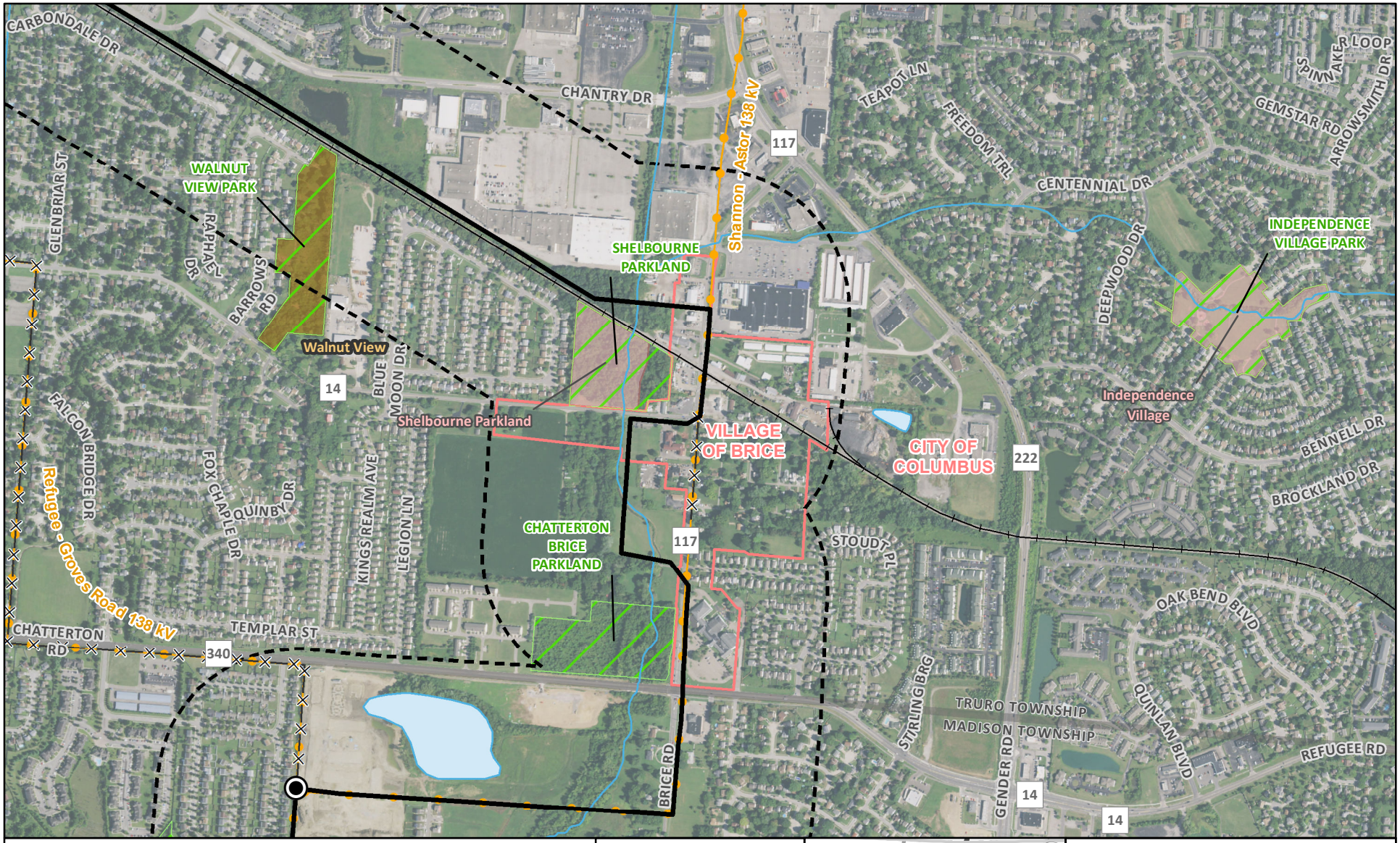


Figure 5-1B
Alternative Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Refugee Switch (to be removed)
Railroad
Preferred Route
Existing Transmission to be Retired

Existing Transmission Line
138 kV

Railroad
NHD Stream or River
1,000 Foot Buffer
NHD Waterbody
City of Columbus Park or Easement Boundary

Protected Areas - Ownership Type
Local Government

Private Land
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

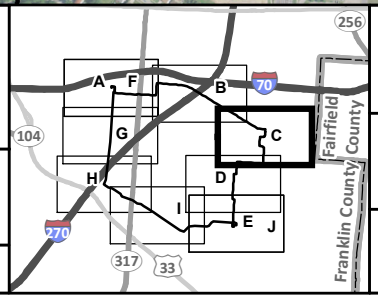
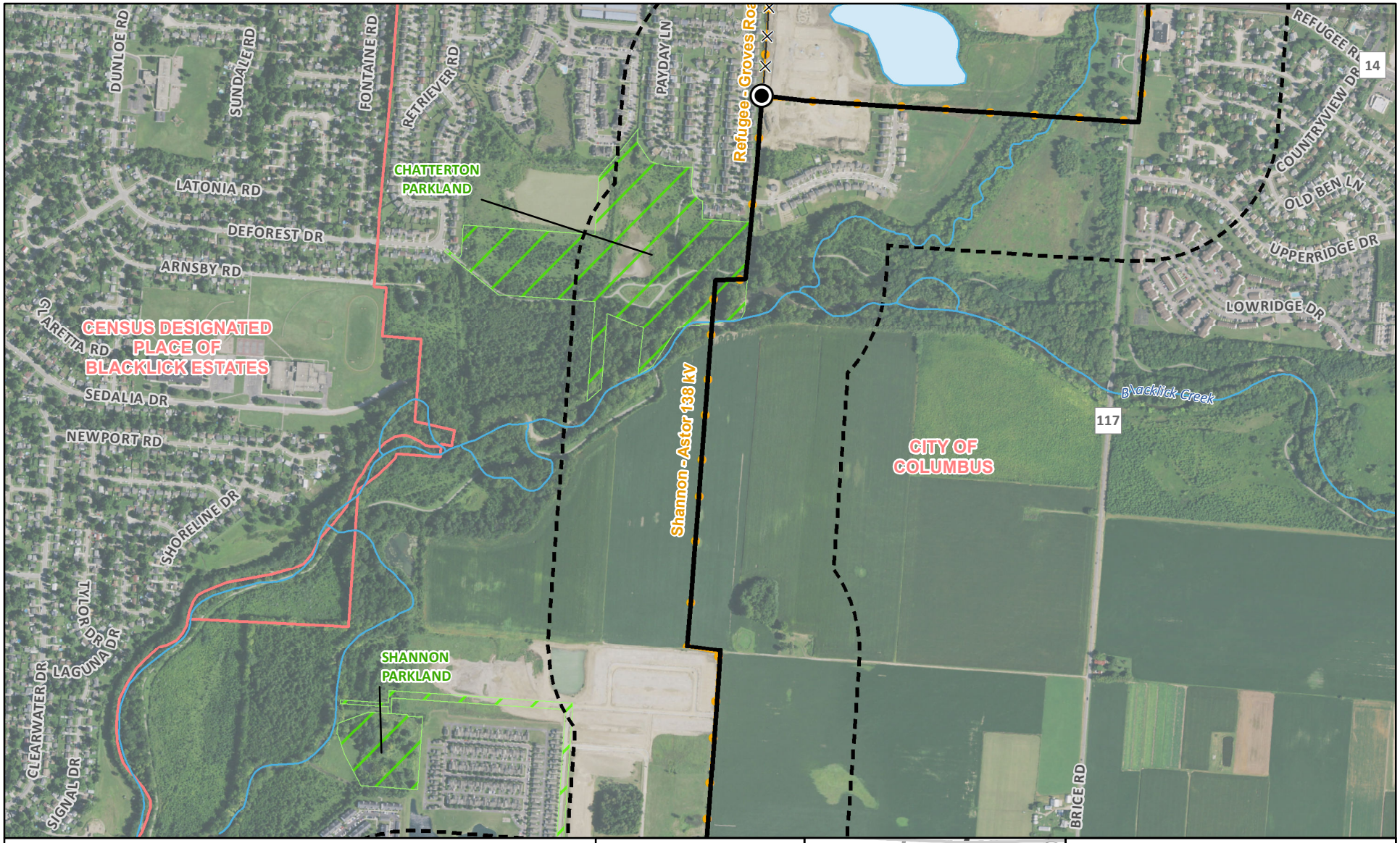


Figure 5-1C
Alternative Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Refugee Switch (to be removed)
Preferred Route
Existing Transmission to be Retired

Existing Transmission Line
138 kV
NHD Stream or River
1,000 Foot Buffer

NHD Waterbody
City of Columbus Park or Easement Boundary
Township Boundary

Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

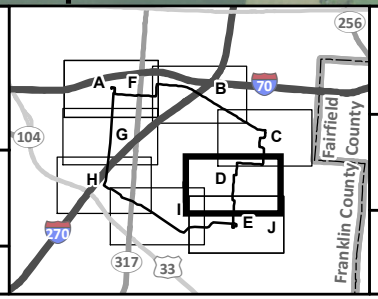
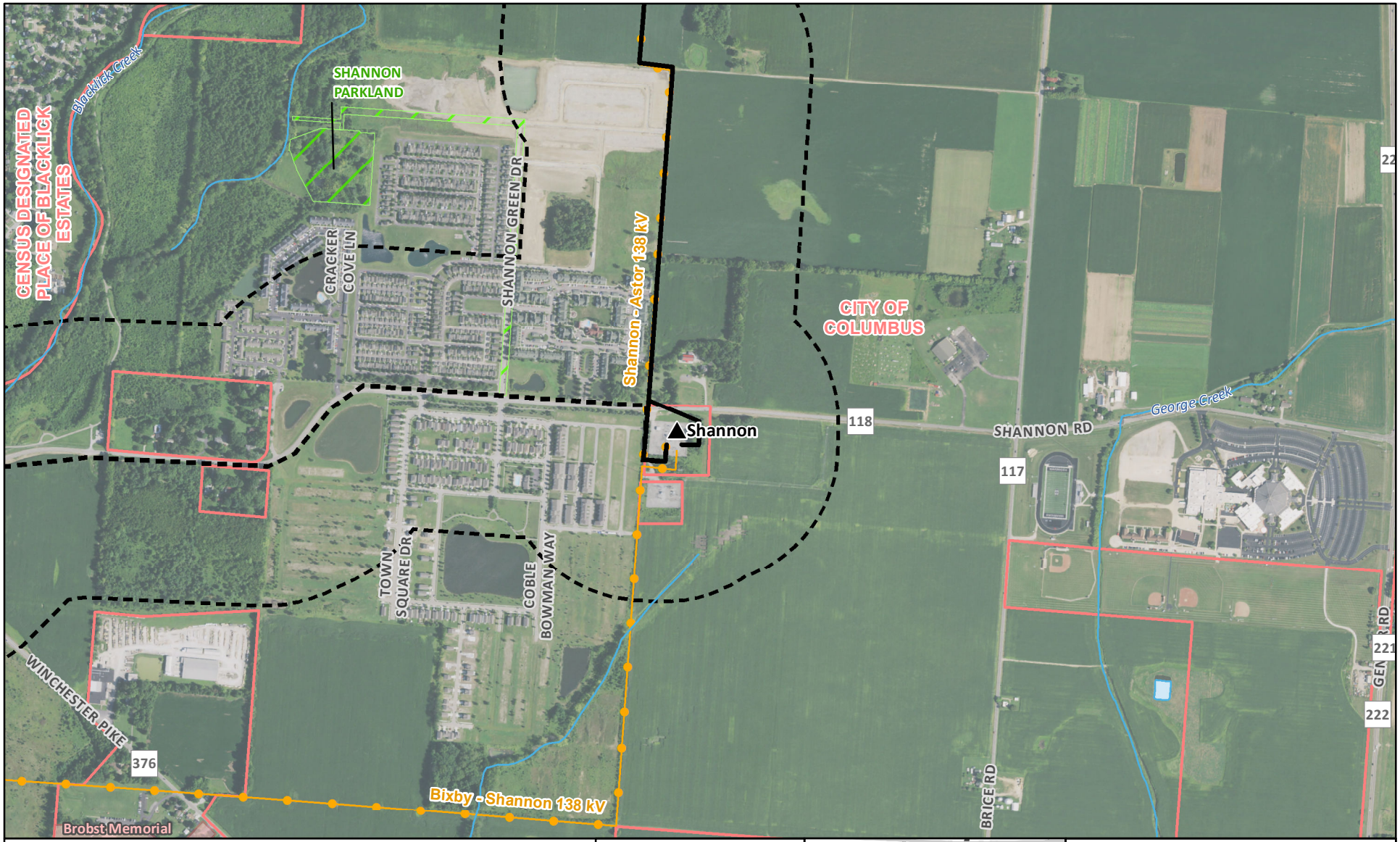


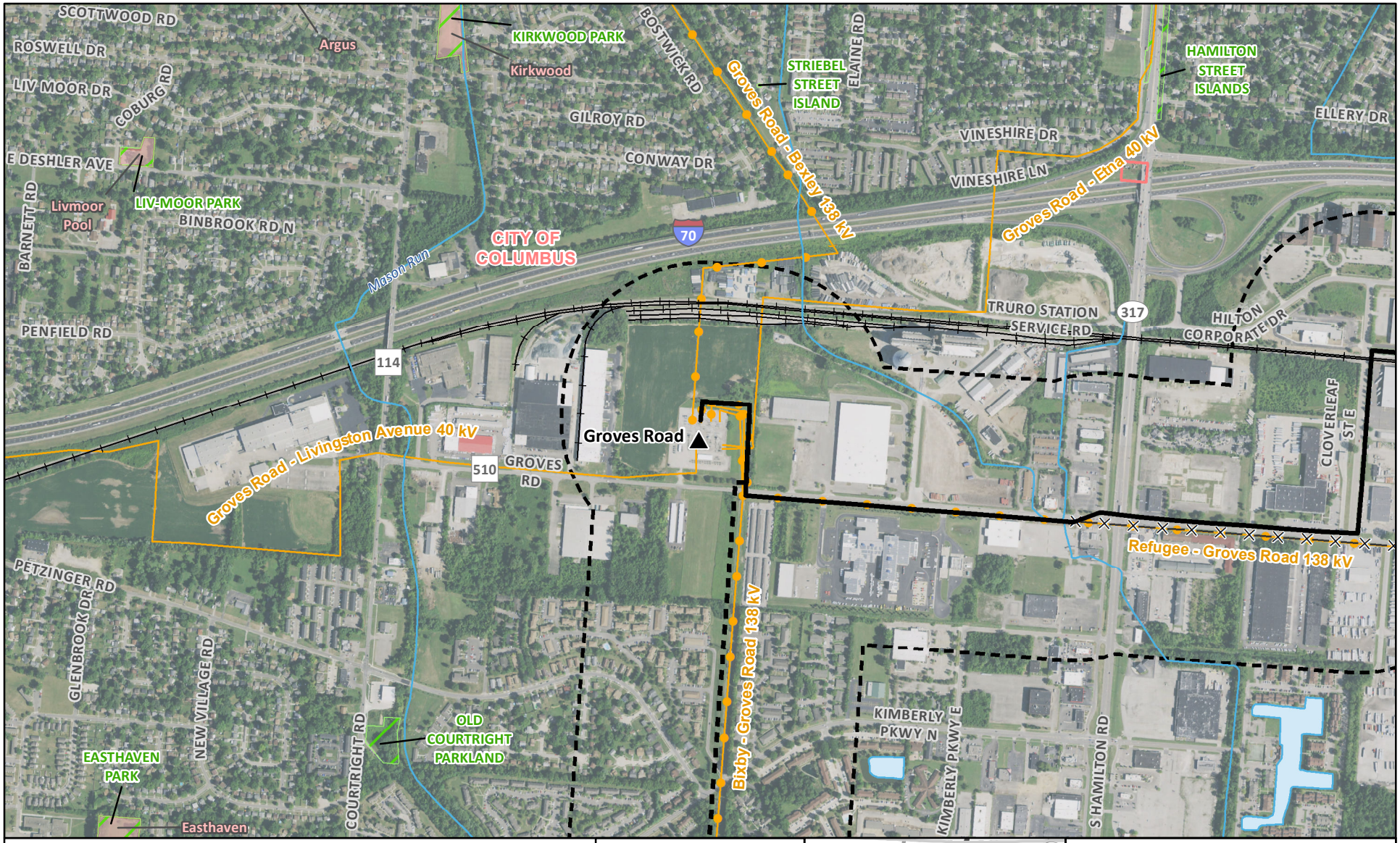
Figure 5-1D
Alternative Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet


CENSUS DESIGNATED PLACE OF BLACKLICK ESTATES
Blacklick Creek
SHANNON PARKLAND
CRACKER COVE LN
SHANNON GREEN DR
Shannon - Astor 138 kV
CITY OF COLUMBUS
Shannon
118
SHANNON RD
George Creek
117
TOWN SQUARE DR
COBLE BOWMAN WAY
WINCHESTER PIKE
376
Bixby - Shannon 138 kV
Brobst Memorial
BRICE RD
222
Existing Station
Preferred Route
Alternate Route
Existing Transmission Line
138 kV
NHD Stream or River
1,000 Foot Buffer
NHD Waterbody
City of Columbus Park or Easement Boundary
Protected Areas - Ownership Type
Local Government
Township Boundary
Municipal Boundary
Data Sources: AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)
State Plane Ohio South NAD 83
March 03, 2022
Franklin County
Fairfield County
Figure 5-1E
Alternative Routes Overview
AEP OHIO TRANSMISSION COMPANY
Groves Road - Shannon 138 kV Transmission Line Project
0
1,000
2,000
Feet



- Existing Station
- Railroad
- Preferred Route
- Alternate Route
- Existing Transmission to be Retired

Existing Transmission Line

- 69 kV and below
- 138 kV
- Railroad
- NHD Stream or River
- 1,000 Foot Buffer
- NHD Waterbody
- City of Columbus Park or Easement Boundary

Protected Areas - Ownership Type

- Local Government
- Township Boundary
- Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South NAD 83

March 03, 2022

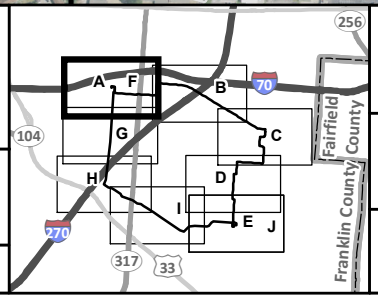


Figure 5-1F
Alternative Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet

- Alternate Route
- **Existing Transmission Line**
  - 138 kV
  - NHD Stream or River
- 1,000 Foot Buffer
- NHD Waterbody
- City of Columbus Park or Easement Boundary
- **Protected Areas - Ownership Type**
  - Local Government
  - Township Boundary
  - Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

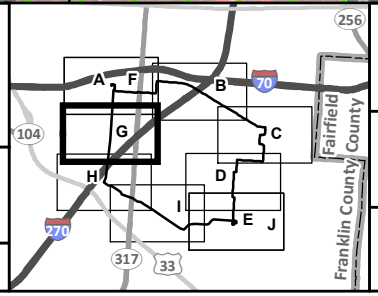
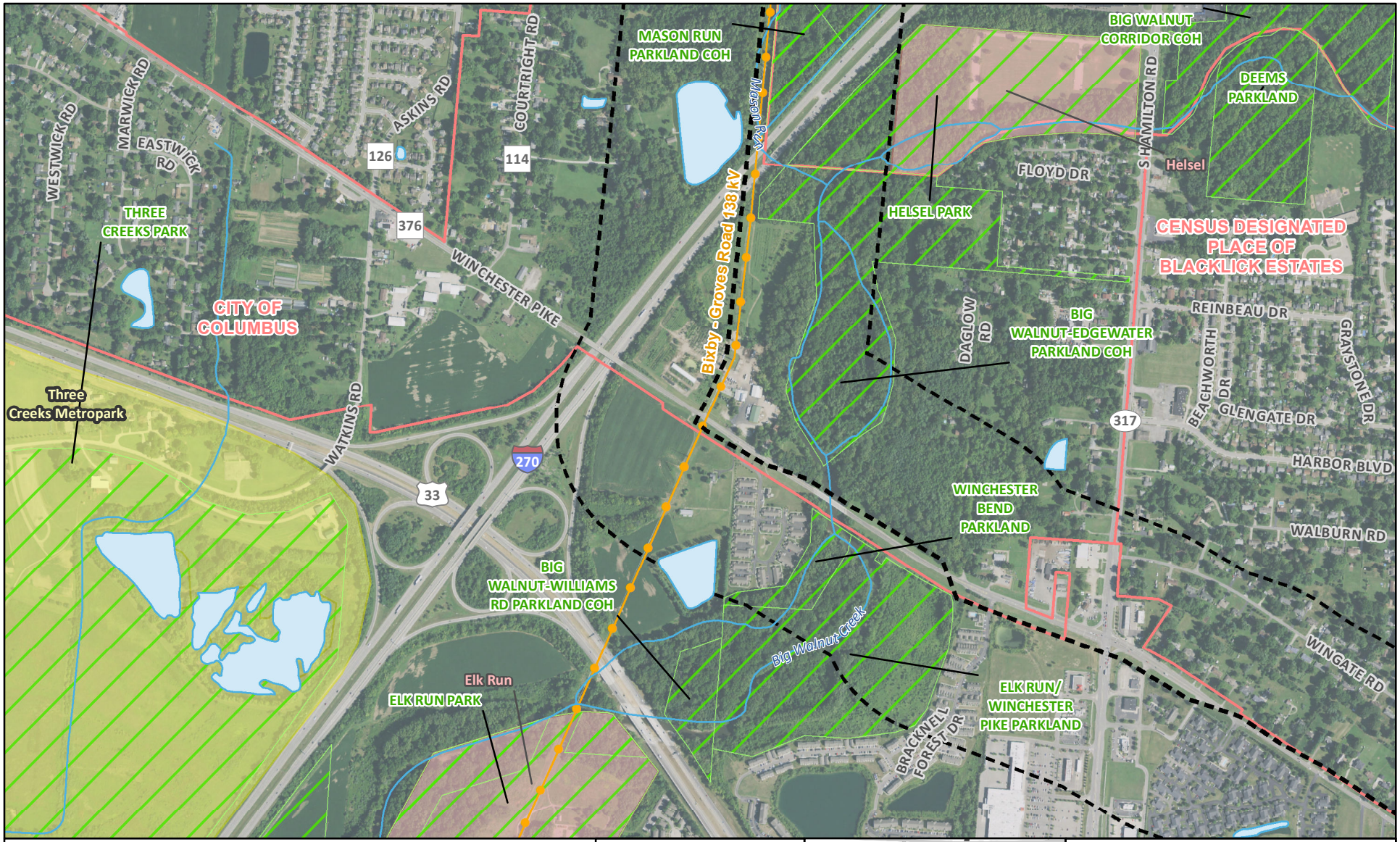


Figure 5-1G
Alternative Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Alternate Route

Existing Transmission Line

138 kV

NHD Stream or River

1,000 Foot Buffer

NHD Waterbody

City of Columbus Park or Easement Boundary

Protected Areas - Ownership Type

Local Government

Regional Agency Special District

Township Boundary

Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

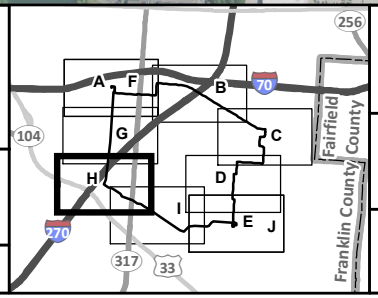
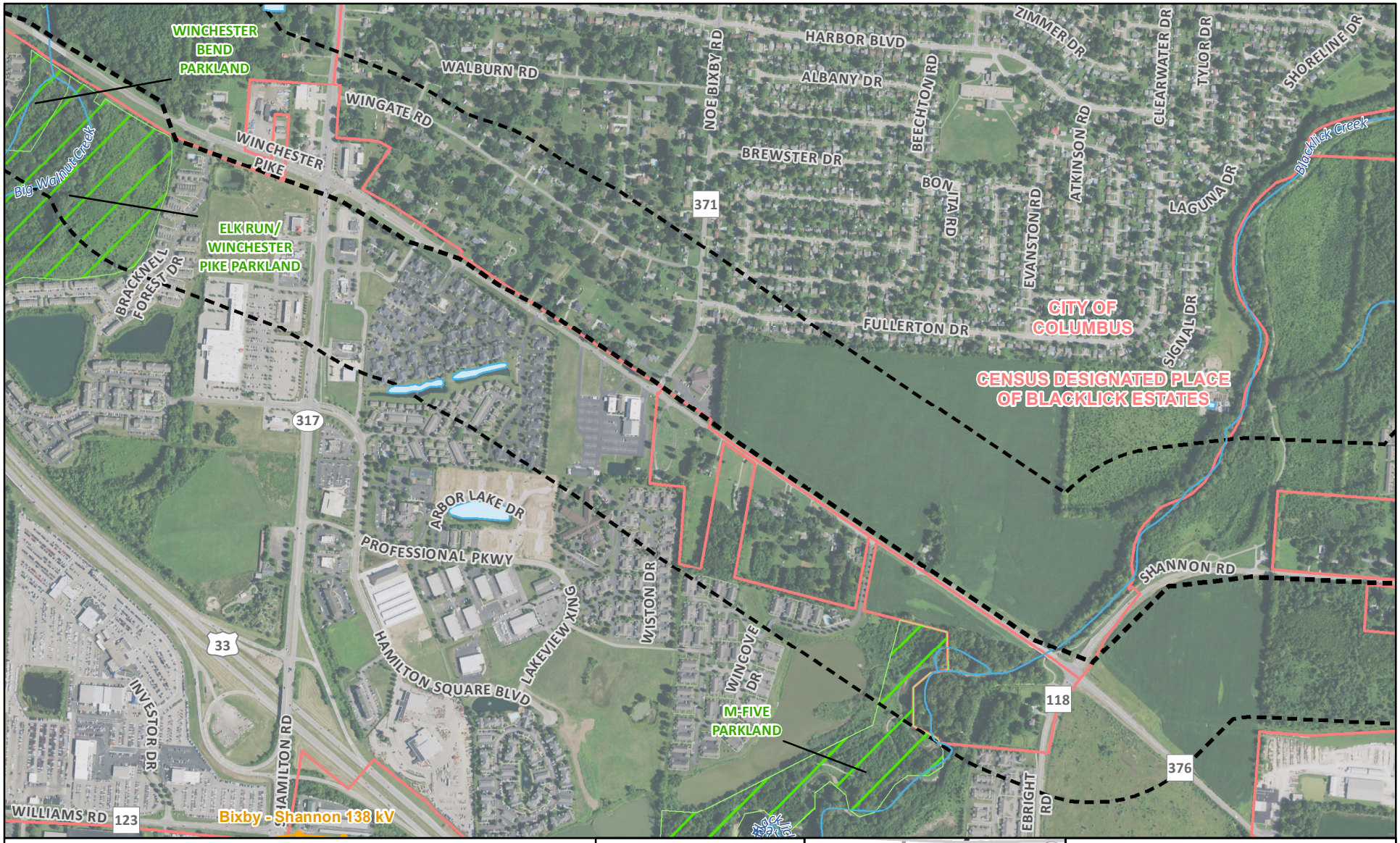


Figure 5-1H
Alternate Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Alternate Route

Existing Transmission Line

- 138 kV
- NHD Stream or River
- 1,000 Foot Buffer
- NHD Waterbody
- City of Columbus Park or Easement Boundary
- Township Boundary
- Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South NAD 83

March 03, 2022

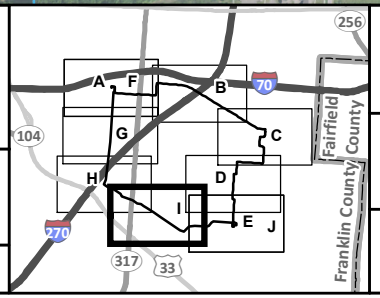
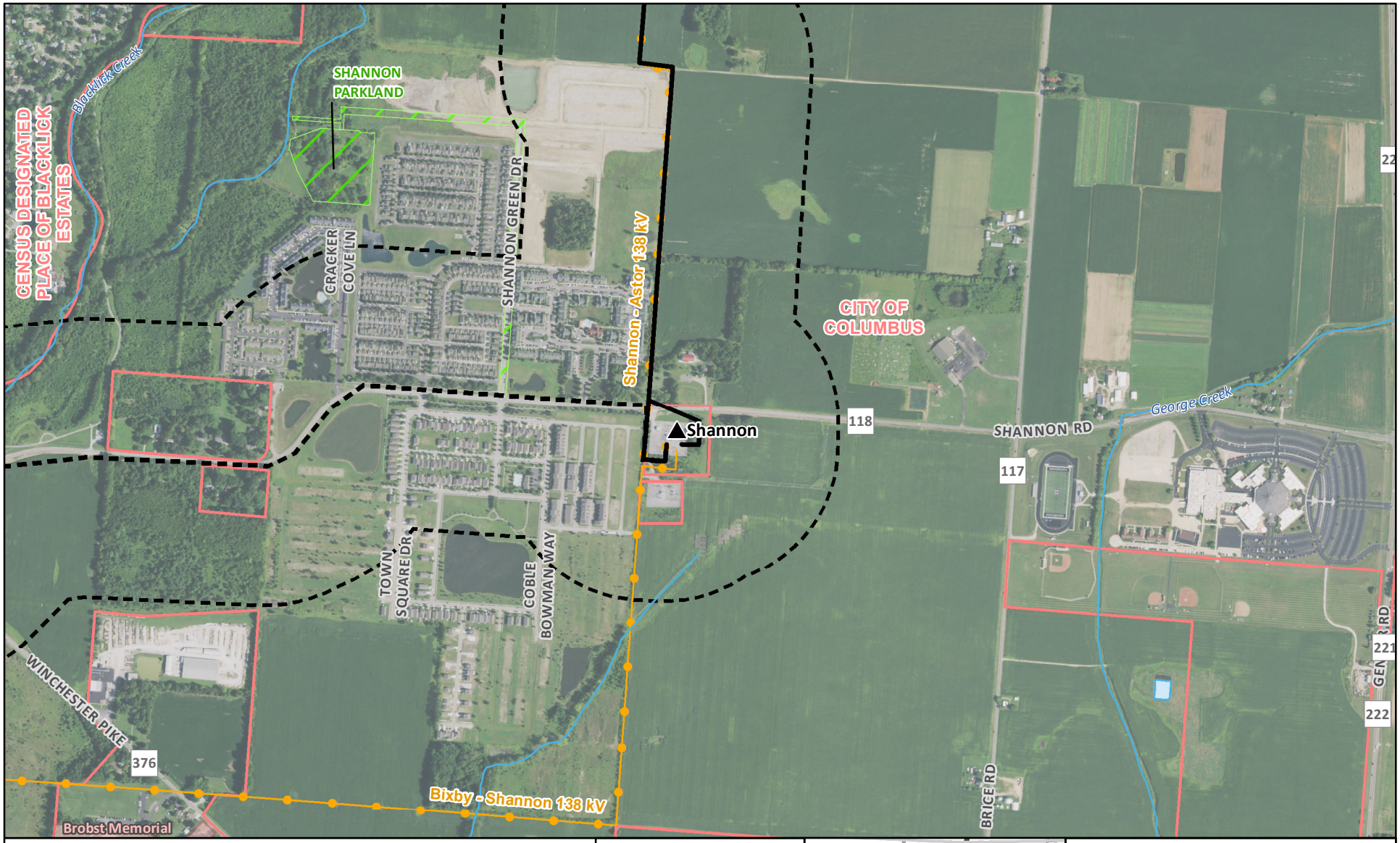


Figure 5-1l
Alternative Routes Overview

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet


CENSUS DESIGNATED PLACE OF BLACKLICK ESTATES
Blacklick Creek
SHANNON PARKLAND
CRACKER COVE LN
SHANNON GREEN DR
Shannon - Astor 138 kV
CITY OF COLUMBUS
Shannon
118
SHANNON RD
George Creek
117
TOWN SQUARE DR
COBLE BOWMAN WAY
WINCHESTER PIKE
376
Bixby - Shannon 138 kV
Brobst Memorial
BRICE RD
222
Existing Station
Preferred Route
Alternate Route
Existing Transmission Line
138 kV
NHD Stream or River
1,000 Foot Buffer
NHD Waterbody
City of Columbus Park or Easement Boundary
Protected Areas - Ownership Type
Local Government
Township Boundary
Municipal Boundary
Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)
State Plane Ohio South NAD 83
March 03, 2022
Fairfield County
Franklin County
A
B
C
D
E
F
G
H
I
J
70
104
270
317
33
256
Figure 5-1J
Alternative Routes Overview
AEP OHIO TRANSMISSION COMPANY
Groves Road - Shannon 138 kV Transmission Line Project
0
1,000
2,000
Feet

APPENDIX 5-1:

Long-Term Forecast Report of the Company

PUCO Form FE-T9
AEP Ohio Transmission Company
Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	Groves - Shannon (s2282), TP2019017
POINTS OF ORIGIN AND TERMINATION	Groves, Shannon INTERMEDIATE STATION - N/A
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	5 mi / 100 ft / 1 circuit
VOLTAGE: DESIGN / OPERATE	138 kV/ 138 kV
APPLICATION FOR CERTIFICATE:	2021
CONSTRUCTION:	2023-2024
CAPITAL INVESTMENT:	$18M
PLANNED SUBSTATION:	N/A
SUPPORTING STRUCTURES:	Steel
PARTICIPATION WITH OTHER UTILITIES	N/A
PURPOSE OF THE PLANNED TRANSMISSION LINE	Rebuild of existing 138 kV line
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of equipment failure.
MISCELLANEOUS:	

4906-5-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

(A) OWNERSHIP OF PROPOSED FACILITY

The Company will construct, own, operate, and maintain the proposed Groves Road-Shannon 138 kV Transmission Line.

(B) ELECTRIC CAPITAL COST

The Company developed estimates of the applicable intangible and capital costs for a variety of components of the Project. Each of the enumerated components is included in **Table 6-1**. The table also includes estimates of applicable intangible and capital costs for both the Preferred and Alternate Routes of the Project. The Preferred Route costs below include approximately 3 miles of double circuit construction, with the Shannon-Astor 138 kV line. If the Alternate Route was selected, rebuilding the single circuit Shannon-Astor 138 kV line would still be required; therefore a portion of the cost estimated, roughly $7,000,000, of the Preferred Route would be needed regardless, in order to construct the overall Southeast Columbus Area Improvement Projects. In addition, building double circuit provides some cost efficiencies by rebuilding both circuits at the same time, on ROW already acquired by the Company.

Table 6-1. Estimates of Applicable Intangible and Capital Costs

FERC Account Number	Description	Preferred Route	Alternate Route
350	Land and Land Rights	$2,431,668	$5,380,947
352	Structures and Improvements	-	-
353	Substation Equipment	-	-
354	Towers and Fixtures	-	-
355	Poles and Fixtures	$9,058,870	$5,218,803
356	Overhead Conductors and Devices	$1,729,990	$1,004,096
357	Underground Conductors and Insulation	-	-
358	Underground-to-Overhead Conversion Equipment	-	-
359	ROW Clearing and Roads, Trails or Other Access	$8,260,473	$6,187,589
	TOTAL	**$21,481,000**	**$17,791,435**

(C) GAS CAPITAL COST

This Application is for an electric transmission line; therefore, this section is not applicable.

(D) PUBLIC INTERACTION INFORMATION

This section of the application provides information regarding public interaction and the economic impact for each of the route alternatives.

(1) Counties, Townships, Villages, and Cities Within 1,000 feet of the Preferred and Alternate Routes

Madison and Truro Townships within Franklin County are crossed by both the Preferred and Alternate Routes. The Preferred Route is located within 1,000 feet of the City of Columbus and the Village of Brice. The Alternative Route is located within 1,000 feet of the City of Columbus and the Census Designated Place of Blacklick Estates. No other counties, townships, villages, or cities are located within 1,000 feet on either side of the Preferred and Alternate Routes.

(2) Public Officials Contacted

Appendix 6-1 provides a list of the local public officials, including their office addresses and office telephone numbers, who have been contacted to date and who will be provided a digital or hard copy of the Application.

(3) Public Information Programs

The Company mailed letters to landowners and elected officials, issued a public notice and a news release to the local media, created a Project website (https://aeptransmission.com/ohio/SoutheastColumbus/), hosted a virtual public open house program in November 2020, and hosted an in-person and virtual open house in December 2021.

During the construction of this Project, the Company will maintain Project updates on its website, retain ROW land agents to discuss Project timelines, construction and restoration activities, and convey this information to affected owners and tenants. Copies of informational materials available at the public open house is included in Appendix 6-2.

Throughout the duration of the Project, the public could contact Joe Demaree, Project Outreach Specialist, at 380-205-5046, or email jkdemaree@aep.com to ask questions or provide comments. To access the Project's website, please visit http://www.aeptransmission.com/ohio/ and click the Southeast Columbus Area Improvements Project link.

For copies of the Application, the public can do any of the following:

- Going to a local Columbus Metropolitan Library Branch (Reynoldsburg or Southeast Branch)
- Go to http://opsb.ohio.gov and search for this project's case number (Case No. 21-0199-EL-BTX)
- Access the project's website (https://aeptransmission.com/ohio/SoutheastColumbus) and follow the directions to obtain a copy.

On the Company's website, there is information on how to contact AEP representatives to express comments or questions regarding the Project.

The Company has logged comments and information provided through its public interaction program. This information can be shared with the OPSB Staff upon request.

At least 7 days prior to any construction activities, the Company will notify landowners or tenants by mail, telephone, or in person, depending on landowner preference.

(4) Liability Compensation

AEP's insurance program for construction and operation of the proposed facility is outlined below:

- The Company maintains bodily injury and property damage liability insurance with limits of at least $1,000,000 for each occurrence.
- The Company is a qualified self-insuring employer under the State of Ohio Worker's Compensation law. AEP maintains insurance as required by the Industrial Commission of Ohio statutes.

(5) Tax Revenues

The Preferred and Alternate Routes are located in Madison and Truro Townships within Franklin County. The local school districts, park districts, and fire departments will also receive tax revenue from the Project. The Company will pay property taxes on the utility facilities in each jurisdiction. The approximate annual property taxes associated with the Preferred and Alternate Routes over the first year after the Project is completed are $1,810,800 and $1,575,000 respectively.

Based on the 2021 tax rates, the following is an estimated distribution of taxes by township, county, and other tax districts:

Preferred Route

Franklin County	$343,500
Truro Township	$36,900
Columbus City	$50,300
Brice Corp	$4,600
Columbus City School District	$986,700
Groveport-Madison Local School District	$321,700
Columbus & Franklin County Public Library	$48,600
Columbus State Community College	$8,100
Eastland Joint Vocational School District	$10,400
TOTAL	**$1,810,800**

Alternate Route

Franklin County	$284,400
Madison Township (exc. Cw, Grvp, Obtz, Pick)	$4,200
Madison Township	$182,200
Columbus City	$23,500
Columbus City School District	$522,700
Groveport-Madison Local School District	$495,100
Columbus & Franklin County Public Library	$40,200
Columbus State Community College	$6,900
Eastland Joint Vocational School District	$15,800
TOTAL	**$1,575,000**

APPENDIX 6-1:

PUBLIC OFFICIALS CONTACTED AND

OFFICIALS TO BE SERVED A COPY OF CERTIFIED APPLICATION

Groves Road – Shannon 138 kV Transmission Line Project
Public Officials Contacted and Officials to be Served
A Copy of Certified Application

Franklin County Board of Commissioners
Ms. Erica C. Crawley, President
Mr. John O'Grady
Mr. Kevin L. Boyce
373 South High Street
Columbus, Ohio 45215
614-525-3322

Franklin County Engineer
Mr. Cornell R. Robertson, P.E., P.S.
970 Dublin Road
Columbus, Ohio 43215
614-525-3043

Franklin County Soil & Water Conservation District
Ms. Jennifer Fish, Director
1404 Goodale Boulevard, Suite 100
Columbus, Ohio 43212
614-486-9613

Village of Brice
Mr. John Mathys, Mayor
Mr. Josh Ford, Engineering
Mr. Jim McFarland, Zoning Officer
Ms. Patricia Stevens, Fiscal Officer
5990 Columbus Street, PO Box 65
Brice, Ohio 43109
614-864-8591

City of Columbus Council
Mr. Shannon Hardin, President
90 West Broad Street, 2nd Floor
Columbus, Ohio 43215
614-645-5291

Madison Township Trustees
Ms. Michele Reynolds, Chair
Ms. Katherine Chipps, Vice Chair
Mr. John Pritchard
4575 Madison Lane
Groveport, Ohio 43125
614-836-5308

Madison Township Fiscal Officer
Ms. Laurie Vermeer
4575 Madison Lane
Groveport, Ohio 43125
614-836-5308

Truro Township Trustees
Mr. Pat Mahaffey
Mr. Chris Long
Mr. Dennis Nicodemus
6900 East Main Street
Reynoldsburg, Ohio 43068
614-866-1317

Truro Township Fiscal Officer
Ms. Natalie Nicodemus
6900 East Main Street
Reynoldsburg, Ohio 43068
614-866-1317

Columbus Metropolitan Library
Mr. Patrick Losinski, CEO
96 South Grant Avenue
Columbus, Ohio 43215
614-849-1000

Groves Road – Shannon 138 kV Transmission Line Project
Public Officials Contacted and Officials to be Served
A Copy of Certified Application

City of Columbus Mayor
Mr. Andrew Ginther
90 West Broad Street, 2nd Floor
Columbus, Ohio 43215
614-645-7671

APPENDIX 6-2:

PUBLIC INFORMATION PROGRAMS

November 11, 2020

IMPORTANT INFORMATION ABOUT YOUR PROPERTY

«Owner_Name»
«Mailing_Address_MA»
«MA_City», «MA_State» «MA_Zip»

RE: Southeast Columbus Area Improvements Project Announcement & Virtual Open House Invitation

Dear Neighbor,

You are receiving this letter because you own property or live in the area where AEP Ohio representatives plan to upgrade the local power grid.

The Southeast Columbus Area Improvements Project involves:

- Building approximately 5 miles of 138-kilovolt (kV) transmission line between Groves and Shannon substations
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Astor and Shannon substations
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Bixby and Shannon substations
- Expanding Shannon Substation near the intersection of Shannon Road and Brice Road

The project helps increase electric reliability, reduce the likelihood of extended power outages and speed recovery of service when outages occur.

As a result of the COVID-19 pandemic and the social distancing recommendations made by the Centers for Disease Control and Prevention (CDC), you are invited to a virtual (online) open house to learn more and share your input, particularly on possible route options. Please visit **AEPOhio.com/SoutheastColumbus** to access project information, view an interactive map and submit comments through a "Contact Us" link. You can also complete the enclosed comment card and mail it back to us. **Please share your feedback by Friday, December 4**.

When sharing your input please feel free to include information about your property such as:

- Historically significant buildings or landmarks such as cemeteries
- Natural features such as wetlands or springs
- Future plans for your property

Please review the enclosed fact sheet for more information. Feel free to contact me if you have any questions.

Sincerely,

Brian Recker
Project Outreach Specialist
AEP Ohio
(380) 205-5381
brecker@aep.com

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
An AEP Company
BOUNDLESS ENERGY™

AEP Ohio representatives plan power grid upgrades to improve electric reliability for customers in southeast Columbus and Groveport. The Southeast Columbus Area Improvements Project involves building about 5 miles of electric transmission line, rebuilding about 9 miles of electric transmission line and expanding a substation.

WHAT

The project involves:

- Building approximately 5 miles of 138-kilovolt (kV) transmission line between Groves and Shannon substations
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Astor and Shannon substations
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Bixby and Shannon substations
- Expanding Shannon Substation near the intersection of Shannon Road and Brice Road

*This project requires Ohio Power Siting Board (OPSB) approval

WHY

The project:

- Strengthens the local electric transmission system
- Reduces the likelihood of power outages
- Speeds recovery of service when outages occur

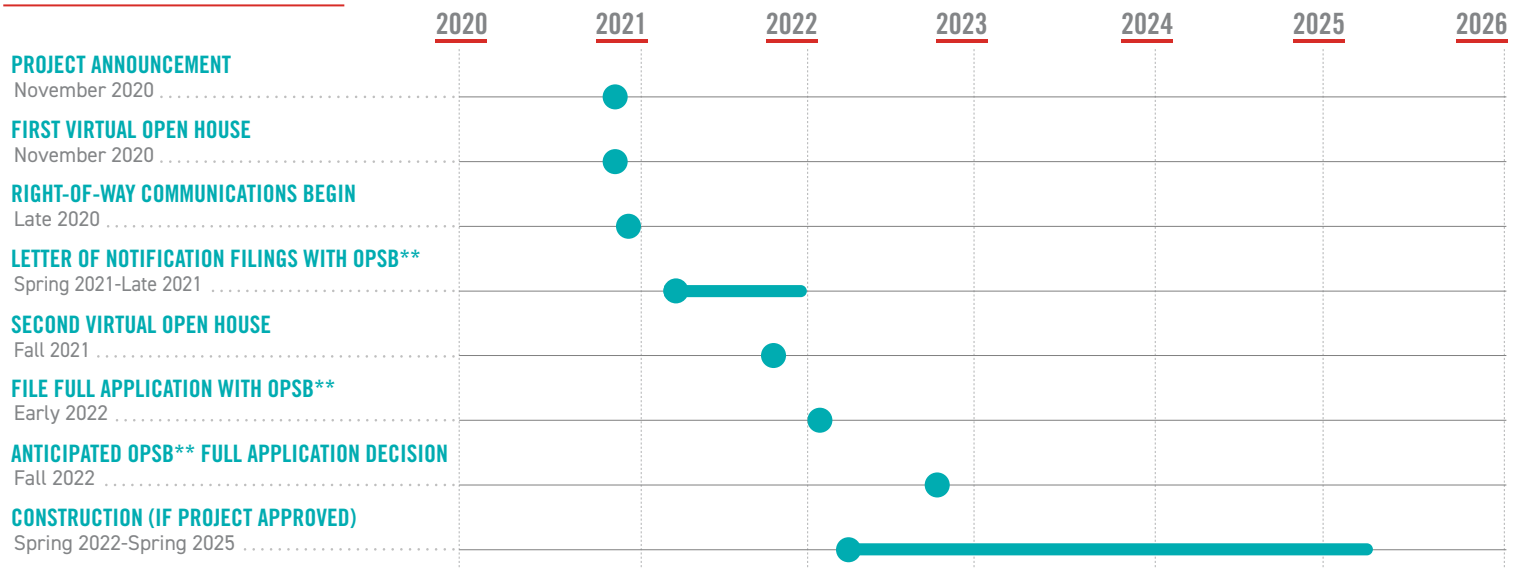
WHERE

The project area includes:

- City of Columbus
- City of Groveport
- Truro and Madison townships in Franklin County

We are requesting feedback on possible route options for the power lines. Your feedback is important to us and helps our team determine a power line route that minimizes impact to the community and environment.

PROJECT SCHEDULE



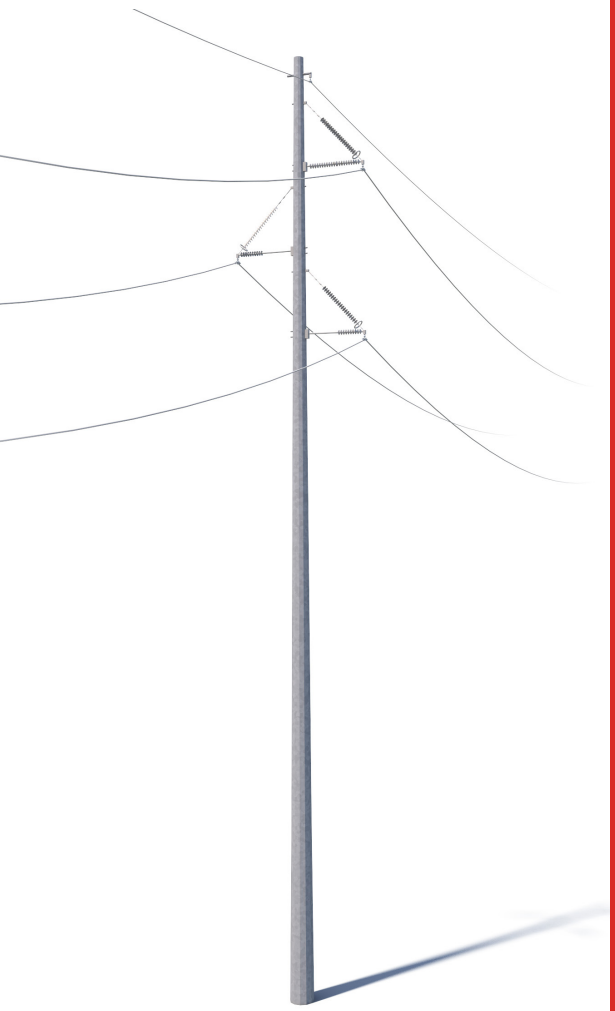
*Timeline subject to change
**Ohio Power Siting Board

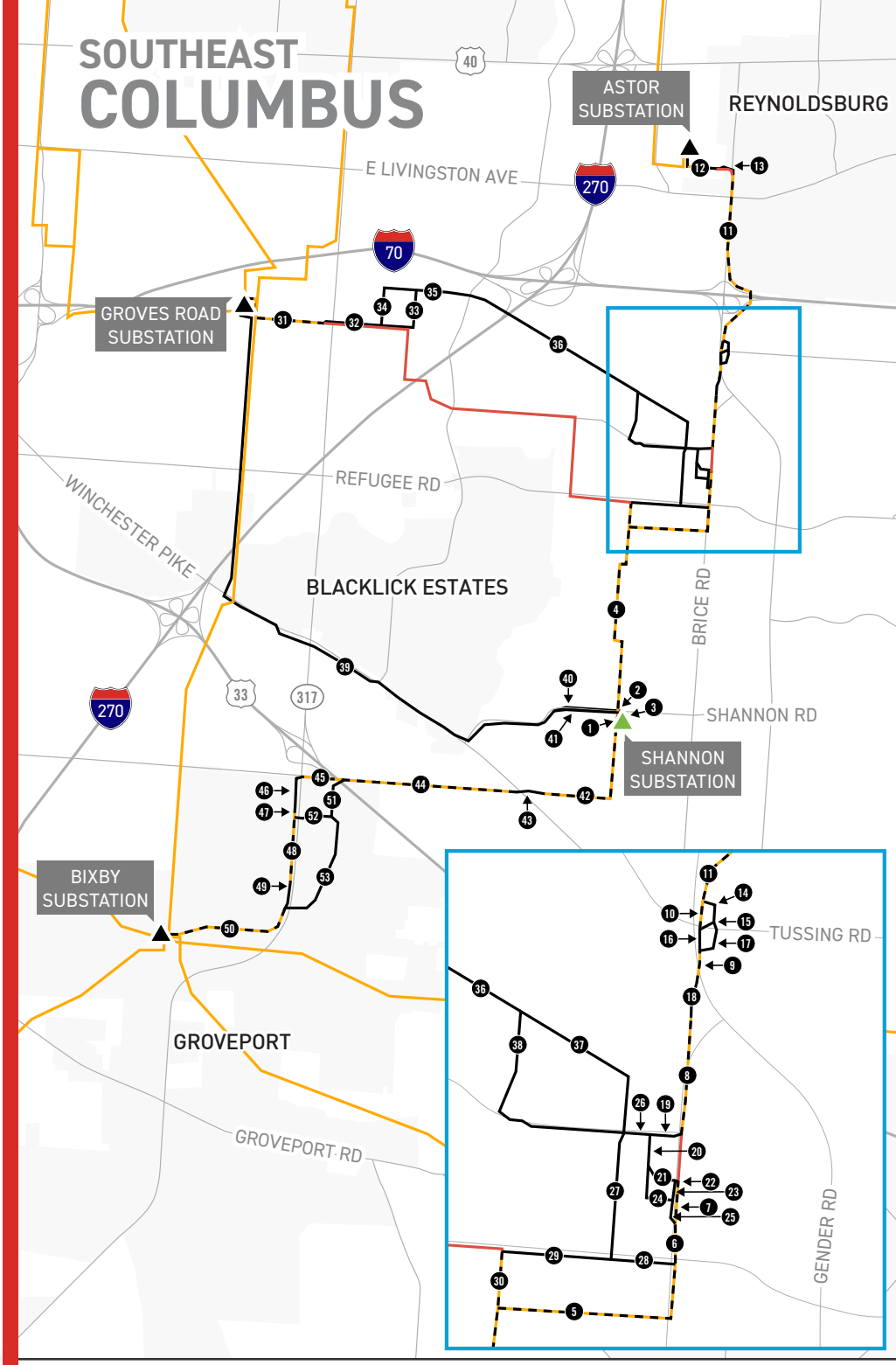
TYPICAL STRUCTURES

The project involves installing steel poles.

Structure Height: Approximately 90 feet*
Right-of-Way Width: Approximately 100 feet*

*Exact structure, height and right-of-way requirements may vary





SOUTHEAST COLUMBUS AREA IMPROVEMENTS PROJECT

- EXISTING TRANSMISSION LINE
- EXISTING TRANSMISSION LINE TO BE REBUILT
- STUDY SEGMENTS
- EXISTING SUBSTATION
- SUBSTATION TO BE EXPANDED
- TRANSMISSION LINE TO BE RETIRED

N

AEP OHIO VALUES YOUR INPUT ABOUT THIS PROJECT. PLEASE SEND COMMENTS AND QUESTIONS TO:

BRIAN RECKER
Project Outreach Specialist
380-205-5381
brecker@aep.com
AEPOhio.com/SoutheastColumbus

AEP OHIO
An AEP Company
BOUNDLESS ENERGY™

11/12/2020

AEP Ohio
8500 Smiths Mill Rd
New Albany, OH 43054

November 22, 2021

ATTN: IMPORTANT INFORMATION ABOUT YOUR PROPERTY
«Owner_Name»
«ADDRESS»
«CITY», «STATE» «ZIP»

RE: Notice of Public Information Meeting for a Proposed Major Utility Facility
AEP Ohio Transco, Inc.
Southeast Columbus Area Improvements Project Update & Open House Invitation
To be filed as Groves Road-Shannon 138 kV Transmission Line Project
Case No. 21-0199-EL-BTX

Dear Neighbor,

You are receiving this letter because public records indicate you own property or live near a proposed transmission line project. We are writing to update you on the next steps in the Southeast Columbus Area Improvements Project.

As you may recall in previous communications, the project involves:

- Building approximately 5 miles of 138-kilovolt (kV) transmission line between Groves Road and Shannon substations
- Rebuilding approximately 2 miles of 138-kV transmission line between Astor Substation and an existing power line off Brice Road (to be filed spring 2022)
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Bixby and Shannon substations (filed in September 2021 with the Ohio Power Siting Board (OPSB), Case No. 21-0850-EL-BLN)
- Expanding Shannon Substation near the intersection of Shannon Road and Brice Road

The 70-year-old transmission line has shown significant deterioration, caused multiple electrical outages during the past six years, and is unable to support continued growth in the area. Replacing the deteriorating equipment along the transmission line with modern equipment provides improved reliability and resiliency of the local electric system. These improvements reduce the amount and frequency of required maintenance and enhances the line's operational performance.

We are hosting an in-person and virtual open house and invite you to learn more and share input on the two route alternatives for the 5 miles of proposed power line between Groves Road and Shannon substations. These route alternatives are shown on the enclosed fact sheet. Please join us from **5:30 p.m. to 7:30 p.m.** on **Wednesday, December 15,** at **The Wigwam Event Center** located at **10190 Blacklick-Eastern Road in Pickerington.** Visitors can view detailed maps and talk with team members about the project. There is no formal presentation, so you can arrive at any time during the event.

At AEP Ohio, safety is our first priority. Due to COVID-19, AEP Ohio staff members plan to wear face coverings and practice social distancing at the open house to ensure safety for you and our staff. We encourage attendees to wear face coverings at the open house per the Centers for Disease Control and Prevention (CDC) guidance for vaccinated and unvaccinated individuals. We will provide masks and hand sanitizer at the open house. We ask that if you are experiencing fever, cough, body aches, or other COVID-19 symptoms, please stay home for the safety of your neighbors and our staff.

AEP Ohio
8600 Smiths Mill Rd
New Albany, OH 43054

If you are feeling unwell, you may visit the **VIRTUAL OPEN HOUSE at AEPOhio.com/SoutheastColumbus** to access information, view an interactive map, enter our virtual open house and submit comments through a "Contact Us" link.

If you prefer, you can share your input by using any of the additional communication methods below:

- Complete the enclosed comment card with your input and mail it back to Joe Demaree, Project Outreach Specialist for AEP Ohio, in the self-addressed, stamped envelope provided;
- Call Joe Demaree at (380) 205-5046;
- Send an email to Joe Demaree at: jkdemaree@aep.com;
- Send your comments directly to the OPSB at 180 East Broad Street, Columbus, OH 43215-3793. You may also visit opsb.ohio.gov or contact the OPSB at (866) 270-6772 or contactopsb@puc.state.oh.us.

When sharing your input on the two route options please feel free to include information about your property such as:

- Historically significant buildings or landmarks such as cemeteries;
- Natural features such as wetlands or springs;
- Future plans for your property.

In order to construct the project, AEP Ohio must obtain the approval of the OPSB. Following the public input period, the AEP Ohio project team prepares and submits an application to the OPSB that includes information on both a preferred and alternate route for the 5 miles of proposed power line between Groves Road and Shannon substations. Public feedback helps us finalize a preferred and alternate line route to submit to the OPSB early next year.

The OPSB is legally obligated to review the application and, if certain legal criteria are met, it may approve the project. OPSB approval is obtained through the issuance of a Certificate of Environmental Compatibility and Public Need. For more information on the OPSB, its composition and the process it follows in reviewing the application for the project, please visit www.opsb.ohio.gov. You can also contact OPSB staff via e-mail at contactopsb@puco.ohio.gov, by phone at 866-270-6722 or mailing correspondence to 180 East Broad Street, 11th Floor, Columbus, OH 43215.

A separate public hearing on the project will be scheduled in the future. You may request notice of the public hearing using any of the communication methods mentioned earlier in this letter. You can file a petition to intervene in the OPSB process with the siting board up to 30 days after the public hearing notice. The OPSB determines the final line route.

Please review the enclosed fact sheet for more information. Feel free to contact me if you have any questions.

Sincerely,

Joe Demaree

Joe Demaree
Project Outreach Specialist
AEP Ohio

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
An AEP Company
BOUNDLESS ENERGY™

AEP Ohio representatives plan power grid upgrades to improve electric reliability for customers in southeast Columbus and Groveport. The Southeast Columbus Area Improvements Project involves building about 5 miles of electric transmission line, rebuilding about 6 miles of electric transmission line and expanding a substation.

WHAT

The project involves:

- Building approximately 5 miles of 138-kilovolt (kV) transmission line between Groves Road and Shannon substations
- Rebuilding approximately 2 miles of 138-kV power line between Astor Substation and an existing power line off Brice Road
- Rebuilding approximately 4.5 miles of 138-kV transmission line between Bixby and Shannon substations
- Expanding Shannon Substation near the intersection of Shannon Road and Brice Road

*This project requires Ohio Power Siting Board (OPSB) approval

WHY

The project:

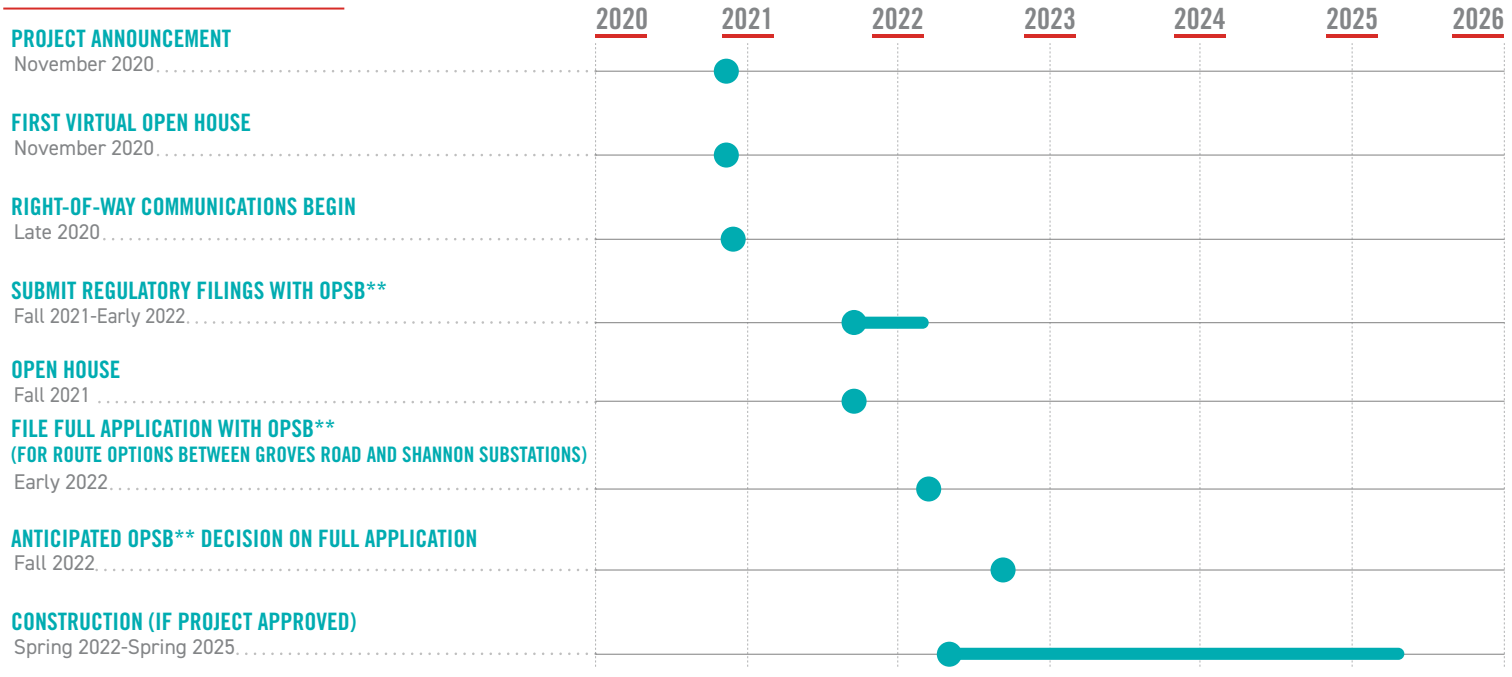
- Strengthens the electric transmission system by replacing wooden poles from the 1950s with steel poles
- Reduces ongoing maintenance of the existing power line
- Improves operational performance by installing modern equipment
- Reduces the likelihood of extended power outages
- Speeds recovery of service when outages occur

WHERE

The project area includes:

- City of Columbus
- City of Groveport
- Truro and Madison townships in Franklin County

PROJECT SCHEDULE



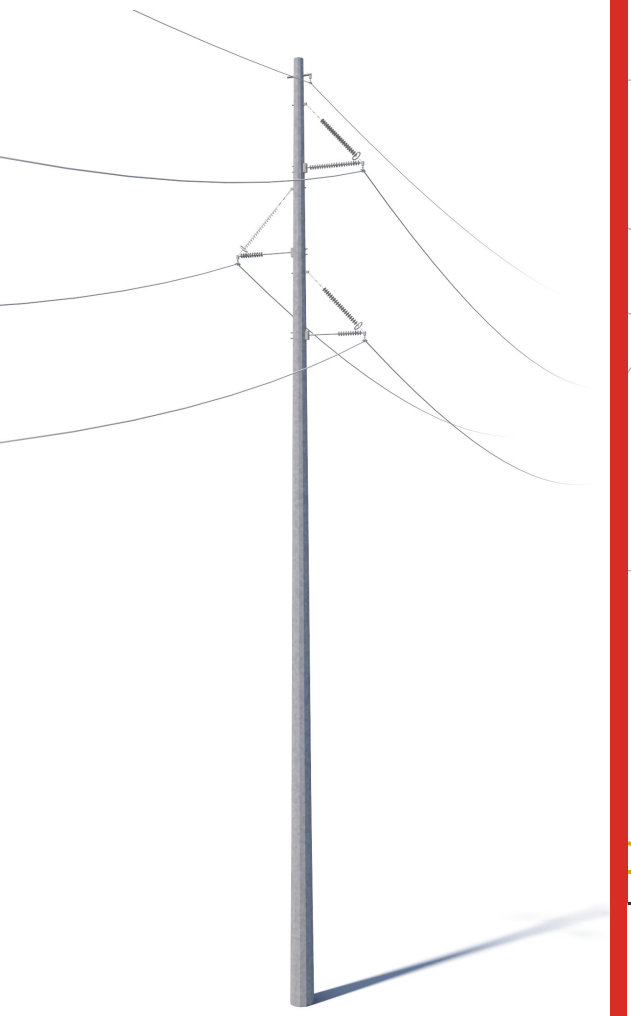
*Timeline subject to change
**Ohio Power Siting Board

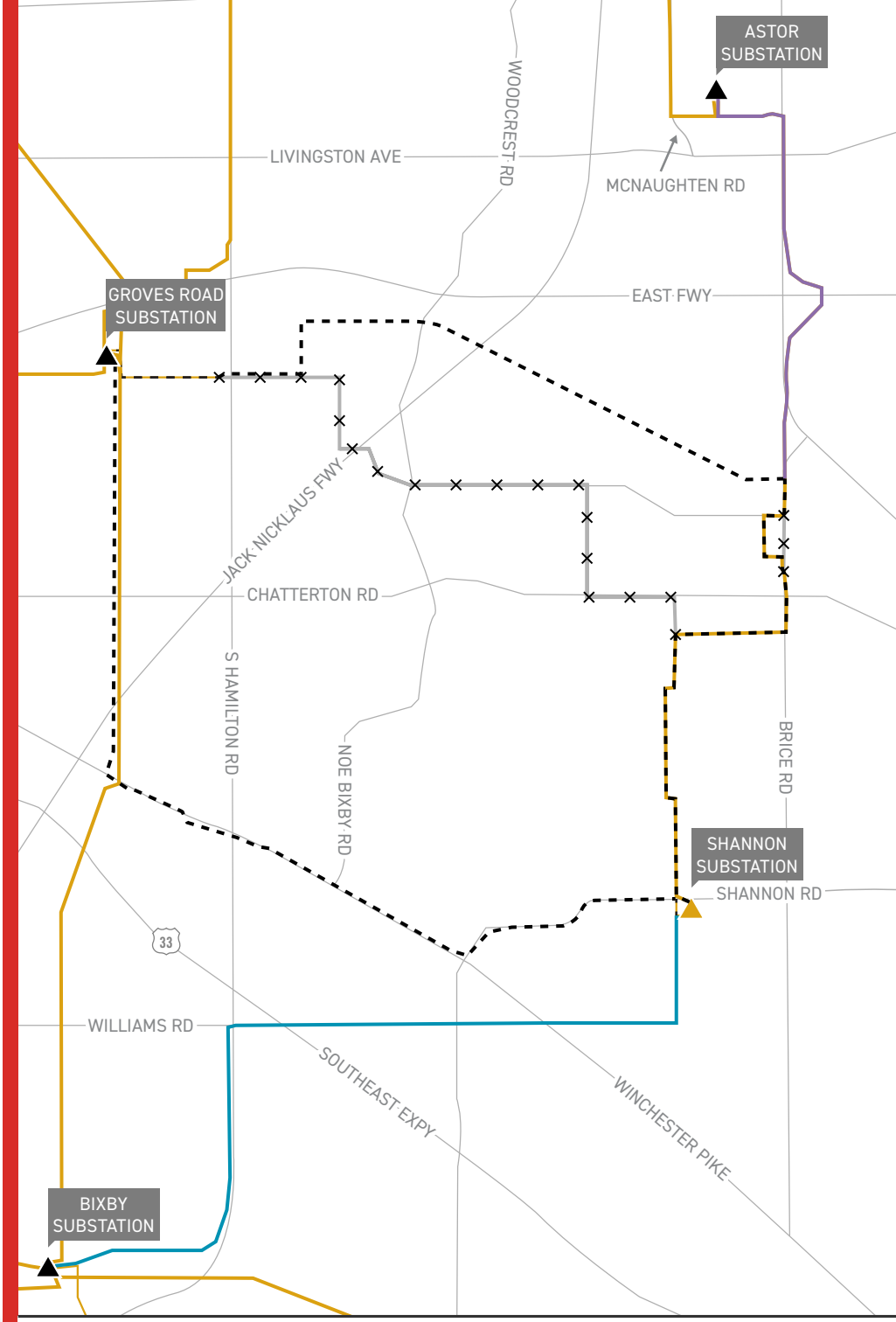
TYPICAL STRUCTURES

The project involves installing steel poles.

Structure Height: Approximately 90 feet*
Right-of-Way Width: Approximately 60 feet*

*Exact structure, height and right-of-way requirements may vary





SOUTHEAST COLUMBUS AREA IMPROVEMENTS PROJECT

- EXISTING TRANSMISSION LINE
- TRANSMISSION TO BE FILED IN 2022
- ROUTE ALTERNATIVES
- TRANSMISSION LINE REBUILD FILED WITH OPSB*
- TRANSMISSION LINE TO BE RETIRED
- EXISTING SUBSTATION
- SUBSTATION TO BE EXPANDED

N

*OPSB: Ohio Power Siting Board

AEP OHIO VALUES YOUR INPUT ABOUT THIS PROJECT. PLEASE SEND COMMENTS AND QUESTIONS TO:

JOE DEMAREE
Project Outreach Specialist
380-205-5046
jkdemaree@aep.com
AEPOhio.com/SoutheastColumbus

AEP OHIO
An AEP Company
BOUNDLESS ENERGY™

11/23/2021

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
An AEP Company
BOUNDLESS ENERGY

FOLLOW-UP QUESTIONS AND COMMENTS

Please fill out and mail this comment card using the enclosed self-addressed, stamped envelope by December 20, 2021. If you prefer to provide comments online, visit AEPOhio.com/SoutheastColumbus and click the "Contact Us" button.

Please provide your name and contact information below to ensure we have the most up-to-date information for our records.

NAME: Cheryl LaPat

ADDRESS: 6011 Astor Ave Columbus, Ohio 43232

EMAIL: _____ PHONE: 614-861-4525

Please complete this questionnaire after you have reviewed the information provided about this project.

Did you find the content provided to be informative? ☐ Yes ☐ No

If no, please explain

_____

_____

Please include below any information about features on your property that are in the project area.

If you prefer that a project team member contact you to discuss any of your comments, please note in the additional comments below.

☑ Example

"One of the route alternatives are on the west side of my property at 123 Main Street, and there is an existing gas line running parallel to this route alternative," and "There is a family cemetery located along one of the route alternatives approximately 100 feet west of 345 Briad Street."

☐ House, shed or other structure

_____

_____

☐ Springs, streams, wetlands, sensitive species or protected areas

_____

_____

_____

AEP OHIO
An AEP Company
BOUNDLESS ENERGY

☐ Cave, sinkhole, mine or portal

☐ Approved or documented planned project

☐ Existing conservation easement

☐ Historical or archaeological feature (i.e. homestead, Native American site)

☑ Underground utilities or pipelines (including gas, water, oil, etc.)

I have an underground drain system that drains water from around my house out to the street close to the electric pole

☑ Agricultural features including irrigation systems, drainage tiles, etc.

Same as above

☐ Other land use such as private airstrips, past landfills or buried waste, radio or cellular antennas

☐ Additional Comments

Ledger - 137
Map 2,3

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
BOUNDLESS ENERGY

FOLLOW-UP QUESTIONS AND COMMENTS

Please fill out and mail this comment card using the enclosed self-addressed, stamped envelope by December 20, 2021. If you prefer to provide comments online, visit AEPOhio.com/SoutheastColumbus and click the "Contact Us" button.

Please provide your name and contact information below to ensure we have the most up-to-date information for our records.

NAME: DANIEL CAVEDA

ADDRESS: 3142 NOE BIXBY RD

EMAIL: esilses@icloud.com PHONE: (614) 226-4221

Please complete this questionnaire after you have reviewed the information provided about this project.

Did you find the content provided to be informative? ☒ Yes ☐ No

If no, please explain

Please include below any information about features on your property that are in the project area.

If you prefer that a project team member contact you to discuss any of your comments, please note in the additional comments below.

☑ Example

"One of the route alternatives are on the west side of my property at 123 Main Street, and there is an existing gas line running parallel to this route alternative," and "There is a family cemetery located along one of the route alternatives approximately 100 feet west of 345 Briad Street."

☑ House, shed or other structure

A COMMERCIAL STRUCTURE 30 FT IS IN THE PROJECT AREA

☑ Springs, streams, wetlands, sensitive species or protected areas

I WILL LOOSE MY TREES ON THE LINE AND THE PRIVACY BUSHES. BAD.

Lectge - 750
Map - 6

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
An AEP Company
BOUNDLESS ENERGY

FOLLOW-UP QUESTIONS AND COMMENTS

Please fill out and mail this comment card using the enclosed self-addressed, stamped envelope by December 20, 2021. If you prefer to provide comments online, visit AEPOhio.com/SoutheastColumbus and click the "Contact Us" button.

Please provide your name and contact information below to ensure we have the most up-to-date information for our records.

NAME: ERIC J ZIDEL

ADDRESS: 4575 WINCHESTER PIKE

EMAIL: EZIDEL1@YAHOO.COM PHONE: 614-774-8696

Please complete this questionnaire after you have reviewed the information provided about this project.

Did you find the content provided to be informative? ☑ Yes ☐ No

If no, please explain

Please include below any information about features on your property that are in the project area.

If you prefer that a project team member contact you to discuss any of your comments, please note in the additional comments below.

☑ Example

"One of the route alternatives are on the west side of my property at 123 Main Street, and there is an existing gas line running parallel to this route alternative," and "There is a family cemetery located along one of the route alternatives approximately 100 feet west of 345 Briad Street."

☐ House, shed or other structure

White picket FENCES, BUSINESS SIGNS (x2)
Multiple mature tree's

☐ Springs, streams, wetlands, sensitive species or protected areas

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
An AEP Company
BOUNDLESS ENERGY

FOLLOW-UP QUESTIONS AND COMMENTS

Please fill out and mail this comment card using the enclosed self-addressed, stamped envelope by December 20, 2021. If you prefer to provide comments online, visit AEPOhio.com/SoutheastColumbus and click the "Contact Us" button.

Please provide your name and contact information below to ensure we have the most up-to-date information for our records.

NAME: _____

ADDRESS: _____

EMAIL: ~~jcmohler~~ jcmohler@aep.com PHONE: _____

Please complete this questionnaire after you have reviewed the information provided about this project.

Did you find the content provided to be informative? ☐ Yes ☐ No

If no, please explain

Does existing line on east side of 446; map 2 have distribution. Will line be topped or removed also 228, 229,

Please include below any information about features on your property that are in the project area.

If you prefer that a project team member contact you to discuss any of your comments, please note in the additional comments below.

☑ Example

"One of the route alternatives are on the west side of my property at 123 Main Street, and there is an existing gas line running parallel to this route alternative," and "There is a family cemetery located along one of the route alternatives approximately 100 feet west of 345 Briad Street."

☐ House, shed or other structure

☐ Springs, streams, wetlands, sensitive species or protected areas

- [ ] Cave, sinkhole, mine or portal

- [ ] Approved or documented planned project

- [ ] Existing conservation easement

- [ ] Historical or archaeological feature (i.e. homestead, Native American site)

- [ ] Underground utilities or pipelines (including gas, water, oil, etc.)

- [ ] Agricultural features including irrigation systems, drainage tiles, etc.

- [ ] Other land use such as private airstrips, past landfills or buried waste, radio or cellular antennas

- [ ] Additional Comments

Lodge -78
map - 6

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
An AEP Company
BOUNDLESS ENERGY

FOLLOW-UP QUESTIONS AND COMMENTS

Please fill out and mail this comment card using the enclosed self-addressed, stamped envelope by December 20, 2021. If you prefer to provide comments online, visit AEPOhio.com/SoutheastColumbus and click the "Contact Us" button.

Please provide your name and contact information below to ensure we have the most up-to-date information for our records.

NAME: Matt Biggert

ADDRESS: 4612 Winchester Pike

EMAIL: _____ PHONE: 614 834 8857

Please complete this questionnaire after you have reviewed the information provided about this project.

Did you find the content provided to be informative? ☑ Yes ☐ No

If no, please explain

_____

_____

Please include below any information about features on your property that are in the project area.

If you prefer that a project team member contact you to discuss any of your comments, please note in the additional comments below.

☑ Example

There is a high pressure gas line and the twisted pair copper from ATT 83X on the south side of Winchester Pike. There were 6 utility marks made when adding ATT fiber optic for Shannon Rd on the north side of WP.

☐ House, shed or other structure

_____

_____

☐ Springs, streams, wetlands, sensitive species or protected areas

_____

_____

_____

Rec'd - 754

map - 6

12-17-21

Post Mark

SOUTHEAST COLUMBUS
AREA IMPROVEMENTS PROJECT

AEP OHIO
an AEP Company
BOUNDLESS ENERGY

FOLLOW-UP QUESTIONS AND COMMENTS

Please fill out and mail this comment card using the enclosed self-addressed, stamped envelope by December 20, 2021. If you prefer to provide comments online, visit AEPOhio.com/SoutheastColumbus and click the "Contact Us" button.

Please provide your name and contact information below to ensure we have the most up-to-date information for our records.

NAME: Winnie Young

ADDRESS: 3809 Battersea Dr

EMAIL: wyoung3883@yahoo.com PHONE: 614-867-8715

12/16/2021

Please complete this questionnaire after you have reviewed the information provided about this project.

Did you find the content provided to be informative? ☒ Yes ☐ No

If no, please explain

Please include below any information about features on your property that are in the project area.

If you prefer that a project team member contact you to discuss any of your comments, please note in the additional comments below.

☑ Example

"One of the route alternatives are on the west side of my property at 123 Main Street, and there is an existing gas line running parallel to this route alternative," and "There is a family cemetery located along one of the route alternatives approximately 100 feet west of 345 Briad Street."

☒ House, shed or other structure

Condo located in Waterford Harbour Condo community

☒ Springs, streams, wetlands, sensitive species or protected areas

Proposed route crosses Walnut Creek

AEP OHIO

AEP | BOUNDLESS ENERGY

- [x] Cave, sinkhole, mine or portal

Proposed southern Route would cross 2 entrances to Condo Community

- [ ] Approved or documented planned project

- [ ] Existing conservation easement

- [x] Historical or archaeological feature (i.e. homestead, Native American site)

Proposed southern Rt would run along cemetary

- [x] Underground utilities or pipelines (including gas, water, oil, etc.)

There have been significant upgrades to gas, fiber optics along Winchester Pike the last 2 years.

- [ ] Agricultural features including irrigation systems, drainage tiles, etc.

- [x] Other land use such as private airstrips, past landfills or buried waste, radio or cellular antennas

Proposed Southern Rt would run along 2 churches and a professional medical office.

- [x] Additional Comments

The proposed Norther Route would be less disruptive to residents since ~~my~~ majority of route is along existing railroad line.

4906-05-07 HEALTH AND SAFETY, LAND USE, AND REGIONAL DEVELOPMENT

(A) HEALTH AND SAFETY INFORMATION FOR EACH ALTERNATE ROUTE

Health and safety considerations of the proposed Project were reviewed as part of this Application and summarized below.

(1) How the facility will Comply with State/Federal Regulations

The construction and operation of the Project will comply with the requirements specified in the National Electrical Safety Code ("NESC"), the Public Utilities Commission of Ohio ("PUCO"), and will meet all applicable safety standards established by the Occupational Health and Safety Administration ("OSHA").

Safety is the highest priority for the Company. Our priority towards employee and public safety is exemplified by the Company's policy as stated in the Company Safety Manual:

> *The Company system holds in high regard the safety and health preservation of its employees. Accidents injure people, damage equipment, destroy materials, and cause needless personal suffering, inconvenience, and expense. We believe, "No operating condition or urgency of service can ever justify endangering the life of anyone."*
>
> *To this end, we will constantly work toward the following:*
>
> - *The maintenance of safe and healthful working conditions,*
> - *Consistent adherence to proper operating practices and procedures designed to prevent injuries and illnesses,*
> - *Conscientious observance of governmental and company safety regulations.*

The Company also administers a contractor safety program. Contractors working for the Company are required to maintain internal safety programs and to provide safety training.

(2) Electric and Magnetic Fields

In accordance with the OPSB requirements specified in O.A.C. 4906-5-07(A)(2), the following subsections discuss the analysis of electric and magnetic fields ("EMF") associated with the Project.

(a) Calculated Electric and Magnetic Field Strength Levels

Three loading conditions were examined along the Preferred Route: (1) Normal Maximum Loading, (2) Emergency Loading, and (3) Winter Normal Conductor Rating, consistent with the OPSB requirements. Normal Maximum Loading represents the peak flow expected with all system facilities in service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter normal (WN) conductor rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions. **It is not anticipated that this circuit of this line would operate at its WN rating in the foreseeable future.**

EMF levels were computed one meter above ground under the line and at the ROW edges (30/30 feet, left/right, of centerline). The Company's results, calculated using EPRI's EMF Workstation 2015 software, are summarized in **Table 7-1**.

Table 7-1. Ground Clearances, Right-of-Way, and Projected Loading					
Condition	**Load (A)**	**Phasing Arrangements**	**Ground Clearance (feet)**	**Electric Field (kV/m)[a]**	**Magnetic Field (mG)[a]**
Normal Max. Loading^	233.04	A-B-C	35.62	0.38/0.92/0.54	21.45/44.28/27.94
Emergency Line Loading^^	532.18	A-B-C	33.43	0.40/1.02/0.56	25.85/48.39/34.34
Winter Conductor Rating^^^	1359.74	A-B-C	35.62	0.38/0.92/0.54	61.99/102.98/69.79

Notes:
^ Peak line flow expected with all system facilities in service.
^^ Maximum flow during a critical system contingency
^^^Maximum continuous flow that the line, including its terminal equipment, can withstand during winter conditions.
[a] EMF levels (left ROW edge/maximum/right ROW edge) computed one meter above ground at the point of minimum ground clearance, assuming balanced phase currents and 1.0 P.U. Voltages. ROW width is 30 feet (left) and 30 feet (right) of centerline, respectively.

For power-frequency EMF, Institute of Electrical and Electronics Engineers (IEEE) Standard C95.6TM-2002 recommends the following limits:

	General Public	Controlled Environment
	---	---
Electric Field Limit (kV/m)	5.0	20.0
Magnetic Field Limit (mG)	9,040	27,100

The above EMF levels are well within the limits specified in IEEE Standard C95.6TM-2002. Those limits have been established to "prevent harmful effects in human beings exposed to electromagnetic fields in the frequency range of 0-3 kHz

(b) Current State of EMF Knowledge

Electric and magnetic fields occur naturally in the environment. An electric field is present between the earth and its atmosphere and can discharge as lightning during thunderstorms. The earth also has a magnetic field, which provides an operating basis for the magnetic compass. EMF exists wherever there is a flow of electricity, including electrical appliances and power equipment.

Electric fields are produced by voltage or electric charge. A lamp cord that is plugged in produces an electric field even if the lamp is turned off. These fields commonly are measured in kilovolts per meter (kV/m); higher voltages produce stronger electric fields. Magnetic fields are created by the flow of current in a wire. As current increases, the magnetic field strength also increases; these fields are measured in units known as gauss, or milligauss (mG).

Electric fields are blocked by trees, shrubs, buildings, and other objects. Magnetic fields are not easily blocked and can pass through most objects. The strength of these fields decreases rapidly with distance from the source.

Possible health effects from exposure to EMF have been studied for several decades. Initial research, focused on electric fields, found no evidence of biologic changes that could lead to adverse health effects. Subsequently, a large number of epidemiologic studies examined the possible role of magnetic fields in the development of cancer and other diseases in adults and children. While some studies have suggested an association between magnetic fields and certain types of cancer, researchers have been unable to consistently replicate those results in other studies. Similarly, inconclusive or inconsistent results have been reported in laboratory studies of animals exposed to magnetic fields that are representative of common human exposures. A summary of such exposures, found in residential settings, is provided in **Table 7-2**.

Table 7-2. Magnetic Fields from Household Electrical Appliances and Devices

Appliance Type	Number of Devices	Magnetic Field (mG)		
		1.2 inches (0.1 feet)	12 inches (1.0 feet)	User Distance
AC Adapters	3	1.4 – 863	0 -7.5	0 – 0.8
Blood Pressure Monitors	4	4.2 – 39.6	0 – 0.3	0 -0.2
Bluetooth Headsets	3	0	0	0
Coffee Grinders	3	60.9 – 779	0.3 – 6.5	0.8 – 40.9
Compact Fluorescent Bulbs	15	0 – 32.8	0 – 0.1	0 – 0.6
Compact Fluorescent Bulb Ballast	1	8.5 – 23.5	0 – 0.1	0 -0.1

Table 7-2. Magnetic Fields from Household Electrical Appliances and Devices				
Appliance Type	**Number of Devices**	**Magnetic Field (mG)**		
		1.2 inches (0.1 feet)	**12 inches (1.0 feet)**	**User Distance**
Computers, Desktop	3	3.8 – 68.9	0 – 1.1	0.1 – 0.5
Computers, Laptop	4	0 – 5.1	0	0 – 0.1
Digital Cameras	3	0	0	0
Digital Photo Frames	5	0	0	0
Digital Video Recorders	4	0 – 29.6	0 – 0.2	0
Dimmer Switches	4	11.5 – 32.1	0 – 0.8	0 – 0.8
DVD Players	5	0 – 28.9	0 – 0.5	0
Electric Lawn Mower	1	1939	156	14.1
Electric Leaf Blowers	4	272 – 4642	17.1 - 155	28.3 – 61.5
Electric Toothbrushes	5	3.6 – 742	0 – 4.8	3.6 - 742
Electric Toothbrush Chargers	5	0 – 4.2	0	0
External Hard Drives	4	0.6 – 1.7	0	0
Gaming Consoles	10	0 – 215	0 – 0.5	0 – 0.6
GPS, Handheld	5	0 – 0.1	0	0
Hobby Tools	2	126 – 438	1.4 – 2.4	1.4 – 438
Hot Glue Guns	3	0 – 0.9	0	0
LCD Computer Monitors	4	0 – 4.5	0	0
LCD Televisions	4	1.1 – 3.9	0 – 2.5	0 – 0.6
Massagers/Massage Chairs	3	81.9 – 500	0.6 – 2.3	214 – 500
MP3 Players	5	0	0	0
Noise Cancellation Headphones	1	0	0	0

Table 7-2. Magnetic Fields from Household Electrical Appliances and Devices				
Appliance Type	**Number of Devices**	**Magnetic Field (mG)**		
		1.2 inches (0.1 feet)	**12 inches (1.0 feet)**	**User Distance**
Paper Shredders	4	11.0 – 4841	0.5 – 102	0.5 – 33.4
Plasma Televisions	2	45.1 – 73.6	1.4 – 2.2	0 – 0.1
Power Tools – Corded	3	784 – 982	8.8 – 31.3	46.8 - 123
Power Tools – Cordless	6	9.0 – 227	0 – 2.2	0 – 13.7
Printers	5	0.1 – 6.2	0 – 0.3	0 – 0.3
Scanners	3	0.6 – 6.7	0 – 0.3	0
Security System Panels	3	0 – 0.3	0	0
Tankless Hot Water Heater	1	10.1 – 21.9	1.2	0.2
Track Lighting	5	0.2 – 4.0	0 – 0.3	0
Vacuum Cleaners, Personal/Car	3	75.5 – 2226	0.6 – 23.3	0.1 – 23.1
Wireless Game Controllers	11	0	0	0
Wireless Routers	4	0 – 0.5	0	0 – 0.3
Source: Electric Power Research Institute, 2010				

As part of the National Energy Policy Act of 1992, U.S. Congress enacted the Electric and Magnetic Fields Research and Public Information Dissemination (EMF RAPID) program. The National Institute of Environmental Health Sciences (NIEHS) was charged with overseeing the health research and conducting an EMF risk evaluation. In its final report to Congress, issued in 1999, NIEHS concluded that power-frequency "EMF exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard." Nonetheless, the report stated that "this finding is insufficient to warrant aggressive regulatory concern." (NIEHS, 1999).

In 2001, the Standing Committee on Epidemiology of International Commission on Non-Ionizing Radiation Protection (ICNIRP) wrote in its review of the epidemiologic literature on EMF and health that "given the methodological uncertainties and in many cases inconsistencies of the existing epidemiologic literature, there is no chronic disease outcome for which an etiological [causal] relation to EMF exposure can be regarded as established." (ICNIRP, 2001)

Also, in 2001, International Agency for Research on Cancer (IARC) published the results of an EMF health risk evaluation conducted by an expert scientific working group, which concluded that power-frequency "magnetic fields are 'possibly carcinogenic to humans,' based on consistent statistical associations of high level residential magnetic fields with a doubling of risk of childhood leukemia" (IARC, 2001). IARC assigns its "possibly carcinogenic to humans" classification (Group 2B) if there is "limited evidence" of carcinogenicity in both humans and experimental animals, or if there is "sufficient evidence" in animals, but "inadequate evidence" in humans. Group 2B includes some 285 "agents" such as coffee, pickled vegetables, carpentry, textile manufacturing and gasoline, among others.

A comprehensive assessment of the EMF health risks was published by the World Health Organization (WHO) in 2007. In its assessment, WHO wrote: "Scientific evidence suggesting that every day, chronic, low-intensity (above 0.3-0.4 μT) [3-4 mG] power-frequency magnetic field exposure poses a possible health risk is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia" (WHO, 2007). It added, however, that "virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF [extremely low frequency] magnetic fields and changes in biological function or disease status. Thus, on balance, the evidence is not strong enough to be considered causal, but sufficiently strong to remain a concern."

Regarding acute effects, WHO noted, "Acute biological effects have been established for exposure to ELF electric and magnetic fields in the frequency range up to 100 kHz that may have adverse consequences on health. Therefore, exposure limits are needed. International guidelines exist that have addressed this issue. Compliance with these guidelines provides adequate protection for acute effects" (WHO, 2007).

In summary, some studies have reported an association between long-term magnetic field exposure and particular types of health effects, while other studies have not. The nature of the reported association remains uncertain as no known mechanism or laboratory animal data exist to support the cause-and-effect relationship.

In view of the scientific evidence, the IEEE and other organizations have established guidelines limiting EMF exposure for workers in a controlled environment and for the general public. These guidelines focus on prevention of acute neural stimulation. No limits have been established to address potential long-term EMF effects, as the guideline organizations consider the scientific evidence insufficient to form the basis for such action. For power-frequency EMF, IEEE Standard C95.6™-2002 recommends the following limits (IEEE, 2002):

	General Public	Controlled Environment
Electric Field Limit (kV/m)	5.0	20.0*
Magnetic Field Limit (mG)	9,040	27,100

*10.0 kV/m within power line ROW.

To address public concerns about EMF, the Government of Canada in 2012 updated its website with the latest knowledge on the subject. It contains the following statements on the EMF health-related risks: “Health Canada does not consider that any precautionary measures are needed regarding daily exposures to EMFs at ELFs. There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors” (Healthy Canadians, 2012). Similarly, in 2013, the updated website of the WHO concludes: “to date there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health” (WHO, 2013).

The Company has been following the EMF scientific developments worldwide, participating in and sponsoring EMF studies, and communicating with customers and employees on the subject. In addition, the Company is a member of EPRI, an independent, non-profit organization sponsoring and coordinating EMF epidemiological, laboratory and exposure studies.

(c) Description of the Company's Consideration of EMF Strength Levels

The Company did not consider design alternatives due to EMF and their strength levels. Transmission lines, when energized, generate EMF. Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, some people are concerned that EMF has impacts on human health. Due to these concerns, EMF associated with the new circuits was calculated in the table above. The EMF was computed assuming the highest possible EMF values that could exist along the proposed transmission line. Normal daily EMF levels will operate below these maximum load conditions. Based on studies from the National Institutes of Health, the magnetic field (measured in milliGauss, or mG) associated with emergency loading at the highest EMF value for this transmission line, is lower than those associated with normal household appliances like microwaves, electric shavers and hair dryers. For additional information regarding EMF, the National Institute of Health has posted information on their website:

https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf

(d) EMF Public Inquires Policy

Information on electric and magnetic fields is available on AEP Ohio's website at https://www.aepohio.com/info/projects/emf/; this information describes the basics of electromagnetic field theory, scientific research activities, and EMF exposures encountered in everyday life. Similar material will be made available for those affected by the construction activities during this Project.

The Company occasionally receives requests from customers for EMF measurements on their properties. These measurements are provided free of charge to the customers.

(3) Estimate of Radio, Television, and Communications Interference from Operation of Facility

Radio interference can be experienced in the AM broadcast band (535-1605 kilohertz [kHz]) and FM band (88-108 megahertz [MHz]), caused by transmission line gap-type discharge (1-1000 MHz). Dielectric discharge due to air ionization, known as corona, is not a concern with 138 kV

transmission planned in this Project. Gap-type discharge, such as that emitted by loose or defective transmission hardware, typically is localized and can be readily detected and corrected, or additional mitigation measures can be applied to eliminate the interference source.

Today's digital television signals react differently to interference than the pre-2009 analog signals. Common problems with analog television included ghosting of images, noise from weak signals, and other problems, which degraded the quality of the image and sound, although the programming was still watchable. With digital television, reception of the signal must be very nearly complete. Otherwise, audio and video are not usable. Television signals, which are transmitted at frequencies above 50 MHz, can be affected by gap discharged if received from air broadcasts (by "rabbit ears"). These problems have largely been addressed with the use of cable television.

(4) Noise Generation from Construction, Operations, and Maintenance of the Transmission Line

(a) Blasting Activities

Dynamiting and blasting activities will not occur during construction of the Project.

(b) Operation of Earth Moving and Excavating Equipment

During the construction phase of the transmission line installation, a temporary increase in noise will result from the construction equipment used to clear portions of the transmission line ROW and install equipment. Standard construction techniques will be used and procedures will comply with applicable OSHA standards. Therefore, noise will likely be minimal. Project construction will likely last for approximately 13 months, ending in November 2024, followed by restoration which is anticipated to finish by May 2025.

(c) Driving of Piles, Rock Breaking or Hammering, and Horizontal Directional Drilling

Driving of piles is not anticipated during construction of the Project. If required, there will be a temporary increase in noise during construction only.

(d) Erection of Structures

Structures will be installed by vehicle-mounted cranes or equivalent equipment. Self-supporting steel poles will require delivery of concrete for foundation construction, where needed, including excavation work for the foundation. Any increase in noise will be temporary and likely minimal.

(e) Truck Traffic

Truck traffic will increase during construction for access and equipment delivery. No other additional traffic is anticipated for the Project beyond periodic mowing or removal of danger trees from the ROW.

(f) Installation of Equipment

The equipment will be installed using standard practices and equipment. Any noise increase will be minor and temporary.

(B) LAND USE

(1) Map of Land Use

An applicant for a Certificate of Environmental Compatibility of Public Need for electric transmission facilities is required to evaluate both the Preferred Route and Alternate Route 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 in Figures 7-1A through 7-1J (refer to Section 4906-5-05) and include the following information:

- Centerline and ROW for the Preferred and Alternate Routes;
- AEP facilities including existing stations and interconnect locations; and,
- Land use types, road names, residences, cemeteries, waterbodies, and agricultural districts.

(2) Impact of Facility on Each Land use

A land use comparison of the Preferred and Alternate Route ROWs is shown in **Figure 7-1** and below in **Table 7-3**. Estimates (i.e., linear feet, acreage, and percentages) of each land use crossed

by the transmission centerline line within the 60-foot-wide ROW were generated using geographic information systems (GIS). The estimates of each land use type being crossed by the 60-foot-wide transmission line ROW were determined based on Franklin County parcel data.

The potential disturbance area during construction (vegetation clearing, pole installation, etc.) consists of the 60-foot-wide ROW. The 60-foot-wide permanent ROW will be restored through soil grading, seeding, and mulching, thus any permanent impact to the ROW is limited to removal of tall growing trees and other vegetation. Property owners may continue to use the ROW area for general uses that will not affect the safe and reliable operation of the transmission line, such as lawn maintenance, crop cultivation, and livestock grazing. Approximately three miles of the existing Shannon-Astor 138 kV Transmission Line is proposed to be rebuilt as part of the Preferred Route. If the Alternate Route is selected, this section of transmission line would still be required to be rebuilt as part of the overall Southeast Columbus Area Improvements Project.

Table 7-3. Acreage and Percent of Land Uses crossed by the Proposed 60-foot Right of Way

Land Use	Preferred Route		Alternate Route	
	Acreage	Percent (%)	Acreage	Percent
Agricultural	4.9	10.1%	5.2	13.9%
Commercial	3.2	6.5%	0.6	1.6%
County Road/Highway	4.7	9.6%	8.3	22.1%
Forested	2.9	6.0%	5.1	13.5%
Hospital/Office/School	1.6	3.3%	0	0%
Industrial/Facility	6.5	13.4%	2.3	6.3%
Landscaped/Maintained	5.2	10.8%	4.1	10.9%
Old Field	4.0	8.2%	1.3	3.3%
Open Space/Recreational	1.1	2.4%	0.3	0.7%
Place of Worship	1.7	3.5%	0.7	1.7%
Residential (includes planned)	6.9	14.2%	5.1	13.6%
Railroad	3.8	7.9%	0	0%
Scrub-Shrub	1.8	3.8%	4.3	11.4%
Surface Water	0.1	0.2%	0.3	0.8%
Vacant	0	0%	0	0%
Total:	**48.3**	**100%**	**37.5**	**100%**

(a) Residential

Preferred Route: The Preferred Route is located within 1,000 feet of 1,544 residences, none of which are within the proposed ROW. Most residences within 1,000 feet of the Preferred Route are presently located within 250 feet of the existing Astor – Shannon 138 kV Transmission Line or located adjacent to an active railroad. Therefore, only minimal adverse impacts to residential land uses are anticipated as no residential land use will be impeded by the Project. As shown in **Table 7-3**, 14.2% of the proposed ROW is classified as residential land use (6.9 acres). Most of this consists of proposed residential communities southwest of Brice Road and Refugee Road and southwest of the Interstate-70 (I-70)/I-270 interchange.

Alternate Route: The Alternate Route is located within 1,000 feet of 1,153 residences, none of which are within the ROW. Most of these are located along Winchester Pike. Impacts to residents are limited to aesthetic effects adjacent to roads and landscape trimming or clearing if trees are present. As shown in **Table 7-3**, 13.6% of the Alternate Route ROW is classified as residential (5.1 acres).

(b) Commercial and Industrial

Preferred Route: The Preferred Route is located within 1,000 feet of 130 commercial/industrial buildings, none of which are within the proposed ROW. As shown in **Table 7-3**, 6.5% and 13.4% of the Preferred Route ROW are classified as commercial and industrial lands (3.2 acres and 6.5 acres, respectively).

Alternate Route: The Alternate Route is located within 1,000 feet of 60 commercial buildings, none of which are within the ROW. As shown in **Table 7-3**, 1.6% and 6.3% of the Alternate Route ROW is classified as commercial and industrial lands (0.6 acre and 2.3 acres, respectively).

(c) Schools and Hospitals

Preferred Route: The Preferred Route is located within 1,000 feet of three schools, none of which are within the proposed ROW. As shown in **Table 7-3**, no school property is located within the Preferred Route ROW. No hospitals are located within the proposed ROW or within 1,000 feet of the Preferred Route.

Alternate Route: No schools or hospitals are located within the ROW or within 1,000 feet of the Alternate Route.

(d) Places of Worship

Preferred Route: The Preferred Route is located within 1,000 feet of five places of worship. As shown in **Table 7-3**, 3.5% of the Preferred Route ROW is classified as places of worship (1.7 acres). The proposed ROW impacts one place of worship property, however, the church building is not located within the proposed ROW.

Alternate Route: The Alternate Route is located within 1,000 feet of three places of worship, none of which are within the ROW. As shown in **Table 7-3**, 1.7 percent of the Alternate Route ROW is classified as places of worship (0.7 acre).

(e) Recreational

Preferred Route: The Preferred Route is located within 1,000 feet of five parks, including: Chatterton Parkland, Shelbourne Parkland, Sol Shenk Parkland, Walnut View Parkland, and Chatterton Brice Parkland. Sol Shenk Parkland and Walnut View Park are located within 95 feet and 80 feet, respectively, of the Preferred Route opposite the railroad tracks. Chatterton Brice Parkland is crossed by the centerline within the existing Shannon – Astor 138 kV Transmission Line ROW. Chatterton Parkland is crossed by the Preferred Route within existing maintained ROW. The Preferred Route does not require any new tree clearing within Chatterton Park. As shown in **Table 7-3**, 2.4% of the Preferred Route ROW is classified as recreational land (1.1 acres). No other parks are located within the proposed ROW.

Alternate Route: The Alternate Route is located within 1,000 feet of six parks, including: Helsel Park, M-Five Parkland, Big Walnut-Edgewater Parkland, Mason Run Parkland of Clean Ohio ("COH"), Winchester Bend Parkland, and Elk Run/Winchester Pike Parkland. Big Walnut-Edgewater Parkland COH and Mason Run Parkland COH are located within approximately 100 feet of the Alternate Route opposite the Bixby – Groves Road 138 kV Transmission Line. At their closest distance, Elk Run/Winchester Pike Parkland is located within 50 feet of the Alternate Route. None of these parks are located within the ROW. Approximately 0.03 acres of the Shannon Road park easement is crossed by the Alternate Route ROW, adjacent north of Shannon Road (CR

118). No tree clearing or other impacts are required. As shown in **Table 7-3**, 0.7% of the Alternate Route ROW is classified as recreational land (0.3 acre).

(f) Agricultural

Agricultural land including both cultivated crops and pasture are scattered throughout the ROW of the Preferred Route and Alternate Route. The Preferred Route ROW traverses approximately 4.9 acres of agricultural land, while the Alternate Route crosses 5.2 acres of agricultural land. Permanent impacts to agricultural lands would be limited to the structure footprints as agricultural activity can continue within the transmission ROW, as further discussed in Section C – Agricultural Districts and Land.

(g) Vacant

Vacant land is not located within the ROW of the Alternate Route or the Preferred Route ROW, including undeveloped properties zoned for residential, commercial, and industrial. No adverse impacts to vacant land uses are anticipated as a result of the Project.

(3) Impact on Identified Nearby Structures

(a) Structures within 200 feet of Proposed Right of Way

There are two unoccupied outbuildings and one walk-up restaurant within the Preferred Route proposed 60-foot ROW. The Company plans to remove one unoccupied outbuilding and design around the other unoccupied railroad maintenance outbuilding and walk-up restaurant. Within 200 feet of the Preferred Route ROW, there are 46 commercial/industrial structures, one communication tower, 28 multi-family residential dwellings, 95 unoccupied outbuildings, four places of worship, 229 single-family residential dwellings, and one school. Of these structures, 15 commercial/industrial buildings, the communication tower, 14 multi-family residential dwellings, 20 unoccupied outbuildings, all four places of worship, and 100 single-family residential dwellings are also within 200 feet of the existing Shannon – Astor 138 kV Transmission Line planned for rebuild.

There are no structures within the Alternate Route proposed 60-foot ROW. Within 200 feet of the Alternate Route ROW, there are 14 commercial/industrial structures, one cemetery, one

communication tower, 39 multi-family residential dwellings, 64 unoccupied outbuildings, two places of worship, and 119 single-family residential dwellings.

Commercial/industrial structures, places of worship, and schools within 200 feet of the proposed ROWs are included below in **Table 7-4**, with their measured distances. No impacts are anticipated for any of the structures listed.

Table 7-4. Structures within 200 feet of Proposed 60-foot Right of Way

Preferred Route		**Alternate Route**	
Structure Type	Distance from ROW (ft)	Structure Type	Distance from ROW (ft)
Outbuilding	0 (within ROW)*		
Outbuilding	0 (within ROW)*		
Commercial/Industrial			
Walk-Up Restaurant	0 (within ROW)*	Residential Leasing Office	28
Retail - Pallet Supplier	2	Loan Services	35
Retail - Strip Mall	5	Dental Office	64
Retail - Home & Furniture	20	Residential Leasing Office	129
Rental Office	29	City of Columbus Fleet Licensing	136
Retail - Electronics	35	Gas Station	183
Retail - Convenience	42	--	--
Cleaning Services	46	--	--
Vacant Commercial	50	--	--
Storage Unit	55	--	--
Mixed-Use Retail/Office	59	--	--
City of Columbus Fleet Management	64	--	--
Trucking Logistics - Warehouse	65	--	--
Retail - Salon	72	--	--
Trucking Logistics - Office	89	--	--
Retail - HVAC	90	--	--
Manufacturer - Heating	94	--	--
Beverage Supplier	98	--	--
Towing Services	100	--	--
Hotel & Lodging	102	--	--
Retail - Home Improvement	119	--	--
Multi-Tenant Office	133	--	--
Automotive Services	135	--	--
Brice Mayor's Office	173	--	--

Table 7-4. Structures within 200 feet of Proposed 60-foot Right of Way			
Preferred Route		**Alternate Route**	
Structure Type	Distance from ROW (ft)	Structure Type	Distance from ROW (ft)
Dine-In Restaurant	183	--	--
Crane Services	183	--	--
Self-Storage	213	--	--
Places of Worship			
Baptist Church	2	--	--
Methodist Church	14	Methodist Church	88
Baptist Church	45	Baptist Church	109
Buddhist Temple	177	--	--
Cemetery			
Methodist Church Cemetery	--	Methodist Church Cemetery	40
Institutional (School)			
Performance Academy	59	--	--

*Do not anticipate direct impact or removal due to engineered solutions

(b) Destroyed, Acquired, or Removed Buildings

A residential shed and a walk-up restaurant are located within the proposed ROW for the Preferred Route, which are both located within the existing Shannon – Astor 138 kV transmission line ROW. In addition, there is a railroad maintenance shed within the Preferred Route's greenfield ROW. No structures are located within the proposed ROW for the Alternate Route. No residences are present within the ROW for either the Preferred or Alternate Routes.

The potential removal of structures within the ROW was mitigated during the siting of the Preferred Route and Alternate Route by designing route options that avoid structure impacts to the extent feasible. Based on negotiations with landowners, the residential shed within the proposed ROW would be removed for the Preferred Route. The Preferred Route is to be designed around the walk-up restaurant and second outbuilding, which is a maintenance shed located within the Norfolk Southern railroad corridor.

(c) Mitigation Procedures

Mitigation for the prohibition of the future installation of structures within the ROW and vegetative clearing and maintenance activities for the transmission line will be determined as part of the Company's acquisition of the ROW for this Project, as part of the negotiated settlement between

the Company and the property owner, or as determined in appropriation proceedings. If an existing septic system located in the transmission ROW is impacted by construction, operation, or maintenance of the proposed Project, the septic system will be repaired or replaced by the Company as necessary to meet the appropriate installation requirements.

(C) AGRICULTURAL DISTRICTS AND IMPACTS TO AGRICULTURAL LAND

Approximately 4.9 acres of agricultural land is in the Preferred Route ROW, while 5.2 acres is located within the Alternate Route ROW.

(1) Agricultural Land Use/Districts Map

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

(2) Impacts to Agricultural Lands and Agricultural Districts

The Franklin County Auditor was contacted to obtain information on current Agricultural District Land records. Current data was received on January 7. Neither the Preferred Route nor Alternate Route cross a designated Agricultural District.

The potential impacts of the Project on agricultural land include damage to crops that may be present, disturbance of underground field drainage systems, compaction of soils and potential for temporary reduction of crop productivity.

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

(a) Acreage Impacted

Table 7-2 provides the acreage of agricultural land within the ROW. Agricultural land use was based on current parcel data obtained from Franklin County and field observations. Permanent impacts to agricultural lands would be limited to the structure footprints, while temporary impacts would be limited to access roads during construction and maintenance of the routes. No further

impacts to agricultural land uses, or associated structures, are anticipated from the operation of the route as agricultural activities can continue within the transmission ROW.

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

The following subsections include an evaluation of the impact of the construction, operation, and maintenance of the proposed transmission line on the land and the following agricultural facilities and practices within the Project area, where present.

(i) Field Operations

During construction, field operations such as plowing, planting, cultivating, spraying, and harvesting of cultivated crops will only be interrupted for a portion of the growing season or a portion of the dormant season for agricultural operations. Property owners will be compensated for crop damage resulting from the Company's construction activities. No significant impacts to livestock operations or grazing areas are anticipated. Property owners may continue to use the ROW area for general uses (e.g., lawn maintenance, crop cultivation, livestock) after construction but is contingent upon the use having no adverse impact on the safe and reliable operation of the transmission line.

(ii) Irrigation

There are no known irrigation systems within the proposed ROW for either route. The Company will identify the presence of any such systems through contact with landowners once the final route is approved. Any system that must be relocated will be coordinated with the landowner to avoid affecting the irrigation system's operation and avoid any cost incurred by the landowner.

(iii) Field Drainage Systems

Damage to field tile systems is unlikely given the installation of mostly direct-embed steel pole structures, but the Company will restore damaged systems to their pre-construction condition. The company will also work with the agricultural landowners to resolve conflicts with field drainage systems and other facilities that are crossed by the Project where necessary.

(iv) Structures Used for Agricultural Operations

There are no structures used for agricultural operations within 200 feet of the Preferred Route and Alternate Route that may be adversely affected by the construction and operation of the transmission line.

(v) Agricultural Land Viability for Agricultural Districts

Agricultural Districts are not crossed by either the Preferred Route or Alternate Route.

(c) Mitigation Procedures

Mitigation for damage to existing crops and the compaction of soils is provided as compensation to the property owner as specified in the easement for the ROW. The specific terms of the easement regarding crop damage or soil compaction are determined as part of the Company's acquisition of the ROW for the Project, as part of the negotiated settlement between the Company and the property owner, or as determined in appropriation proceedings. Additionally, the Company and the contractors hired to work on the Project have extensive experience in transmission line construction. Both the Company and the selected contractors will work to minimize agricultural impacts during construction of the Project.

(i) Avoidance or Minimization of Damage

To minimize potential damage to agricultural land, the Company will place poles beyond or at the edges of agricultural fields, to the extent practical, and will primarily install single tangent poles to support the transmission line. This mitigation effort should limit disruption of plow patterns and minimize the creation of areas where weeds and other non-crops can grow in relation to construction of the transmission line. In instances where there is damage in the ROW, compensation for this limited impact will be provided to the property owner.

(ii) Field Tile System Damage Repairs

Impacts and resulting repairs to irrigation or field tile drainage systems are not anticipated, but if identified, will be addressed on a case-by-case basis with the individual property owner. In general, the Company will provide mitigation for damage to underground drainage systems from

construction, operation, and maintenance activities by repairing or replacing damaged sections of the drainage systems as necessary.

(iii) Segregation and Restoration of Topsoil

Excavated topsoil will be segregated and stockpiled where necessary to maintain long-term agricultural uses. Topsoil will also be de-compacted and restored to original conditions, unless otherwise agreed to by the landowner.

(D) REGIONAL LAND USE PLANS AND DEVELOPMENT

This section of the application provides information regarding land use plans and regional development.

(1) Impacts to Regional Development

The proposed Project is expected to support regional development in Franklin County through increased reliability and availability of electric power to residential, commercial, institutional, and industrial users throughout the region. No negative impacts on regional development are foreseen for this Project. A more detailed discussion of the need for this Project and how it will affect regional development is included in Section 4906-5-03 of this application.

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

The Company reviewed the Franklin County community development plans. No conflicts with future proposed land uses outlined in the plans were identified. As such, the Project is compatible with the current regional land use plans and will support their implementation by allowing for further economic development in Project area.

(E) CULTURAL AND ARCHAEOLOGICAL RESOURCES

Cultural resource studies of the Project area were conducted on behalf of the Company. In addition to a background records check and literature review using data files from the State Historic Preservation Office ("SHPO") for both the Preferred Route and Alternate Route, detailed History/Architectural Investigations and a Phase I Archaeological Investigation have been

completed. Copies of the reports detailing these efforts can be filed, as a confidential filing, with the OPSB due to the sensitive nature of the location information for archaeological sites.

(1) Cultural Resources Map

Based on the cultural resources desktop study, there are no scenic rivers or scenic routes/byways as defined by Ohio Department of Natural Resources (ODNR) and/or the Ohio Department of Transportation (ODOT) or registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance within 1,000 feet of the Preferred Route and Alternate Route. Cultural resources already in public domain (churches, cemeteries, and Ohio Historic Inventory (OHI) structures) are identified in **Figure 7-2**.

(2) Cultural Resources in Study Corridor

Archival research considered a 1,000 foot buffer around both the Preferred Route and Alternate Route, to locate previously-identified cultural resources and to provide information on the probability of identifying cultural resources as part of this Project. This review included examination of the Ohio Archaeological Inventory (OAI), (OHI), Determination of Eligibility (DOE) files, the National Register of Historic Places (NRHP), historic cemeteries, historic bridges, National Historic Landmarks (NHLs), and previous cultural resources surveys on-file with the SHPO. This archival research indicated the following for the Preferred Route and Alternate Route. Separate reports summarizing these efforts can be provided to OPSB upon request.

- **Preferred Route:** No NHRP properties/districts or DOE files are within 1,000 feet of the Preferred Route. A total of two OAI sites, 11 OHI resources, one cemetery, and 10 prior cultural investigations have been documented within 1,000 feet of the Preferred Route alignment. No bridges were documented within 1,000 feet of the Preferred Route. No OAI sites, OHI resources, or cemeteries are located within the Preferred Routes ROW. None of the OAI archaeological sites within 1,000 feet of the Preferred Route extend within the Preferred Route ROW. There were no archaeological sites identified during the field reconnaissance work. No historic properties or landmarks will be affected by the Project regarding the archaeological component. No further archaeological or architectural work is recommended.

- **Alternate Route:** A literature review was completed for the Alternate Route. There are no NHRP properties/districts within 1,000 feet of the Alternate Route. There is one DOE resource within 1,000 feet of the Alternate Route; however, it is not within the Project corridor. The Graham House is a DOE resource that is just north of the Alternate Route. There are 33 OAI archaeological sites, five OHI architectural sites, no bridges, and one cemetery located within 1,000 feet of the Alternate Route. None of the recorded archaeological sites are significant regardless of their involvement with the 1,000 feet of the Alternate Route and most were recorded greater than 1,000 feet from the Alternate Route. A total of eight OHI resources, one cemetery, and 15 prior cultural investigations have been documented within 1,000 feet of the Alternate Route alignment. No bridges were documented within 1,000 feet of the Alternate Route. Of this inventory, eight OHI-listed aboveground resources occur within 500 feet of the Alternate Route. No historic properties or landmarks will be affected by the Project regarding the archaeological component. No further archaeological or architectural work is recommended.

Cultural resources already in the public domain (e.g., OHI-listed resources) within 1,000 feet of the Preferred Route and Alternate Route are identified in **Figure 7-2**.

(3) Construction, Operation and Maintenance Impacts on Cultural Resources

Based on the results of the cultural resources investigations to date, impacts to cultural resources associated with the construction, operation, and maintenance of the proposed Project are not anticipated.

(4) Mitigation Procedures

As noted above, based on the results of the desktop review and field surveys, no adverse impacts to known and recorded historic properties are anticipated because of the Project; therefore, no mitigation is proposed at this time.

(5) Aesthetic Impact

(a) Visibility of the Project

The viewsheds along both the Preferred Route and Alternate Route from residences and potentially sensitive vantage points may be altered by the presence of the transmission line. The Project area is characterized by relatively flat terrain, suburban and urban residential properties, industrial lots, agricultural areas, woodlots, wetlands, and floodplains. Many major overhead transmission lines, distribution lines, large industrial and commercial buildings, and railroads extend through or adjacent to the proposed boundaries of the Preferred Route and Alternate Route. Due to both the intervening developed land uses and existing infrastructure crossed, the Project is unlikely to have a significant impact on the overall visual landscape. At select locations, where tree clearing may be required or upgrading structures to double circuit, visual impacts may be greater. There are no scenic byways or rivers crossed by or in the viewshed of the Project.

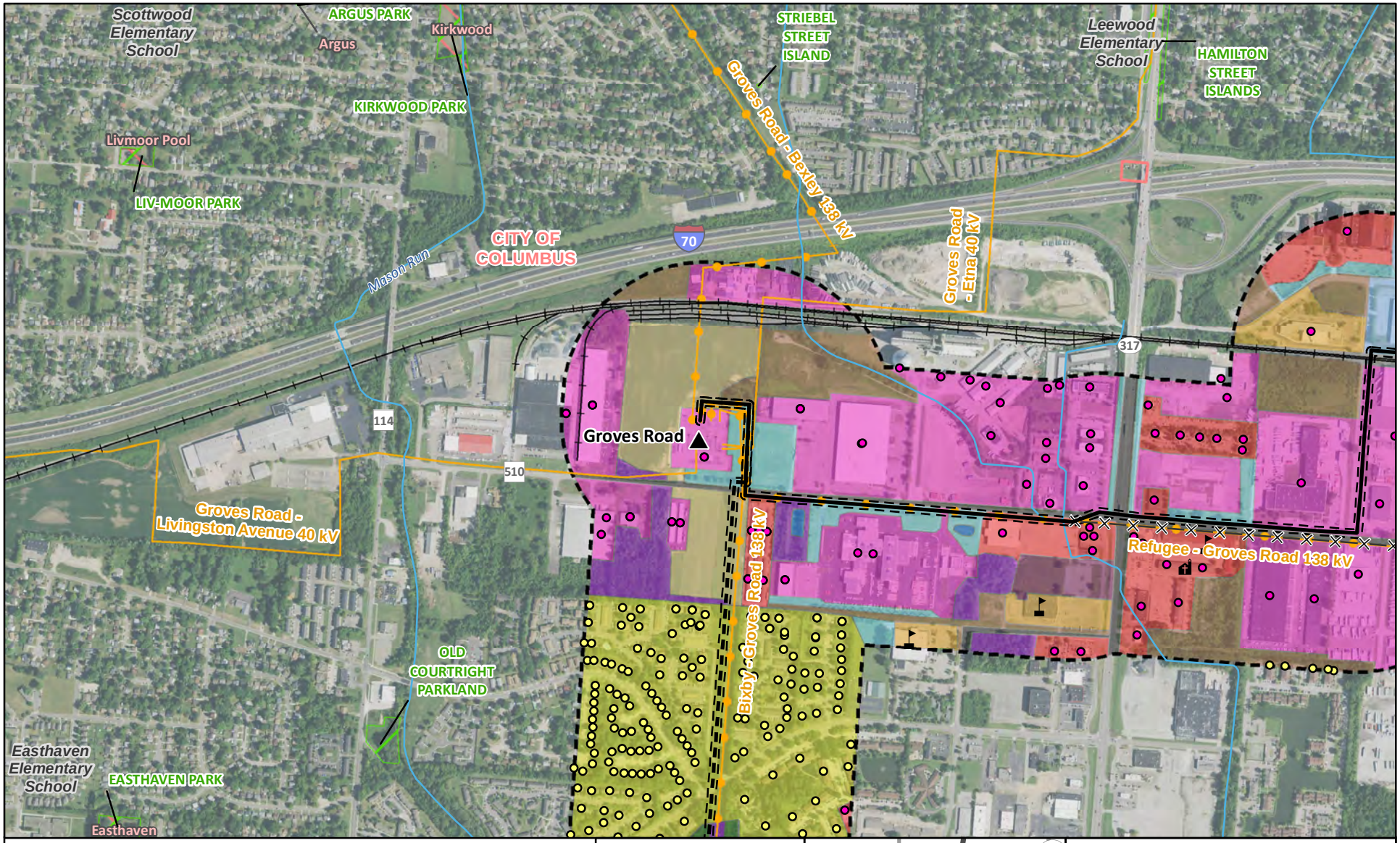
(b) Facility Effect on Site and Surrounding Area

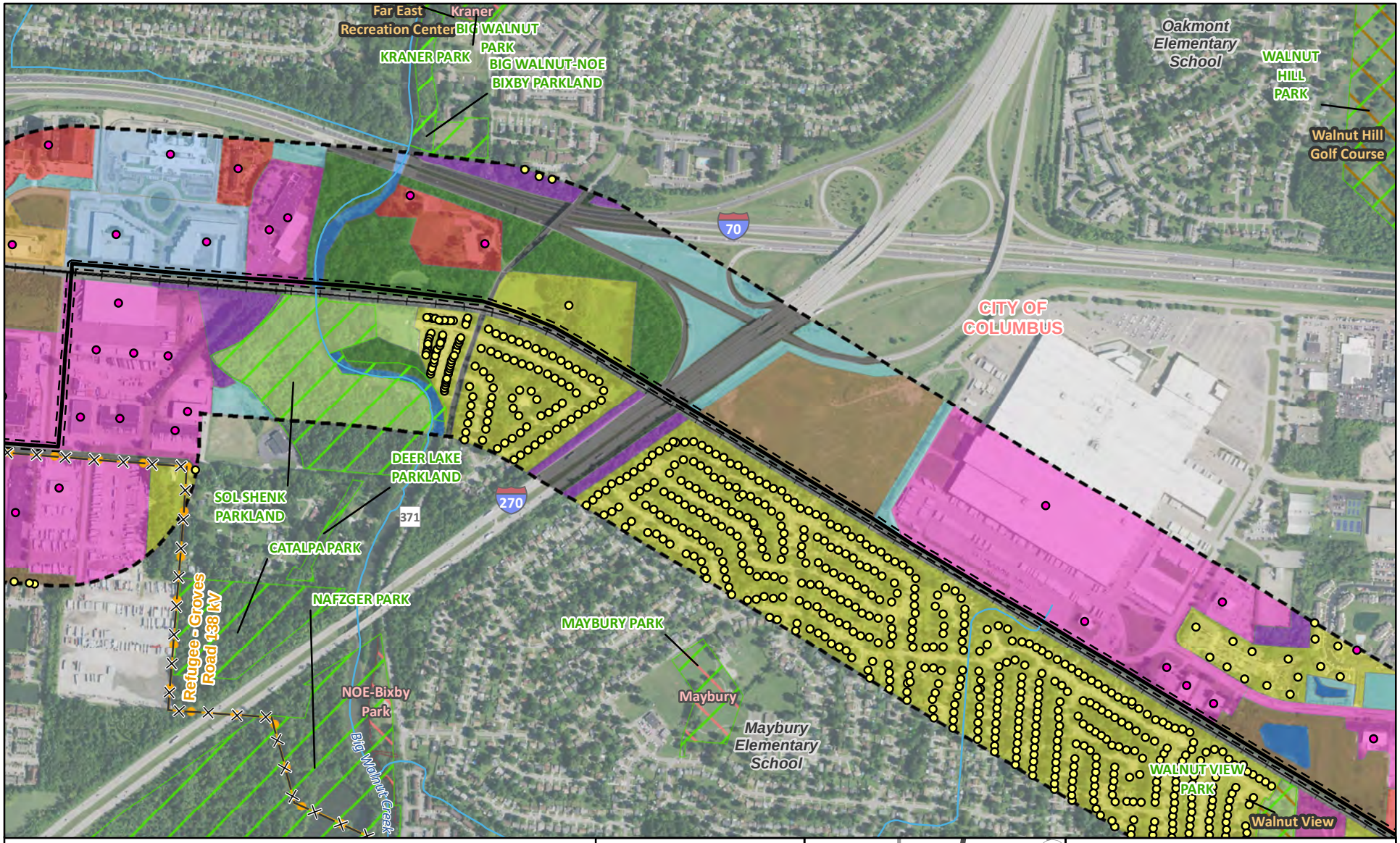
Construction of a Project would affect the existing visual aesthetics of the area through which the transmission line passes, primarily from the removal of trees for any areas within the ROW or upgrading to large structures to accommodate a double circuit configuration. However, the degree of visual impact of the man-made element will vary with the setting and structure type; the impact can be evaluated by comparing the amount of contrast resulting from the construction of the structure and the existing landscape. For example, if the transmission line were screened from view from sensitive receptors, then the aesthetic impact would be minimal, and if the transmission line were placed in an existing open area, it would have a comparatively higher aesthetic impact. The Preferred Route proposes rebuilding approximately 3.0 miles of the Shannon – Astor 138 kV transmission line to double circuit, within maintained ROW and approximately 3.4 miles of greenfield transmission line, which primarily parallels existing transportation ROW or property boundaries apart from a 0.2 mile cross-country portion. The Alternate Route proposes rebuild approximately 0.2 mile of the Groves Road – Refugee 138 kV transmission line within maintained ROW and approximately 0.1 mile of the Shannon – Astor 138 kV transmission line to double circuit, within maintained ROW. The remaining greenfield portions of the Alternate Route either parallel an existing transmission line for approximately 1.9 miles within existing unmaintained ROW or parallel Winchester Pike for 2.9 miles, apart from approximately 0.1 mile of road crossings.

(c) Visual Impact Minimization

The ability to minimize the visual impacts of the proposed transmission line is constrained by engineering requirements, existing land use, and the Project length. The Company has limited the potential aesthetic impacts of the transmission line to the extent possible through the route selection process, and where practical, paralleling existing infrastructure or rebuilding an existing transmission line.

FIGURES


Scottwood Elementary School
ARGUS PARK
Argus
Kirkwood
KIRKWOOD PARK
Livmoor Pool
LIV-MOOR PARK
STRIEBEL STREET ISLAND
Leewood Elementary School
HAMILTON STREET ISLANDS
Groves Road - Bexley 138 kV
Groves Road - Etna 40 kV
CITY OF COLUMBUS
Mason Run
70
317
114
510
Groves Road
Groves Road - Livingston Avenue 40 kV
Bixby - Groves Road 138 kV
Refugee - Groves Road 138 kV
OLD COURTRIGHT PARKLAND
Easthaven Elementary School
EASTHAVEN PARK
Easthaven
Existing Station
Place of Worship
School/ Institution
Residence
Commercial/ Industrial Building
Railroad
Preferred Route
Alternate Route
Existing Transmission to be Retired
Existing Transmission Line
69 kV and below
138 kV
Railroad
NHD Stream or River
Proposed ROW
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
PADUS
Local Government
Land Use
Agricultural
Commercial
County Road or Highway
Forested
Hospital/ Office
Industrial/ Facility
Institutional (School)
Landscaped/ Maintained
Old Field
Residential (includes planned)
Railroad
Scrub-Shrub
Surface Water
Vacant
Township Boundary
Municipal Boundary
Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)
State Plane Ohio South
NAD 83
March 03, 2022
317
256
70
33
270
A
B
C
D
E
F
G
H
I
J
Franklin County
Fairfield County
Figure 7-1A
Land Use
AEP OHIO TRANSMISSION COMPANY
Groves Road - Shannon 138 kV
Transmission Line Project
0
1,000
2,000
Feet



Residence
Commercial/ Industrial Building
Railroad
Preferred Route
Existing Transmission to be Retired

Existing Transmission Line
138 kV
Railroad
NHD Stream or River
Proposed ROW
1,000 Foot Buffer

City of Columbus Park or Easement Boundary

PADUS
Local Government
Private Land

Land Use
Commercial
County Road or Highway
Forested
Hospital/ Office
Industrial/ Facility
Institutional (School)
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Residential (includes planned)
Railroad
Scrub-Shrub
Surface Water
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

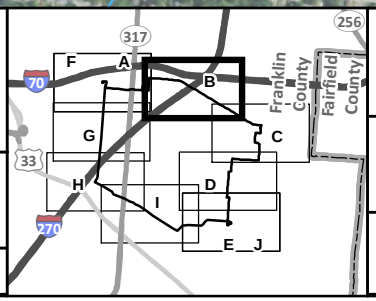
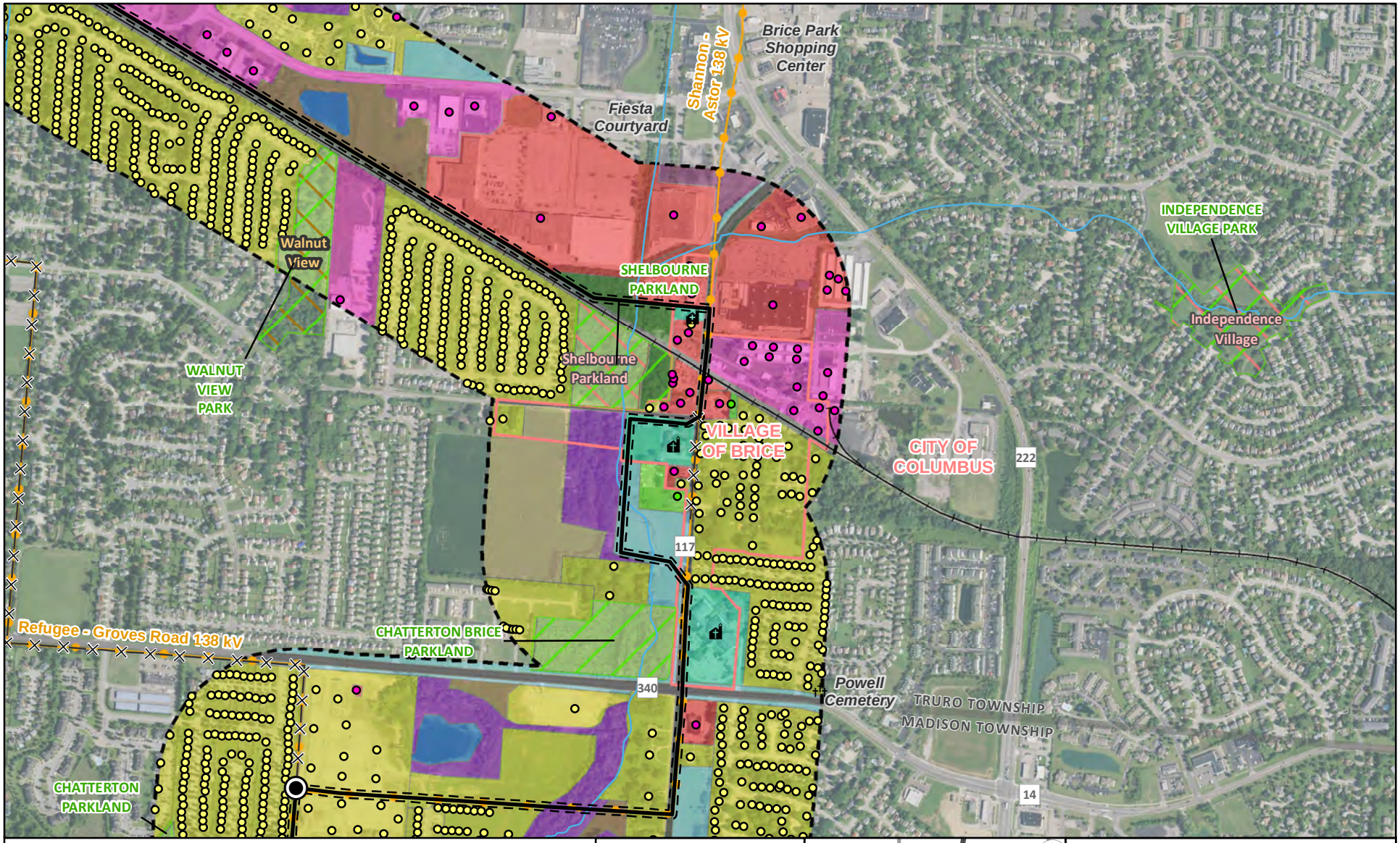


Figure 7-1B
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Refugee Switch (to be removed)
Place of Worship
Residence
Civic Building
Commercial/ Industrial Building
Railroad
Preferred Route

Existing Transmission to be Retired

Existing Transmission Line
138 kV
Railroad
NHD Stream or River
Proposed ROW
1,000 Foot Buffer

City of Columbus Park or Easement Boundary

PADUS
Local Government
Private Land

Land Use
Agricultural
Civic
Commercial

County Road or Highway
Forested
Industrial/ Facility
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Place of Worship

Residential (includes planned)
Railroad
Scrub-Shrub
Surface Water
Vacant
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

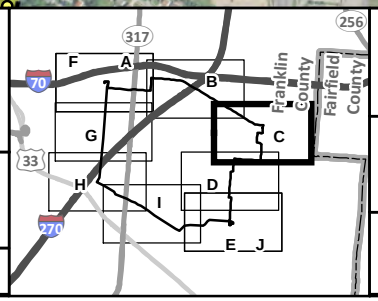
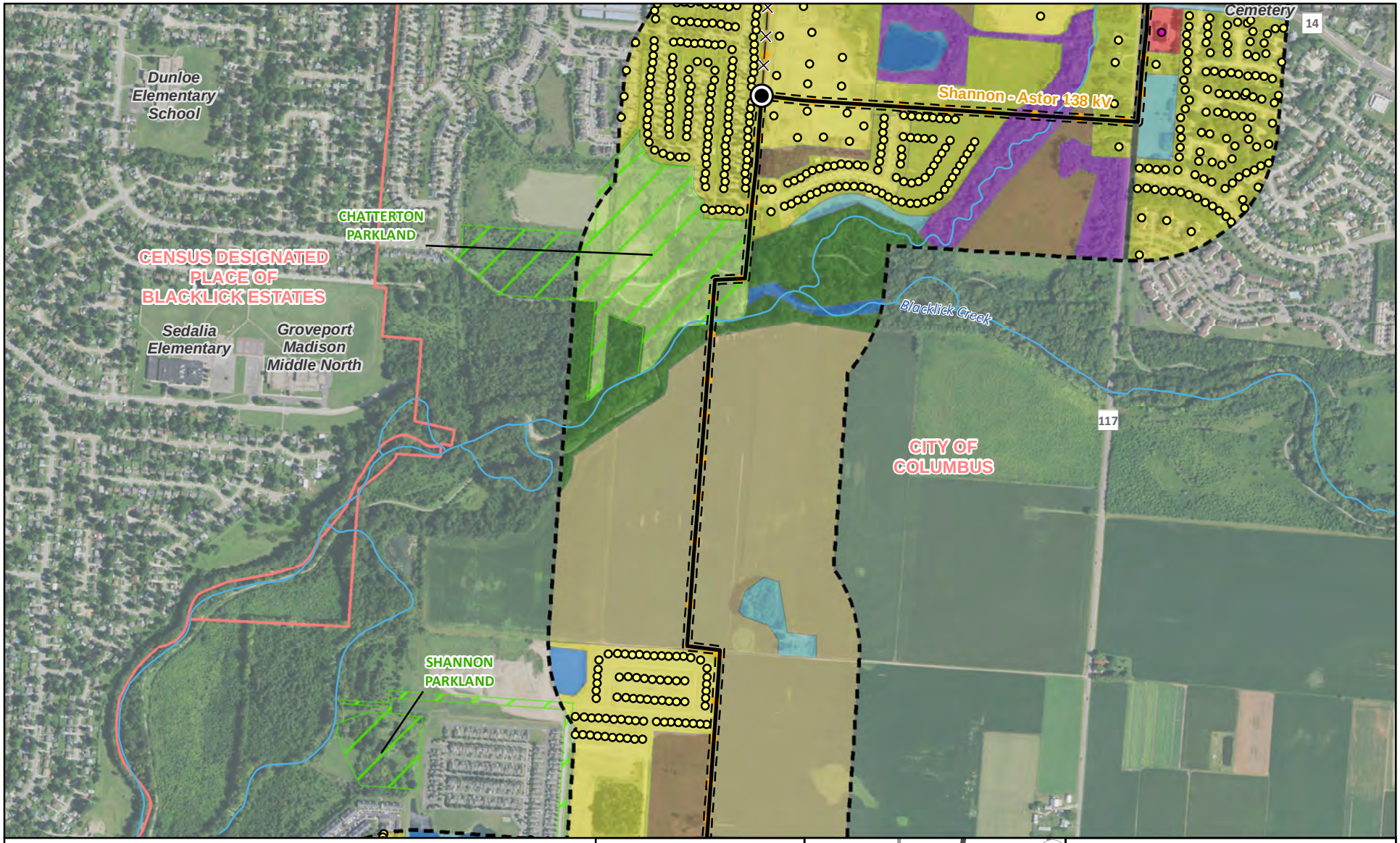


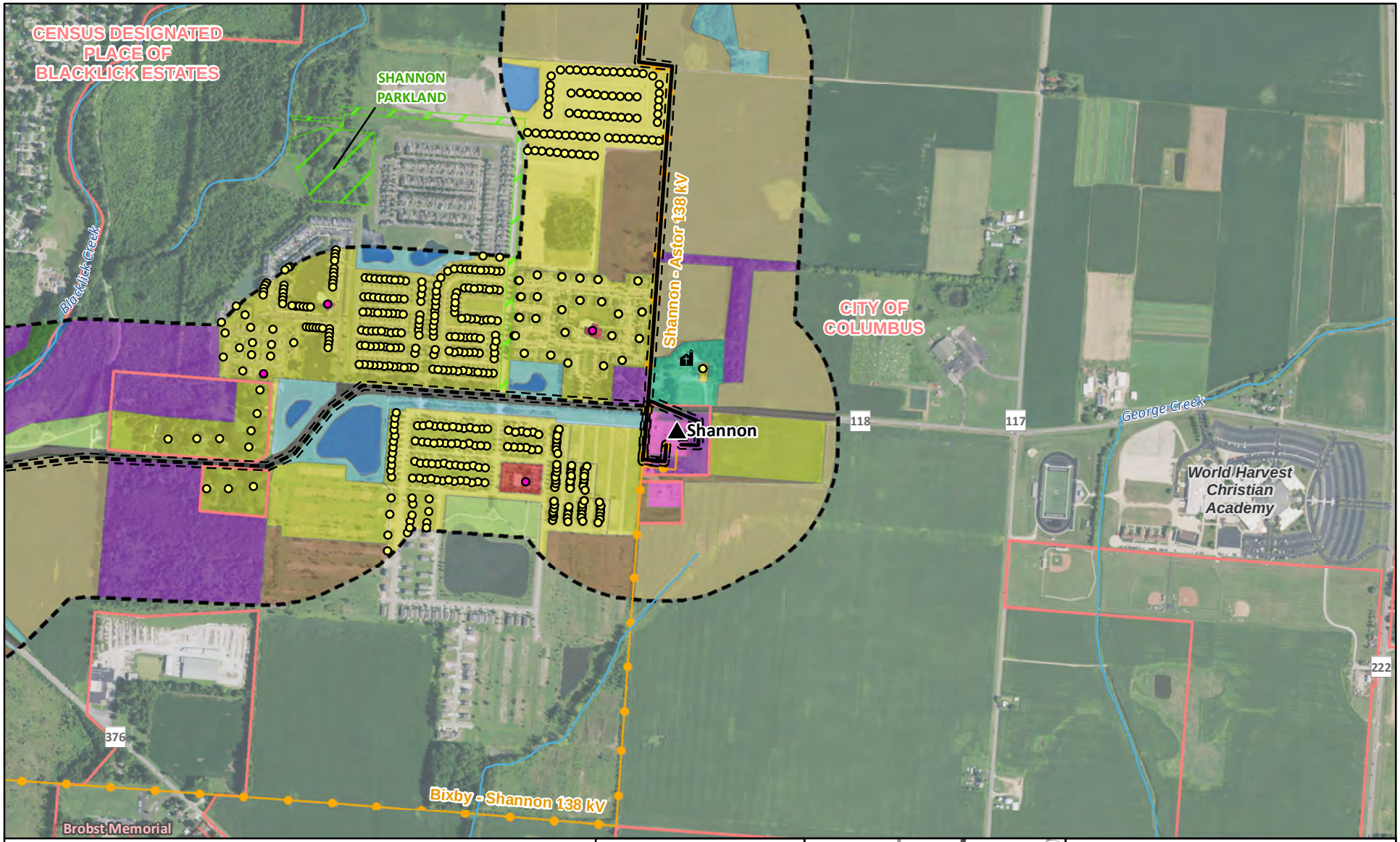
Figure 7-1C
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet


Dunloe Elementary School
Shannon - Astor 138 kV
Cemetery
14
CHATTERTON PARKLAND
CENSUS DESIGNATED PLACE OF BLACKLICK ESTATES
Sedalia Elementary
Groveport Madison Middle North
Blacklick Creek
117
CITY OF COLUMBUS
SHANNON PARKLAND
Refugee Switch (to be removed)
Residence
Commercial/ Industrial Building
Preferred Route
Existing Transmission to be Retired
Existing Transmission Line
138 kV
NHD Stream or River
Proposed ROW
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
Land Use
Agricultural
Commercial
County Road or Highway
Forested
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Residential (includes planned)
Scrub-Shrub
Surface Water
Township Boundary
Municipal Boundary
Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)
State Plane Ohio South NAD 83
March 03, 2022
317
256
70
33
270
A
B
C
D
E
F
G
H
I
J
Franklin County
Fairfield County
Figure 7-1D
Land Use
AEP OHIO TRANSMISSION COMPANY
Groves Road - Shannon 138 kV
Transmission Line Project
0
1,000
2,000
Feet



Existing Station
Place of Worship
Residence
Commercial/ Industrial Building
Preferred Route
Alternate Route
Existing Transmission Line
138 kV
NHD Stream or River
Proposed ROW
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
PADUS
Local Government
Land Use
Agricultural
Commercial
County Road or Highway
Forested
Industrial/ Facility
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Place of Worship
Residential (includes planned)
Scrub-Shrub
Surface Water
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

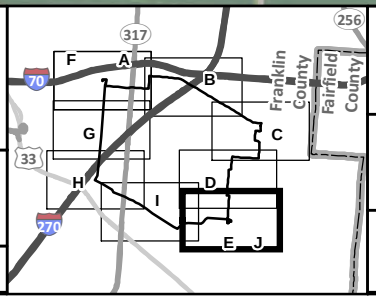
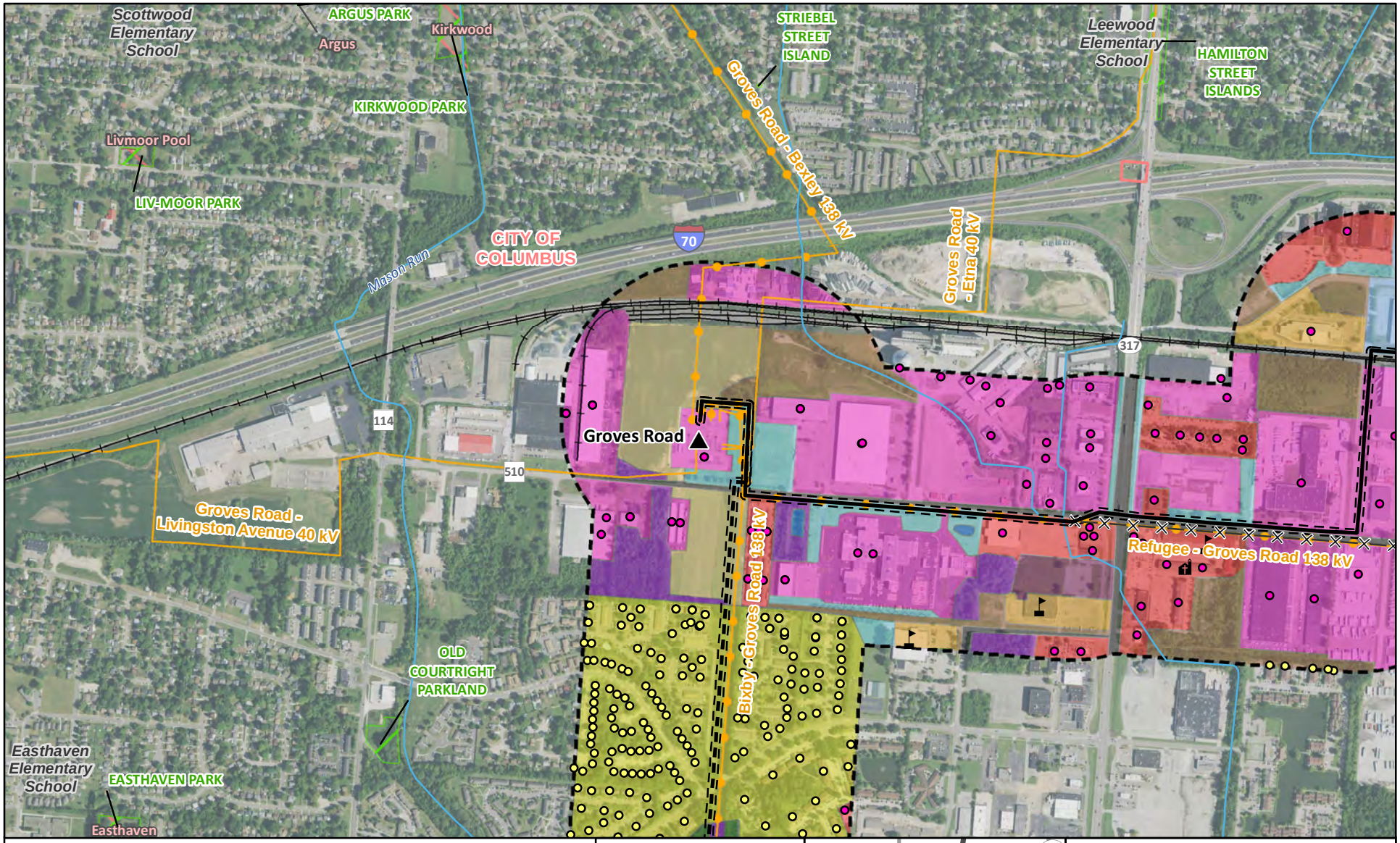


Figure 7-1E
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Existing Station
Place of Worship
School/ Institution
Residence
Commercial/ Industrial Building
Railroad
Preferred Route

Alternate Route
Existing Transmission to be Retired

Existing Transmission Line
69 kV and below
138 kV
Railroad
NHD Stream or River

Proposed ROW
1,000 Foot Buffer
City of Columbus Park or Easement Boundary

PADUS
Local Government

Land Use
Agricultural
Commercial
County Road or Highway
Forested
Hospital/ Office
Industrial/ Facility
Institutional (School)
Landscaped/ Maintained
Old Field
Residential (includes planned)
Railroad
Scrub-Shrub
Surface Water
Vacant
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

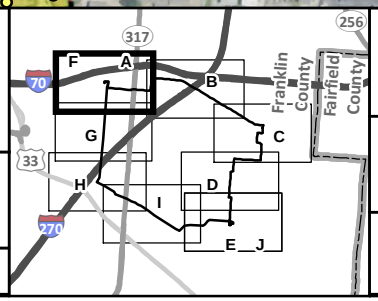
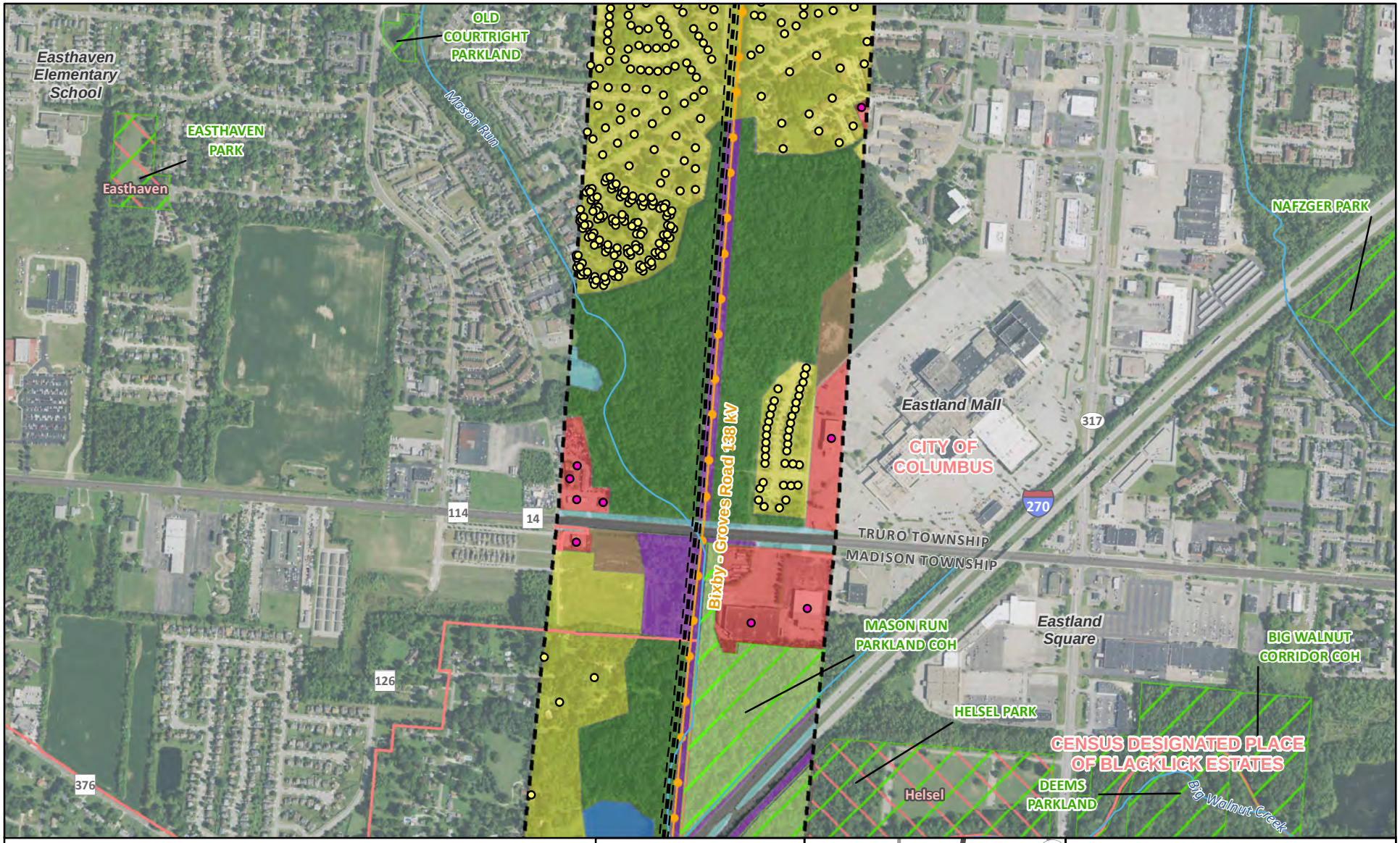


Figure 7-1F
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Residence
Commercial/ Industrial Building
Alternate Route

Existing Transmission Line
138 kV
NHD Stream or River

Proposed ROW
1,000 Foot Buffer
City of Columbus Park or Easement Boundary

PADUS
Local Government

Land Use
Commercial
County Road or Highway
Forested
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Residential (includes planned)
Scrub-Shrub
Surface Water
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

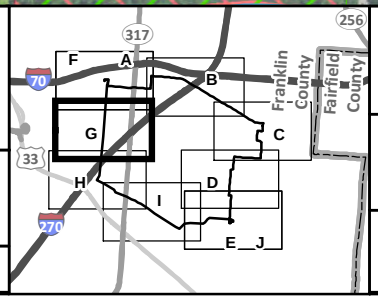
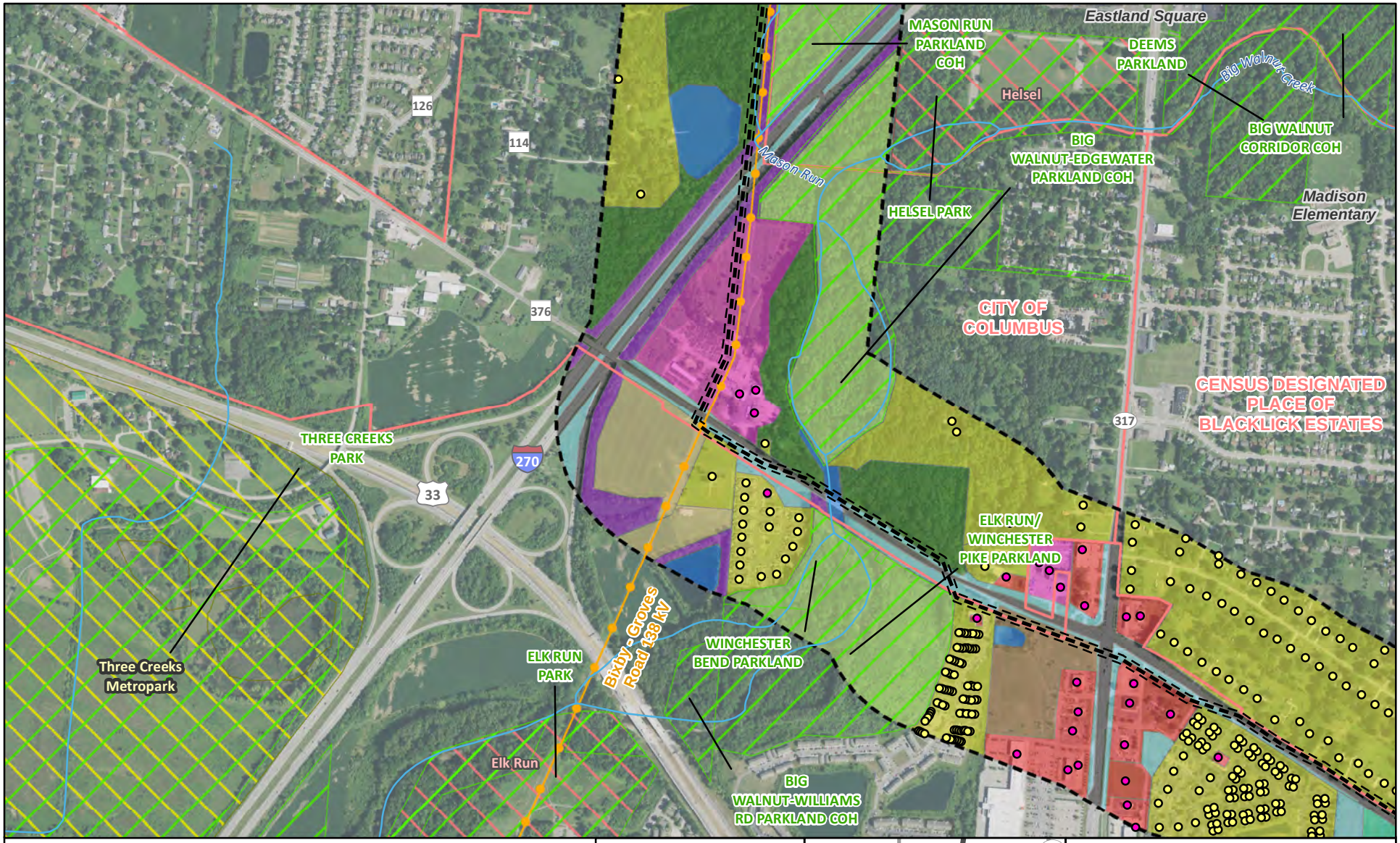


Figure 7-1G
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Residence
Commercial/ Industrial Building
Alternate Route

Existing Transmission Line
138 kV
NHD Stream or River

Proposed ROW
1,000 Foot Buffer
City of Columbus Park or Easement Boundary

PADUS
Local Government
Regional Agency Special District

Land Use
Agricultural
Commercial
County Road or Highway
Forested
Industrial/ Facility
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Place of Worship
Residential (includes planned)
Scrub-Shrub
Surface Water
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South NAD 83

March 03, 2022

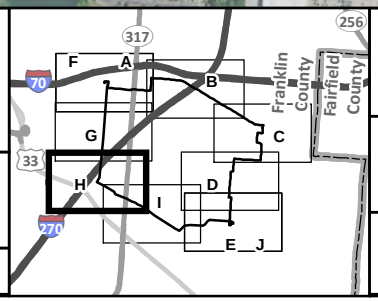
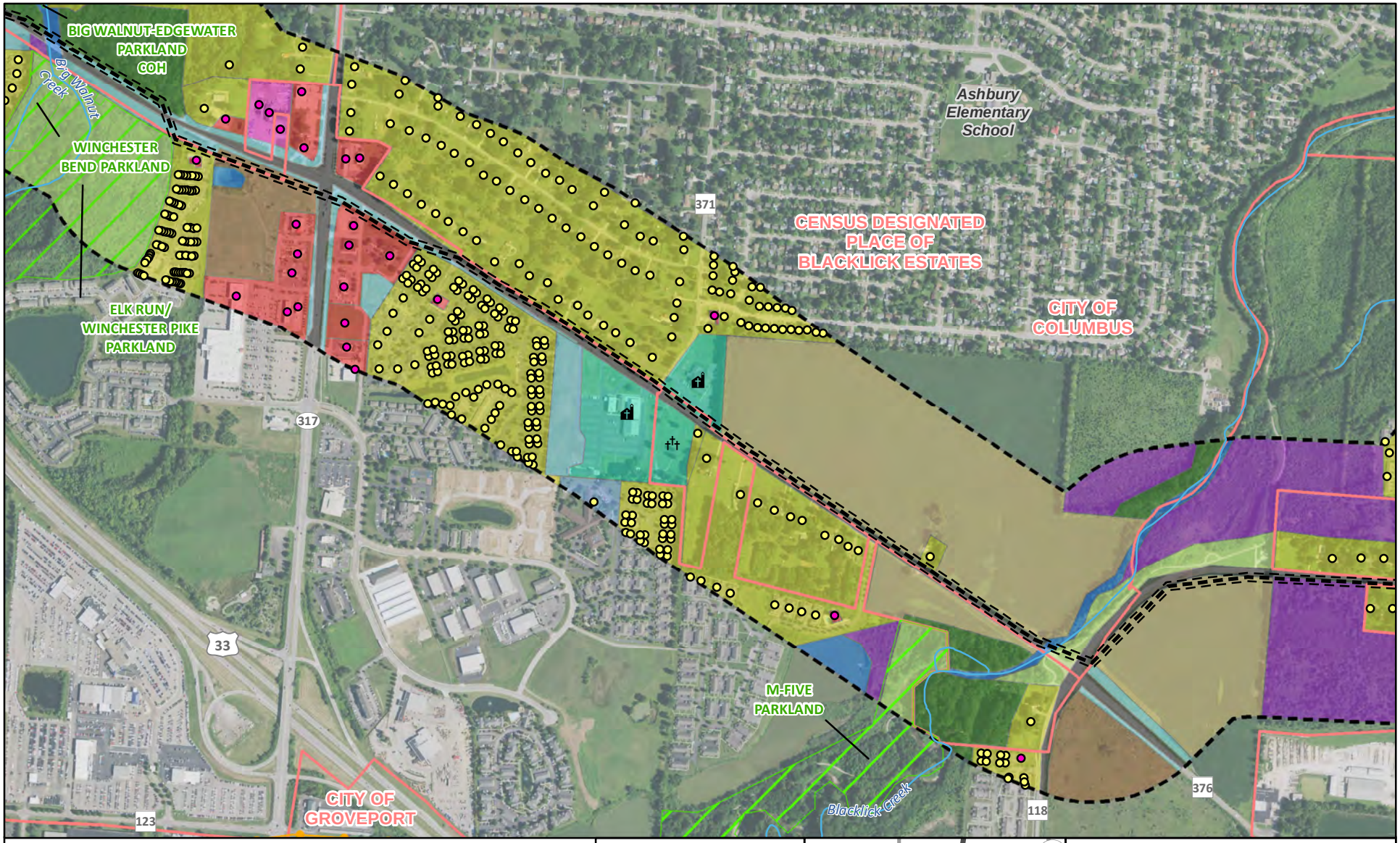


Figure 7-1H
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Place of Worship
Residence
Commercial/ Industrial Building
Alternate Route

Existing Transmission Line
138 kV
NHD Stream or River
Proposed ROW
1,000 Foot Buffer

City of Columbus Park or Easement Boundary

Land Use
Agricultural
Commercial
County Road or Highway
Forested
Hospital/ Office
Industrial/ Facility
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Place of Worship
Residential (includes planned)
Scrub-Shrub
Surface Water
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South NAD 83

March 03, 2022

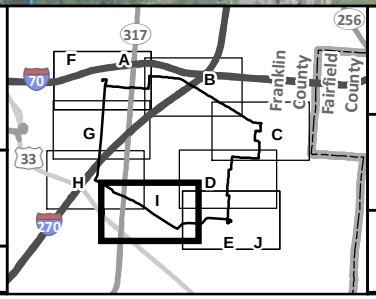
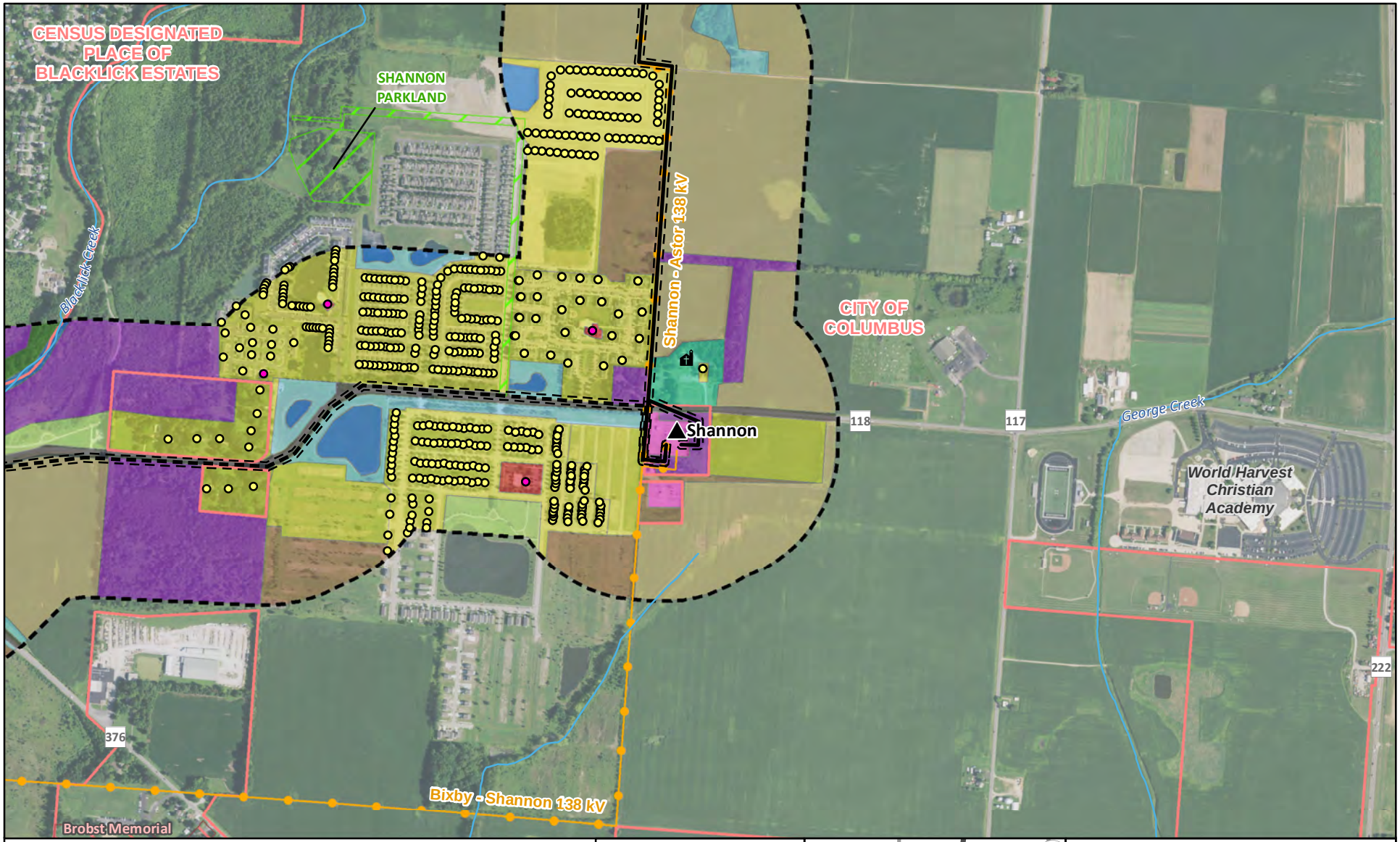


Figure 7-1l
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV Transmission Line Project

0 1,000 2,000
Feet



Existing Station
Place of Worship
Residence
Commercial/ Industrial Building
Preferred Route
Alternate Route
Existing Transmission Line
138 kV
NHD Stream or River
Proposed ROW
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
PADUS
Local Government
Land Use
Agricultural
Commercial
County Road or Highway
Forested
Industrial/ Facility
Landscaped/ Maintained
Old Field
Open Space/ Recreational
Place of Worship
Residential (includes planned)
Scrub-Shrub
Surface Water
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

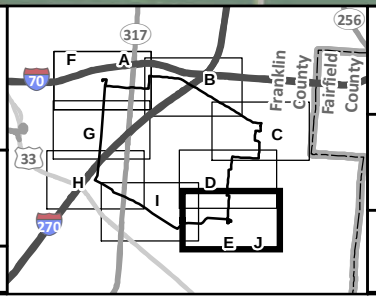
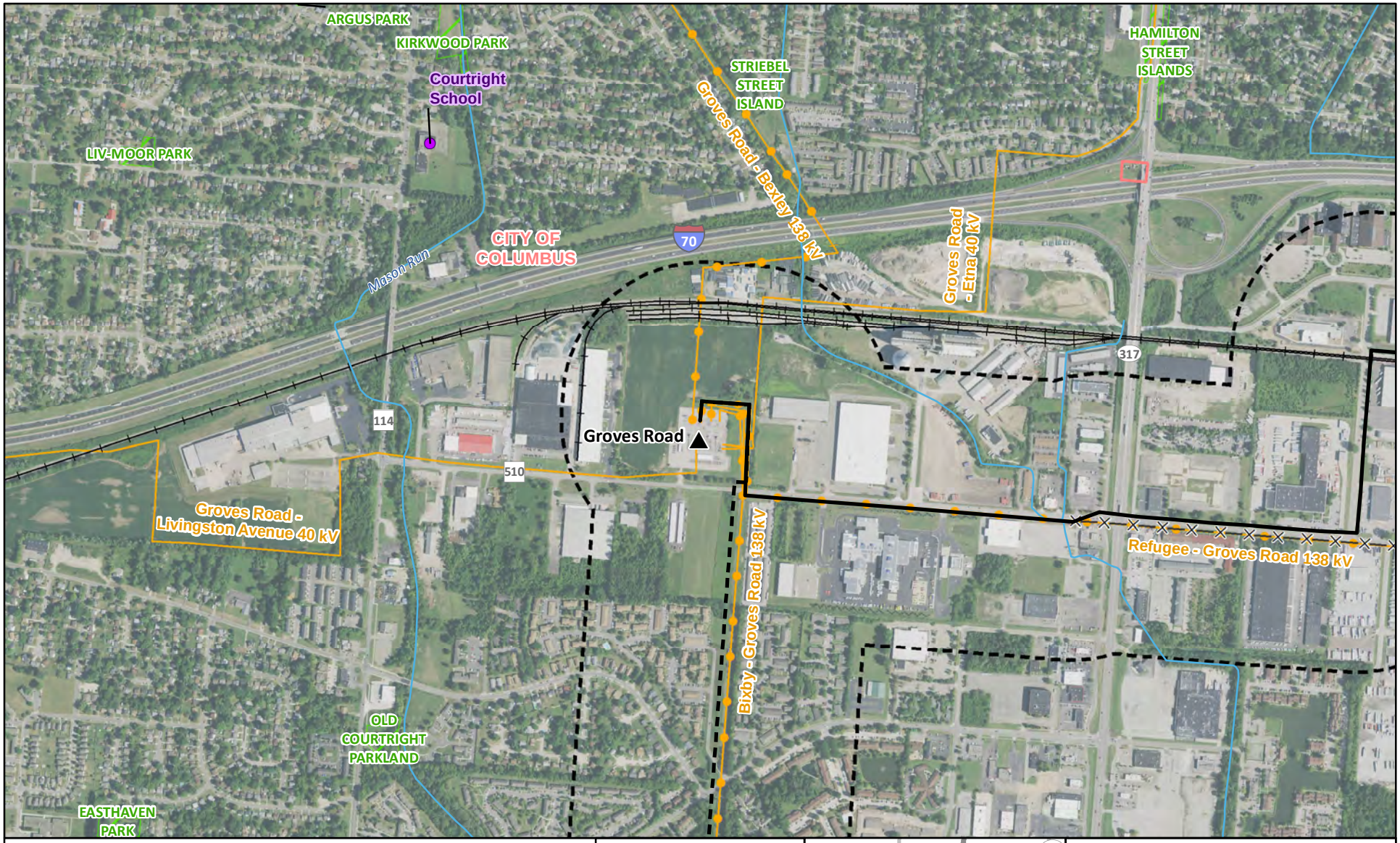


Figure 7-1J
Land Use

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Known Architectural Site
Existing Station
Railroad
Preferred Route
Alternate Route
Existing Transmission to be Retired

Existing Transmission Line
69 kV and below
138 kV
Railroad
NHD Stream or River
1,000 Foot Buffer

City of Columbus Park or Easement Boundary
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

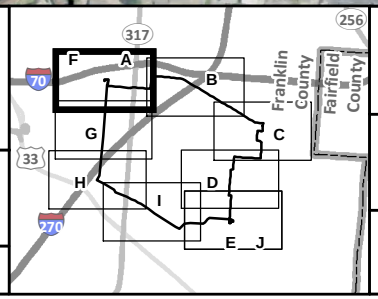
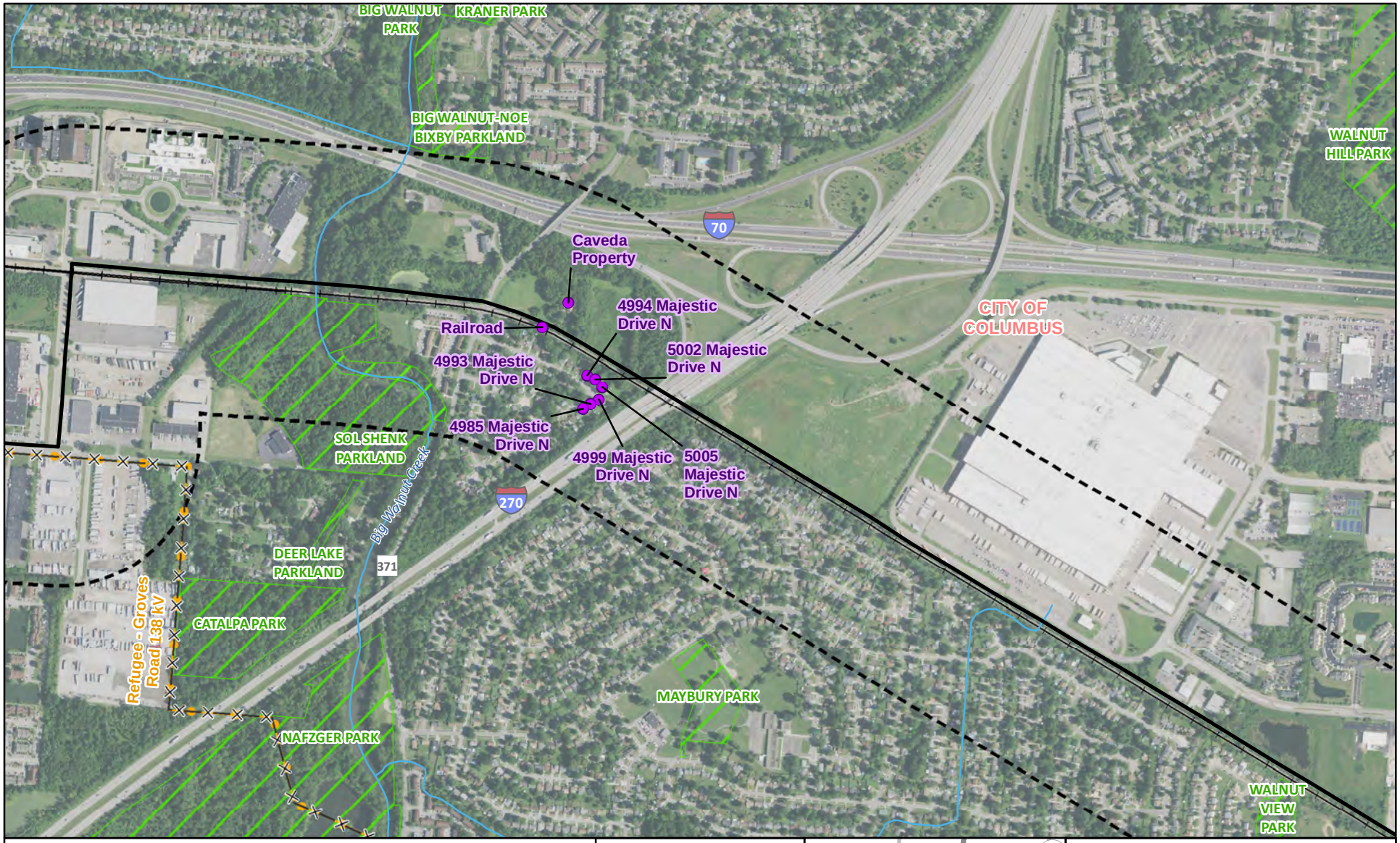


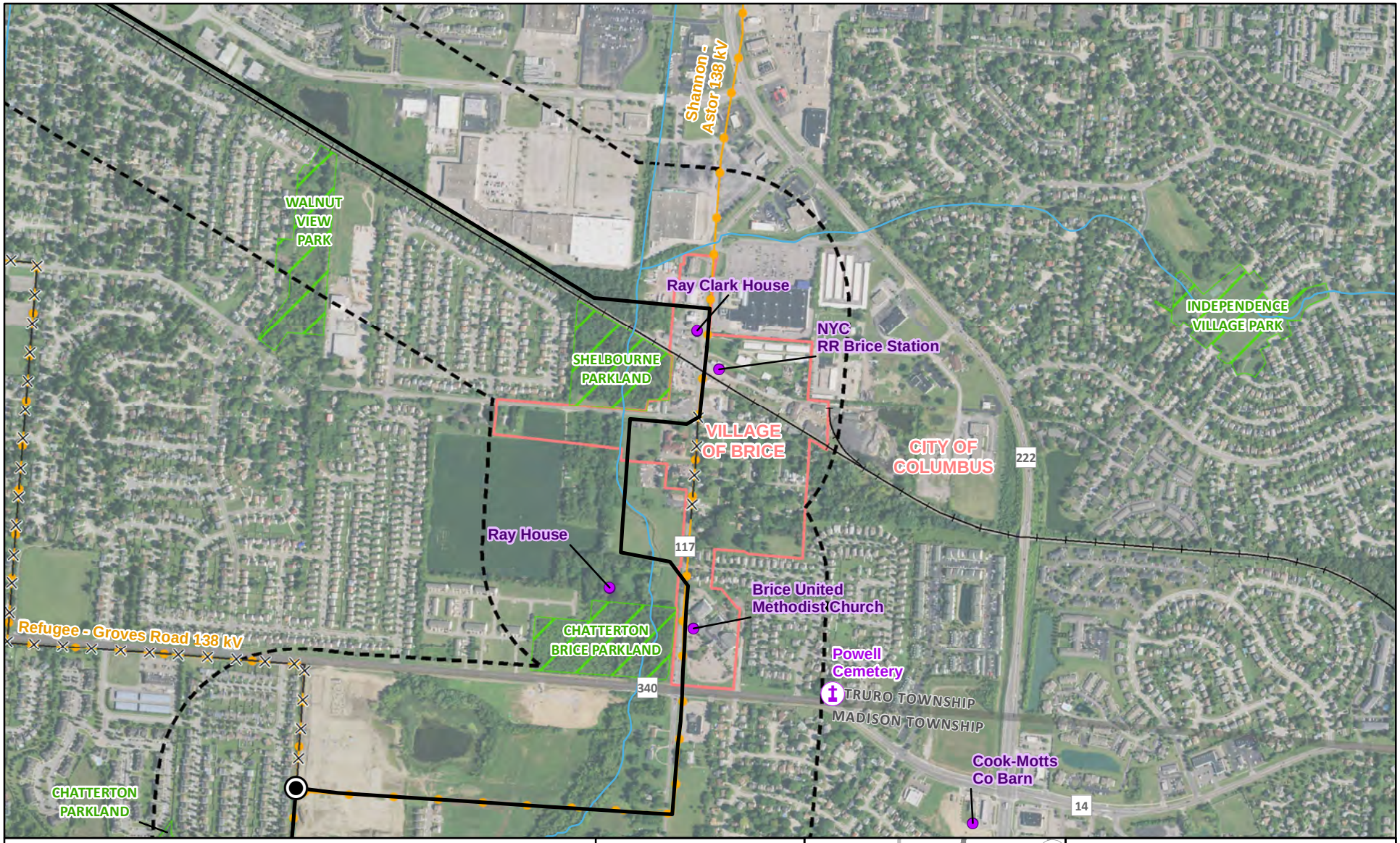
Figure 7-2A
Recreational and Cultural Resources

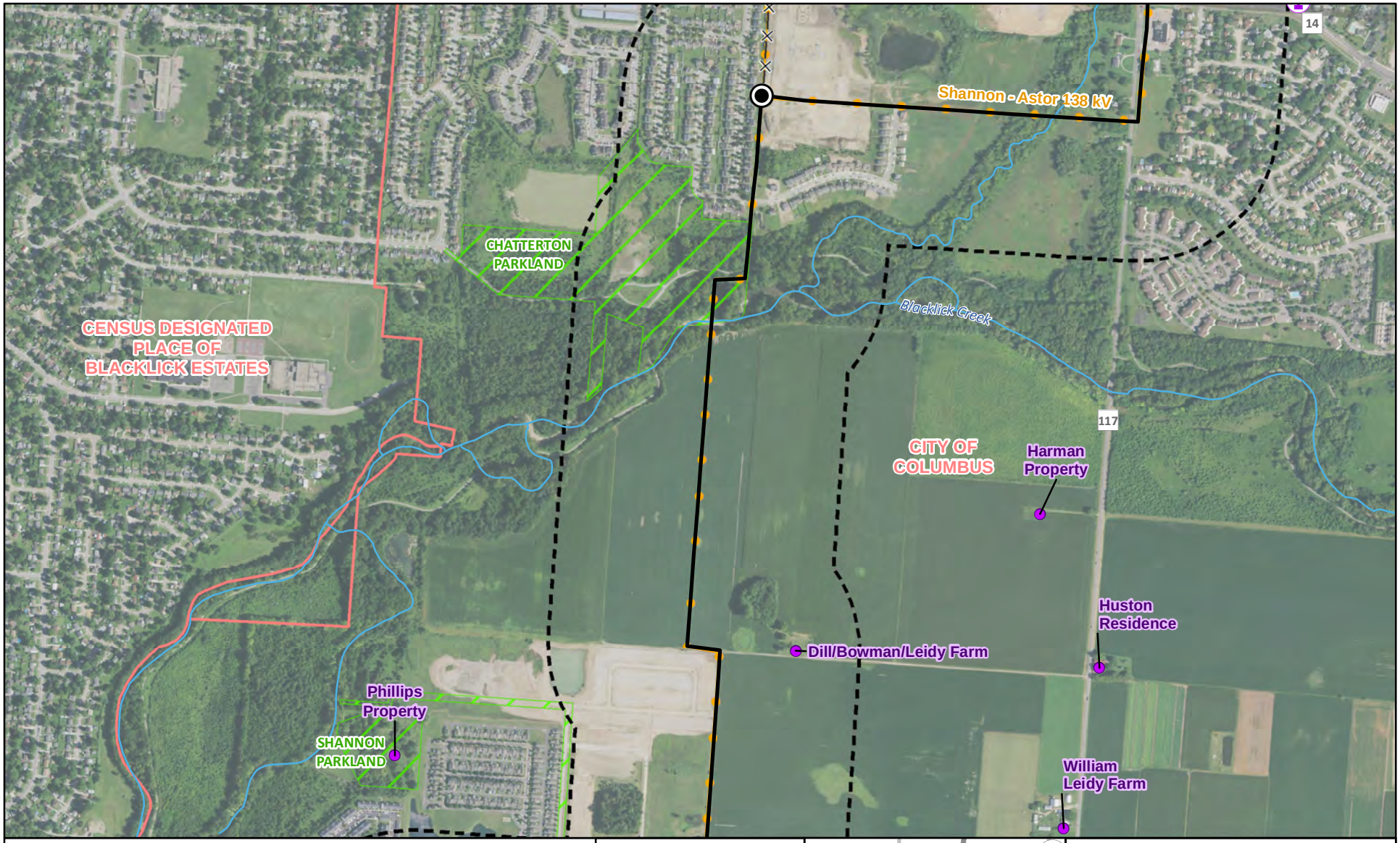
AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet


BIG WALNUT PARK
KRANER PARK
BIG WALNUT-NOE BIXBY PARKLAND
WALNUT HILL PARK
70
Caveda Property
4994 Majestic Drive N
Railroad
CITY OF COLUMBUS
5002 Majestic Drive N
4993 Majestic Drive N
4985 Majestic Drive N
4999 Majestic Drive N
5005 Majestic Drive N
SOL SHENK PARKLAND
Big Walnut Creek
270
DEER LAKE PARKLAND
371
Refugee - Groves Road 138 kV
CATALPA PARK
MAYBURY PARK
NAFZGER PARK
WALNUT VIEW PARK
Known Architectural Site
Railroad
Preferred Route
Existing Transmission to be Retired
Existing Transmission Line
138 kV
Railroad
NHD Stream or River
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
Township Boundary
Municipal Boundary
Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)
State Plane Ohio South NAD 83
March 03, 2022
317
256
70
33
270
A
B
C
D
E
F
G
H
I
J
Franklin County
Fairfield County
Figure 7-2B
Recreational and Cultural Resources
AEP OHIO TRANSMISSION COMPANY
Groves Road - Shannon 138 kV Transmission Line Project
0
1,000
2,000
Feet


Shannon - Astor 138 kV
WALNUT VIEW PARK
Ray Clark House
NYC RR Brice Station
INDEPENDENCE VILLAGE PARK
SHELBOURNE PARKLAND
VILLAGE OF BRICE
CITY OF COLUMBUS
222
Ray House
117
Brice United Methodist Church
Refugee - Groves Road 138 kV
CHATTERTON BRICE PARKLAND
Powell Cemetery
340
TRURO TOWNSHIP
MADISON TOWNSHIP
Cook-Motts Co Barn
CHATTERTON PARKLAND
14
Known Architectural Site
Cemetery
Refugee Switch (to be removed)
Railroad
Preferred Route
Existing Transmission to be Retired
Existing Transmission Line
138 kV
Railroad
NHD Stream or River
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
Township Boundary
Municipal Boundary
Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)
State Plane Ohio South NAD 83
March 03, 2022
317
256
70
33
270
Franklin County
Fairfield County
A
B
C
D
E
F
G
H
I
J
Figure 7-2C
Recreational and Cultural Resources
AEP OHIO TRANSMISSION COMPANY
Groves Road - Shannon 138 kV Transmission Line Project
0
1,000
2,000
Feet



Known Architectural Site

Cemetery

Refugee Switch (to be removed)

Preferred Route

Existing Transmission to be Retired

Existing Transmission Line

138 kV

NHD Stream or River

1,000 Foot Buffer

City of Columbus Park or Easement Boundary

Township Boundary

Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

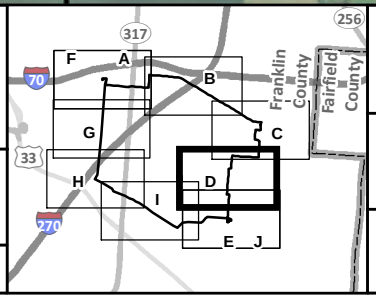
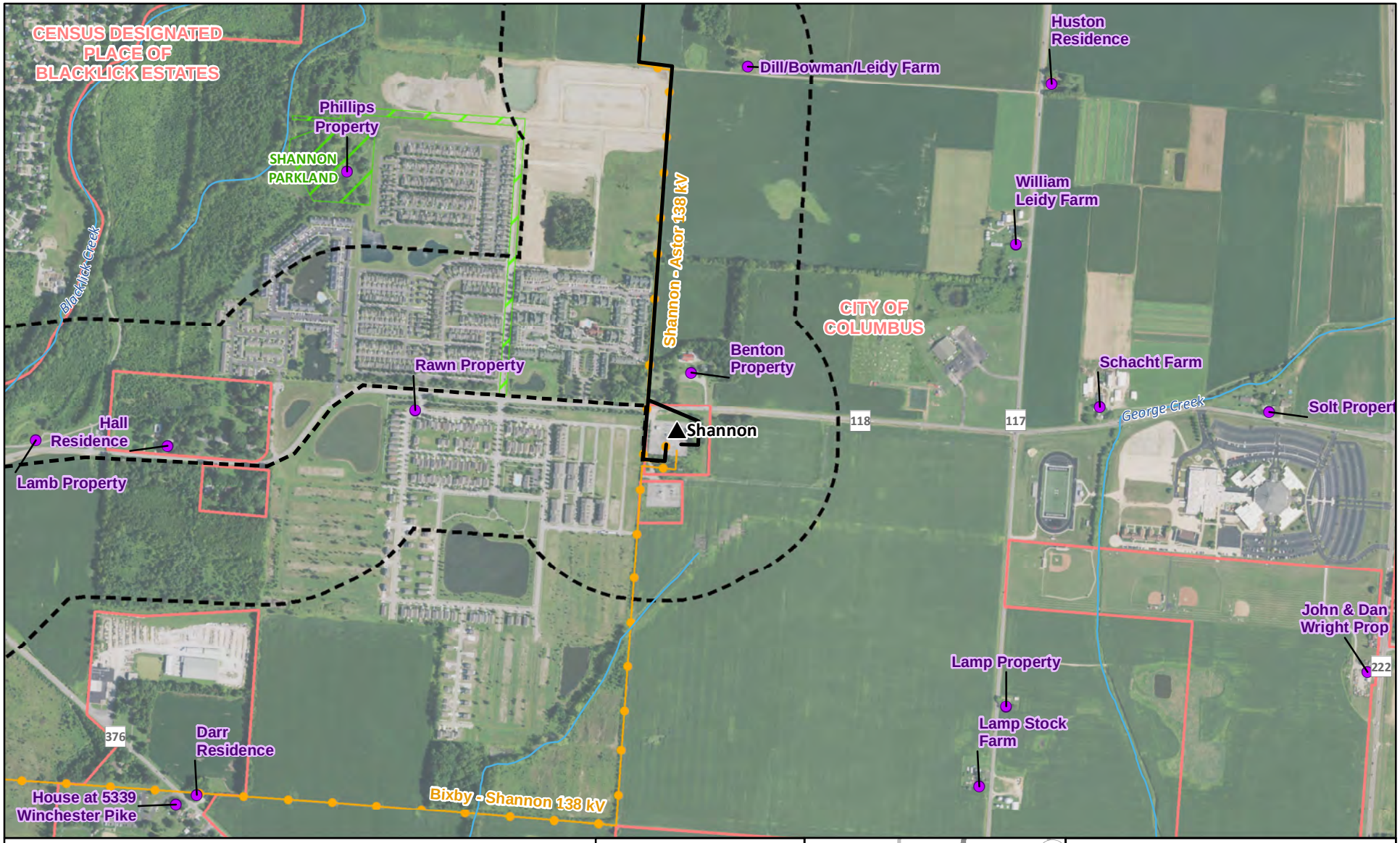


Figure 7-2D
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Known Architectural Site
Existing Station
Preferred Route
Alternate Route

Existing Transmission Line
138 kV

NHD Stream or River
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

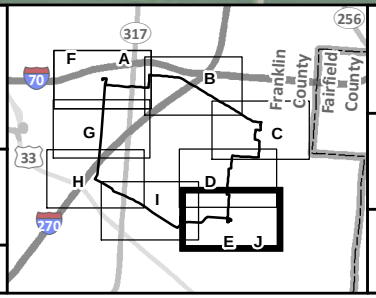
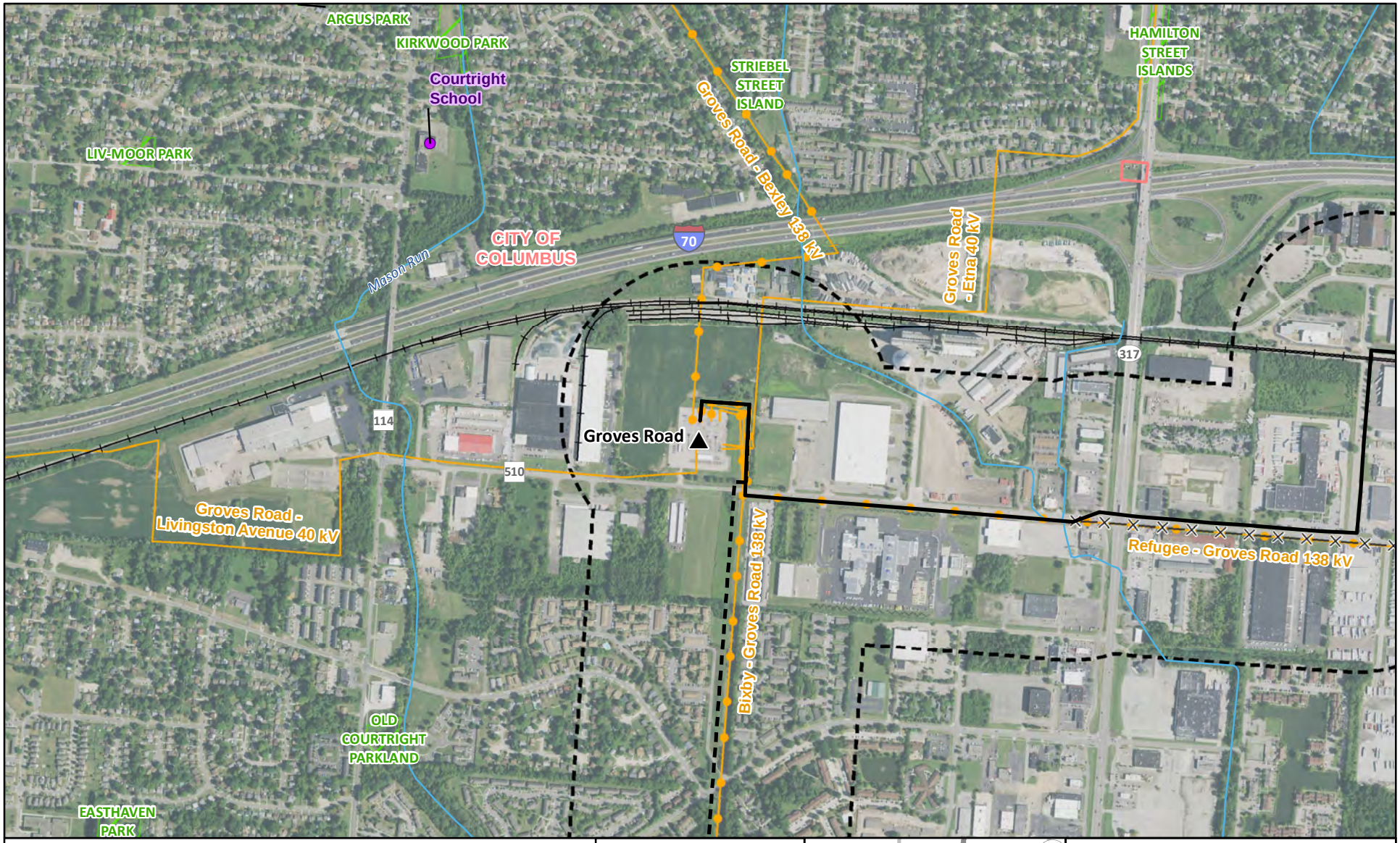


Figure 7-2E
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



Known Architectural Site
Existing Station
Railroad
Preferred Route
Alternate Route
Existing Transmission to be Retired

Existing Transmission Line
69 kV and below
138 kV
Railroad
NHD Stream or River
1,000 Foot Buffer

City of Columbus Park or Easement Boundary
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

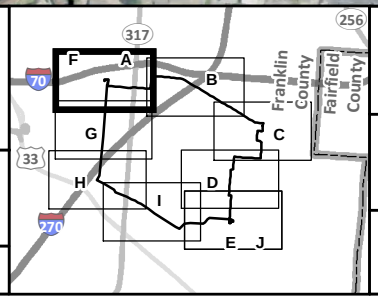


Figure 7-2F
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet

Known Architectural Site

Alternate Route

Existing Transmission Line

138 kV

NHD Stream or River

1,000 Foot Buffer

City of Columbus Park or Easement Boundary

Township Boundary

Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

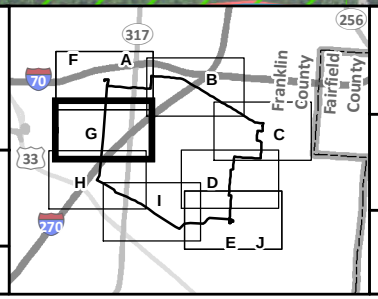
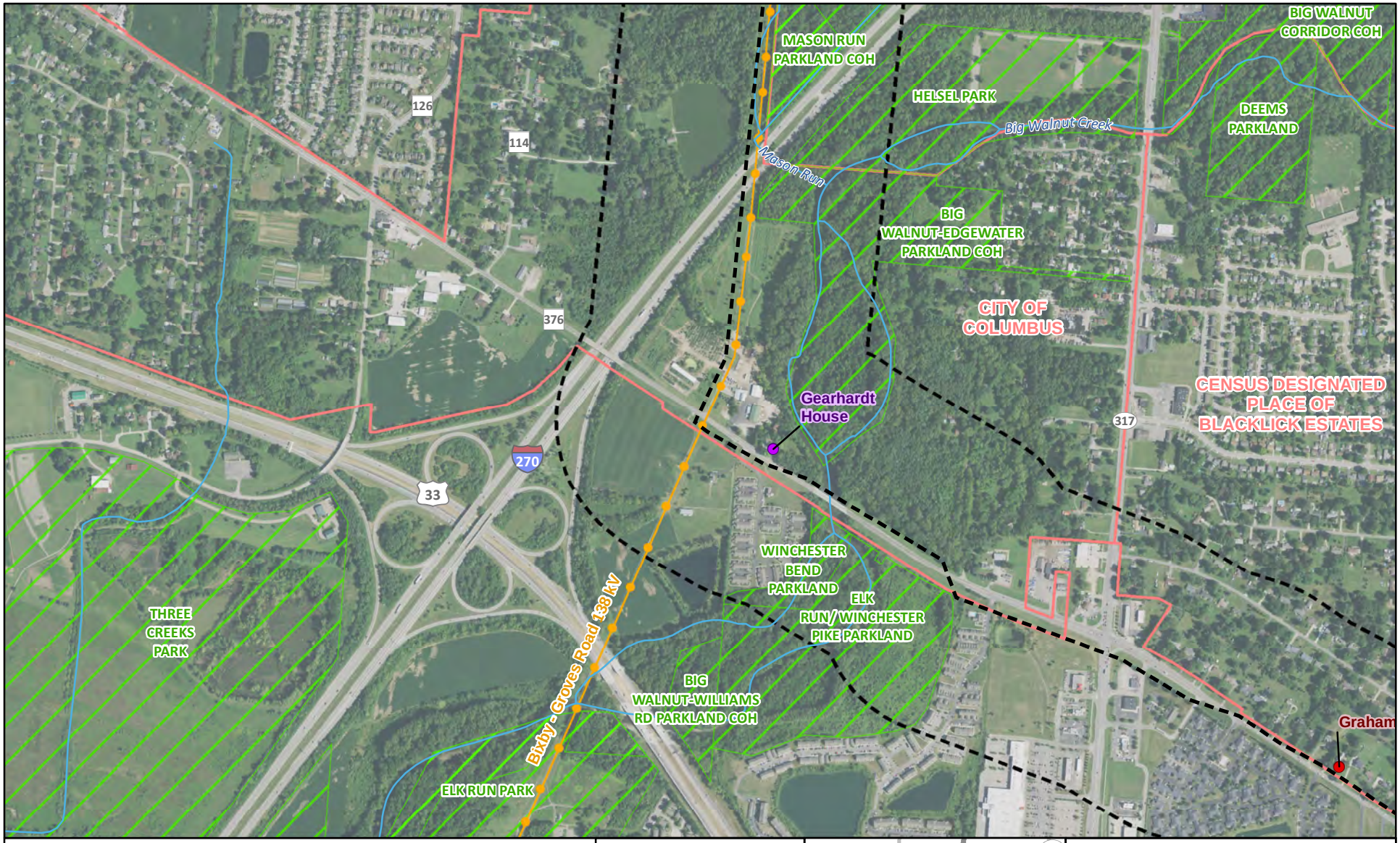


Figure 7-2G
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet



NRHP Eligible Architectural Site
Known Architectural Site
Alternate Route

Existing Transmission Line
138 kV
NHD Stream or River

1,000 Foot Buffer
City of Columbus Park or Easement Boundary
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

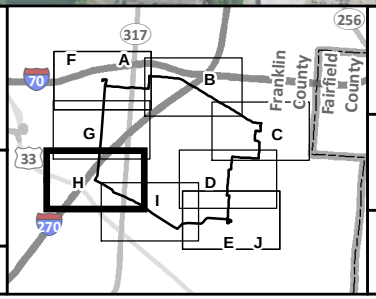


Figure 7-2H
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet

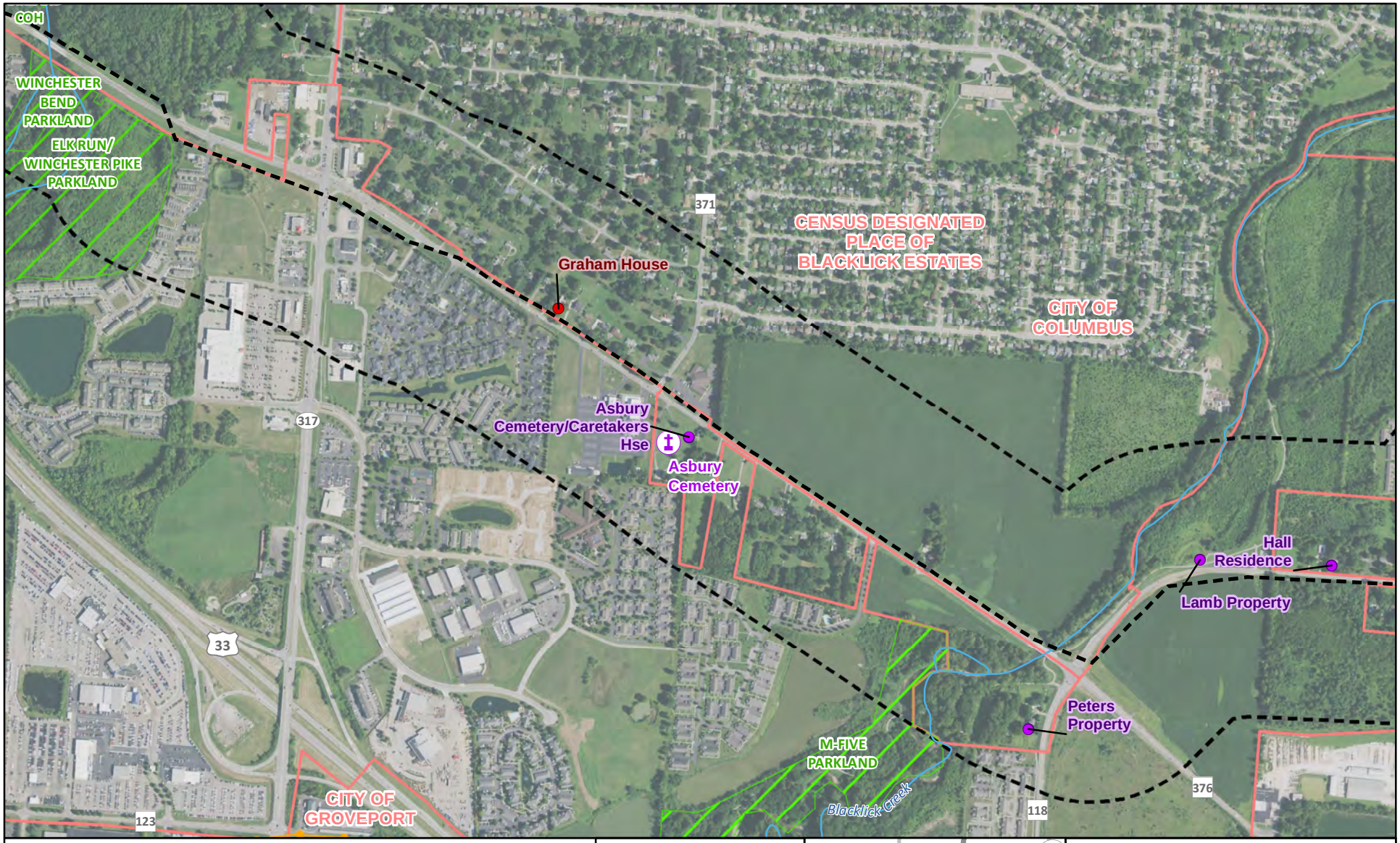
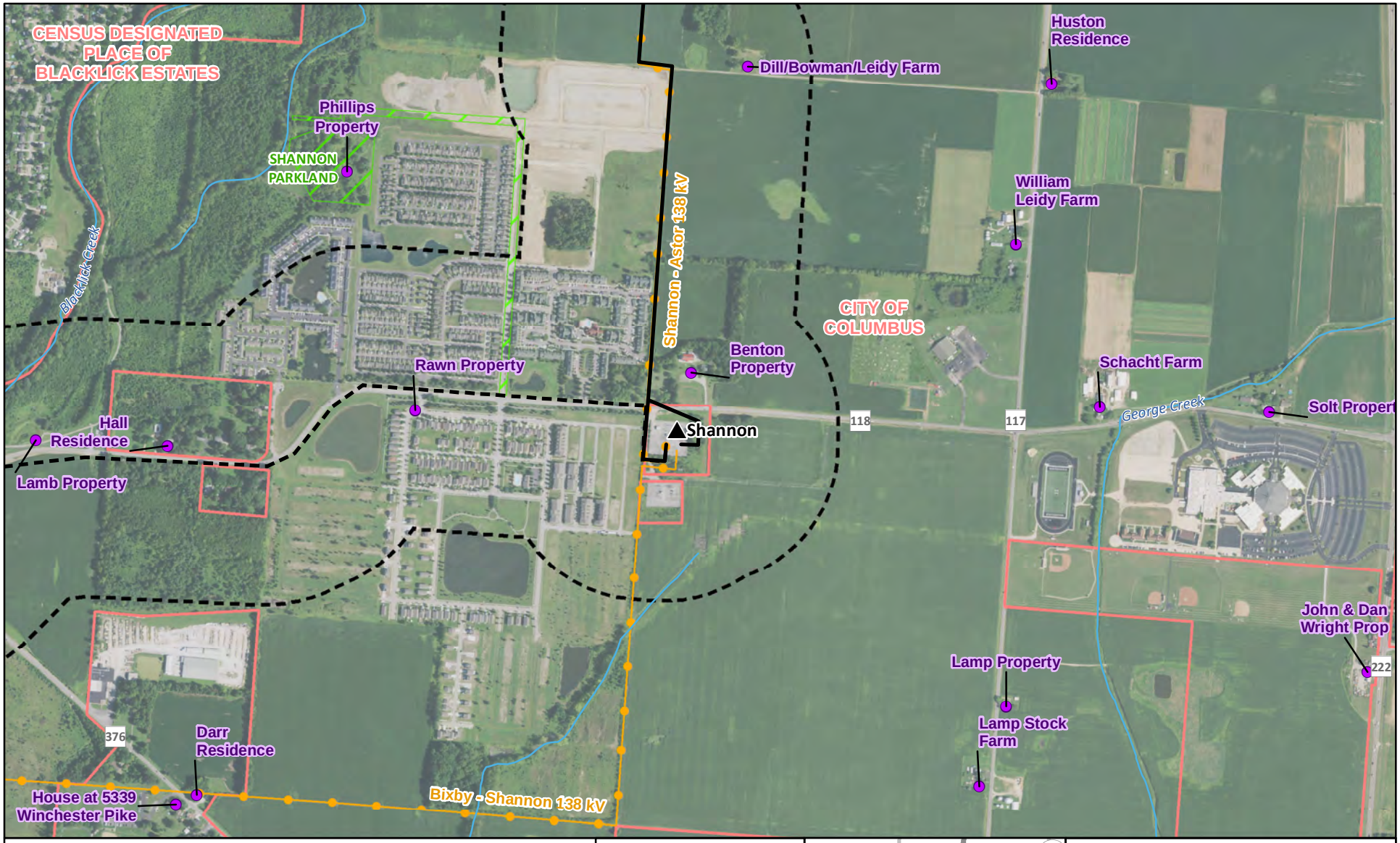


Figure 7-2I
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV Transmission Line Project



Known Architectural Site
Existing Station
Preferred Route
Alternate Route

Existing Transmission Line
138 kV

NHD Stream or River
1,000 Foot Buffer
City of Columbus Park or Easement Boundary
Township Boundary
Municipal Boundary

Data Sources:
AEP (2017), ESRI (2021), ODOT (2021), SHPO (2021), NAIP (2019), USGS (2021)

State Plane Ohio South
NAD 83

March 03, 2022

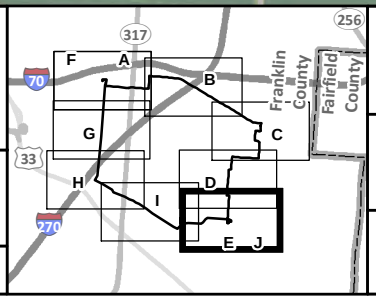


Figure 7-2J
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Groves Road - Shannon 138 kV
Transmission Line Project

0 1,000 2,000
Feet

Summary: Application Application Part 1 electronically filed by Hector Garcia-Santana on behalf of AEP Ohio Transmission Company, Inc.