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March 29, 2018

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Re: Case No. 18-0031-EL-BTX
In the Matter of the Application AEP Ohio Transmission Company, Inc. for a Certificate of Environmental Compatibility and Public Need for the Pine Ridge Switch-Heppner 138 kV Transmission Line Project

Dear Chairman Haque:

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

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

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

(a) Applicant:
AEP Ohio Transmission Company, Inc.
c/o American Electric Power
Energy Transmission
700 Morrison Road
Gahanna, Ohio 43220

(b) Facilities to be Certified:
Pine Ridge Switch-Heppner 138 kV Transmission Line Project

(c) Applicant's Authorized Representative with respect to this Application:
Eric L. Bennett
Project Manager
700 Morrison Road
Gahanna, Ohio 43220

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

/s/ Christen M. Blend
Christen M. Blend (0086881), Counsel of Record
Hector Garcia (0084517)

Counsel for AEP Ohio Transmission Company, Inc.

Now comes Scott N. Smith and states that the information contained in the Application is complete and correct to the best of his knowledge, information, and belief.

Scott N. Smith
Senior Vice President – Transmission Field Services and Controls
American Electric Power Service Corporation, as agent for
AEP Ohio Transmission Company, Inc., an Ohio corporation

Sworn to and subscribed before me this 15 day of March, 2018.

Notary Public

My commission expires 11/02/2018

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

NOTARIAL SEAL STATE OF OHIO

Robin S Smith
Notary Public
In and for the State of Ohio
My Commission Expires
November 2, 2018

Application for Certificate of Environmental Compatibility and Public Need for the

PINE RIDGE SWITCH - HEPPNER 138 kV TRANSMISSION LINE PROJECT

OPSB CASE NO. 18-0031-EL-BTX

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

AEP Ohio Transmission Company, Inc.

March 2018

BEFORE THE OHIO POWER SITING BOARD

Certificate Application for Electric Transmission Facilities

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4906-5-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) PROJECT SUMMARY

American Electric Power Ohio Transmission Company, Inc. ("AEP Ohio Transco" or "Company") is proposing the Pine Ridge Switch-Heppner 138 kilovolt ("kV") Transmission Line Project ("Project") located in Jackson County, Ohio ("OH"). The Project is externally known as the Coal Township 138 kV Transmission Line Project. The Project is part of the overall Ross-Jackson County Area Improvements Project, which has been implemented to improve the reliability of the electric transmission grid in Ross and Jackson Counties, OH. The Project involves rebuilding 3.6 miles of the existing Berlin-Ross 69 kV transmission line to 138 kV standards. Construction of the Project will be phased and is anticipated to begin in fall 2020 and end in spring 2023, with restoration continuing through summer 2023. Upon completion of the new line, the existing 69 kV transmission line is planned to be removed.

(1) General Purpose Of The Facility

The purpose of the Project is to replace aging equipment with modern structures and wires to improve electric service reliability. The existing Berlin-Ross 69 kV transmission line was constructed in 1926 and will be retired and replaced with a new 138 kV transmission line, although it will be initially energized at 69 kV. The Project serves several customers, which may not immediately have the ability to upgrade their facilities. Therefore, by constructing the line to 138 kV standards, AEP Ohio Transco will be able to energize the line at 138 kV in the future when customers are ready. The benefits of this Project include faster recovery of service after outages, fewer service interruptions, and overall improved service to customers. 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

The Project begins at the existing Pine Ridge Switch located just east of C.R. 21 (Oakland Road). Improvements to the Pine Ridge Switch are required as part of this rebuild effort and will be filed in a separate Letter of Notification to the Ohio Power Siting Board. The Project continues 3.6 miles southeast to the proposed Heppner Switch Station located off of T.R. 253 (Prices Switch Road), just southwest of the Village of Coalton. The Project is located within Coal and Liberty Townships in Jackson County, OH. The study corridor for this rebuild siting evaluation does not cross any designated communities or otherwise incorporated municipalities. The Project will require a 100-foot-wide permanent right-of-way ("ROW"). Figure 2-1, Project Overview, shows the Project end points and the Preferred and Alternate Routes identified by AEP Ohio Transco.

(3) Suitability of Preferred and Alternate Routes

AEP Ohio Transco and its siting team identified a Preferred and an Alternate Route (Figure 2-1, and

detailed in Appendix 4-1) after conducting a Rebuild Siting Study ("RSS"). The RSS documents the selection process of the routes and is discussed in detail in Section 4906-5-04 of this Application.

The goal of the RSS is to identify reasonable routes while avoiding or minimizing effects on sensitive land uses, and ecological and cultural resources in the Project vicinity. The Preferred and Alternate Routes are both constructible and were selected by AEP Ohio Transco for consideration by the Ohio Power Siting Board ("OPSB") in this Application.

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

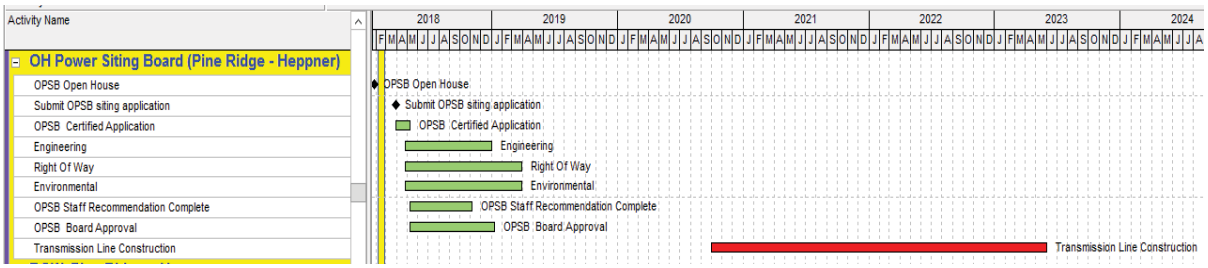
The Preferred Route begins at the existing Pine Ridge Switch and proceeds southeast, paralleling the southern edge of the existing Berlin-Ross 69 kV transmission line ROW through forested and agricultural land uses for approximately 0.9-mile. It then aligns with the existing 69 kV line before crossing U.S. Highway 35 ("US-35") and continuing on the existing centerline for 0.3-mile. After the US-35 crossing, the Preferred Route continues southeast, paralleling the northern edge of the existing Berlin-Ross 69 kV transmission line ROW through forested and agricultural land uses for 0.8-mile. It then crosses to the southern edge of the existing ROW. The Preferred Route parallels the southern edge of the existing 69 kV ROW through forested and agricultural land uses and rural residential areas for 1.6 miles before reaching its southern terminus at the proposed Heppner Switch Station. The total length of the Preferred Route is 3.6 miles.

(ii) Alternate Route

The Alternate Route for the Project was designed to utilize the existing centerline and ROW of the Berlin-Ross 69 kV transmission line by rebuilding on centerline for the entirety of the 3.6 mile alignment.

(4) Schedule

The current Project schedule is illustrated in the diagram below.



(B) APPLICANT INFORMATION

(1) Company History

AEP Ohio Transco is a transmission-only company approved as a public utility in Ohio in 2010 in Case No. 10-245-EL-UNC.

(2) Current Operations and Affiliate Relationships

AEP Ohio Transco is an affiliate of American Electric Power ("AEP") and Ohio Power Company ("AEP Ohio"). AEP 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. AEP is one of the largest electric utilities in the United States, delivering electricity to nearly 5.4 million customers through 224,000 miles of distribution lines in 11 states. AEP owns the nation's largest electricity transmission system, which is a network comprised of more than 40,000 miles and includes more 765 kV extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP also ranks among the nation's largest generators of electricity, owning approximately 26,000 megawatts of generating capacity in the U.S. AEP's regulated 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). AEP's headquarters are in Columbus, OH. News releases and other information about AEP can be found at www.AEP.com. AEP Ohio, the regulated electric distribution utility affiliate of AEP and AEP Ohio Transco operating in the state of Ohio, provides electricity to nearly 1.5 million distribution customers in Ohio and is based in Gahanna, Ohio. News and information about AEP Ohio can be found at www.AEPOhio.com.

4906-5-03 REVIEW OF NEED AND SCHEDULE

(A) NEED FOR PROPOSED FACILITY

The existing 69 kV transmission facilities are in need of a rebuild and redesign to better meet the needs of customers in the area. The existing infrastructure was initially established in 1926 and has deteriorated to the point that its poor performance is causing long recovery times and frequent customer interruptions. In addition to the existing line's poor performance, there is a need to construct to 138 kV standards to relieve the only 138 kV source at the Ross Substation from the south (via the Waverly Station), which is currently loaded to 90%. By adding an additional 138 kV source from the south it will allow for future operational and construction flexibility and may avoid rebuilding the Waverly-Ross circuit in the future due to contingency overload.

AEP Ohio Transco has developed a multi-year construction plan for the Ross-Jackson Area Improvements Project that will replace the infrastructure in place today. The focus of the construction is to replace the existing 69 kV transmission facilities with new 138 kV transmission facilities. Although the Project is being built to 138 kV standards, the Project will initially be energized to 69 kV. The Ross-Jackson Area Improvement Project serves several customers, which may not immediately have the ability to upgrade their facilities. Therefore, by constructing the line to 138 kV standards, AEP Ohio Transco will be able to energize the line at 138 kV in the future when customers are ready. The benefits of this Project include faster recovery of service after outages, fewer service interruptions and overall improved service to customers.

(1) Purpose of the Proposed Facility

The purpose of the proposed Project is to improve reliability of service to customers through Buckeye Rural Electric Cooperative Owned Pine Ridge Switch, while also connecting to AEP Ohio Transco's proposed Heppner Switch Station. The Project will be part of an overall effort to increase customer service reliability and will establish two-way transmission service to AEP Ohio Transco's Ginger Switch Station, Vigo Substation, and Pine Ridge Substation (owned by Buckeye Rural Electric Cooperative), thus significantly improving reliability to area customers. These projects will enhance service for customers, decrease power interruptions, and speed recovery of service when outages occur.

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

The Ross-Lick line was originally constructed in 1926 with wood pole structures. The structures have age-related conditions that have contributed to outages. There are also operability issues with several of the line's switches that could increase restoration time.

(3) Load Flow Studies and Contingency Analyses

The need for the rebuild and redesign of the existing facilities is purely performance driven and does not have any load flow or contingency analysis drivers forcing a rebuild. The construction of the facilities to 138 kV standards, however, does have load flow and contingency analysis-related drivers.

Currently, there are two 138 kV lines connecting to AEP Ohio Transco's Ross Substation; one from AEP Ohio Transco's Waverly Substation in southern OH, and one from the AEP Ohio Transco's Poston Substation in eastern OH. Under contingency conditions, the circuit from AEP Ohio Transco's Waverly Substation gets loaded to 92 percent of its emergency rating as it attempts to push power to the north to AEP Ohio Transco's Ross Substation. Constructing this Project to 138 kV standards will provide AEP Ohio Transco with future flexibility and provide a second 138 kV source connecting to AEP Ohio Transco's Ross Substation from southern OH. This will relieve the circuit from AEP Ohio Transco's Waverly Substation and likely avoid a rebuild of that circuit due to contingency overload.

(4) System Performance Transcription Diagrams

This section does not apply because the driver for the Project is to rebuild transmission facilities to better meet the needs of customers in the area. Thus, system performance transcription diagrams are not applicable.

(B) REGIONAL EXPANSION PLANS

(1) Proposed Facility in Long-Term Forecast

(a) Reference in Recent Long-Term Forecast

The Project is referenced in AEP Ohio Transco's 2017 Long-Term Forecast Report (Appendix 5-1).

(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 has been submitted to PJM as a supplemental reliability improvement project and was reviewed on November 2, 2017 at the PJM Subregional RTEP Committee – Western meeting. The purpose of the Project is to enhance service for customers, decrease power interruptions, and speed recovery of service when outages occur. The PJM RTEP identifier for the Project is s1432.

(C) SYSTEM ECONOMY AND RELIABILITY

The Project is part of a program that is being developed to replace the 69 kV transmission facilities in place today and to enhance service for customers, decrease power interruptions, and speed recovery

of service when outages occur. This Project is a component of the overall Program submitted to the OPSB for review. Along with this Project, the Program includes the Ross-Ginger Switch (Springfield) 138 kV Transmission Line Project (case number 17-0637-EL-BTX), Ginger Switch-Vigo (Liberty) 138 kV Transmission Line Project (case number 17-0638-EL-BTX), Vigo-Pine Ridge Switch (Jackson Township) 138 kV Transmission Line project (case number 18-0030-EL-BTX), , Rhodes-Heppner Switch 138 kV Transmission Line Project (case number 17-0807-EL-BLN), and the Heppner-Lick 138 kV Transmission Line Project (to be submitted to the OPSB later this year). The new 138 kV transmission network will be significantly more reliable than the existing 69 kV infrastructure, and result in less line losses.

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

The purpose of the existing infrastructure is to serve the AEP Ohio Transco customers served from the Ross Substation, Ginger Switch Station, and the Vigo Substation, as well as Buckeye Rural Electric Cooperative customers served from the Pine Ridge Switch Station. Therefore, there are no available options to eliminate the need for the proposed Project, as the line exists to serve thousands of customers.

(E) FACILITY SELECTION RATIONALE

The proposed facility was selected to meet, at a minimum, the rating of the two existing 138 kV lines connecting to AEP Ohio Transco's Ross Substation. Constructing this facility with these ratings will allow the line to operate as a backup transmission source to the two aforementioned lines.

(F) PROJECT SCHEDULE

(1) Schedule Gantt Chart

A schedule Gantt chart of the proposed Project is presented in Section 4906-5-02 (4) of this application.

(2) Impact of Critical Delays

Critical delays to the Project will postpone reliability improvements for AEP Ohio Transco and Buckeye Rural Cooperative customers in the area, leaving them connected to one of the worst performing facilities in Ohio. This effort is the culmination of an attempt to address existing reliability conditions in the area. Delays in the schedule would further affect the local and regional benefits associated with the planned improvements. Continued poor electric service reliability and the perception of utilities being slow to respond would deter critical investment and economic development in the region.

4906-5-04 ROUTE ALTERNATIVES ANALYSIS

(A) ROUTE SELECTION STUDY

AEP Ohio Transco retained GAI Consultants, Inc. ("GAI") to prepare the transmission line RSS Report for the Project (Appendix 4-1). The goal of the RSS was to identify a Preferred and Alternate Route for the Project, while avoiding or minimizing effects on sensitive land uses, ecological and cultural resources in the Project vicinity. From the onset of the Project, the siting team understood that utilizing or paralleling the existing ROW of the Berlin-Ross 69 kV transmission line was the preferred method for developing alternatives.

(1) Study Area Description and Rationale

The Project is located in the northern portion of Jackson County, OH, running northwest to southeast. Review of the U.S. Geological Survey ("USGS") 7.5-minute topographic maps of the area indicates that Little Salt Creek and Horse Creek are the prominent drainage features associated with the Project area. The Project area is characterized by undulating terrain of ridges and valleys with higher knobs, which support both ephemeral and intermittent streams as well as a few perennial waterbodies. Elevation in the Project area ranges from approximately 620 to 920 feet above mean sea level.

The Project area is largely forested, with interspersed agricultural, scrub-shrub, and rural residential areas. There are no commercial or industrial lands within the Project area. Additional information can be found in the RSS Report provided in Appendix 4-1.

As mentioned above, the main priority for the Project was to utilize or parallel the existing ROW of the Berlin-Ross 69 kV transmission line in order to develop alternatives. As such, the siting team focused on the Project area which included the Project endpoints, existing Berlin-Ross 69 kV transmission line, and surrounding area.

(2) Study Area Map

Figure 4-1 illustrates the approximate boundary of the Project.

(3) Map of Study Area, Routes, and Sites Evaluated

Figure 2-1 illustrates the Study Area, Preferred Route, and Alternate Route.

(4) Siting Criteria

The list and description of the quantitative siting criteria and data utilized in the study are presented in Section 2.3 of the RSS Report (Appendix 4-1) and can be seen in Figure 4-1. The quantitative siting criteria consisted of constraint and attribute data, including but not limited to, locations of individual residences, property boundaries, institutional land uses, forested lands, wetlands, streams, existing

transmission lines, roads, and other land use features.

The qualitative criteria considered by the siting team in the assessment of the Preferred and Alternate Route included overall constructability factors (i.e., terrain and access), outage constraints during construction, and an emphasis on minimizing impacts to undeveloped land by utilizing the existing Berlin-Ross 69 kV transmission line ROW to the extent feasible. In addition, feedback from property owners received during the public informational meeting and early ROW discussions were also considered.

(5) Siting Process for Preferred and Alternate Route

After the Study Area and siting criteria were established, preliminary routes were developed based on the understanding that utilizing the existing ROW of the Berlin-Ross 69 kV transmission line to the extent feasible was preferred. In addition to utilizing existing ROW, where possible, preliminary routes were developed based on a review of aerial photography, topographic maps, and mapped attribute and constraint data to minimize potential impacts to residences, wetlands, forested areas, and to utilize the existing 69 kV corridor where practical. As a result of this analysis, a Preferred and Alternate Route were established. The entire siting process, methodology, and results are described in further detail in the RSS Report in Appendix 4-1.

Once a Preferred and Alternate Route were established, the siting team worked to determine which of the two routes: (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. Although no proposed route can optimally minimize impacts across all area resources, the siting team used a series of general siting guidelines to direct the development, evaluation, and selection of routes toward this overall goal.

The following guidelines were considered for this effort:

- Maximize use of the existing Berlin-Ross 69 kV transmission line ROW;
- Avoid or minimize outages and service disruptions;
- Consider parallel alignments along existing ROWs or other infrastructure;
- Maximize the separation distance from and/or minimize impact on dwellings, schools, daycare facilities, hospitals, and other community facilities;
- Consider stakeholder input as practicable;
- Avoid or minimize visibility from populated areas, scenic roadways, and designated scenic resources;

- Avoid crossing or minimize conflict with designated public resource lands such as national and state forests and parks, large camps and other recreation lands, designated battlefields, nature preserves or other designated historic resources and sites, and conservation areas;

- Avoid or minimize new crossings of large lakes, rivers, and large wetland complexes, critical habitat, and other unique or distinct natural resources; and

- Minimize habitat fragmentation and impacts on designated areas of biodiversity concern.

(6) Route Descriptions and Rationale for Selection

The Preferred Route generally parallels the existing 69 kV transmission line ROW whereas the Alternate Route follows the existing centerline for the 69 kV transmission line. Due to the potential inability to de-energize long stretches of the existing Berlin-Ross 69 kV transmission line during construction, it is preferable to construct the Project generally parallel to the existing ROW, where feasible, to avoid outage constraints. As a result, both route options have similar resource impacts. The siting team considered the following technical guidelines during the development, evaluation, and comparison of routes:

- Maintain a minimum of 50 feet of centerline-to-centerline separation when paralleling 138 kV or lower voltage transmission lines;

- Minimize duration of outages during construction along existing 69 kV transmission line;

- Minimize crossing lines of higher voltage; and,

- Avoid angles greater than 65 degrees and steep slopes (more than 20 degree slopes for angle structures, and more than 30 degrees for tangent structures).

(B) COMPARISON TABLE OF ROUTES, ROUTE SEGMENTS, AND SITE

Tables 1 through 3 of the RSS Report (Appendix 4-1) provide approximate impacts for the Preferred Route and Alternate Route. These tables include the individual impact results (natural resource, land use, and technical) for both route alternatives. Development and comparison of Route Segments and Sites was not necessary for the analysis of the Project.

(C) PUBLIC INVOLVEMENT

AEP Ohio Transco conducted an information program to communicate Project planning details, seek feedback from landowners and residents, media and local elected officials, and generally raise awareness of the Project. The program involved conducting one public informational meeting (i.e., open house forum) to seek feedback from the community on the Project and the routes being considered. Prior to the public informational meeting, AEP Ohio Transco mailed invitation letters to

residents, tenants, and officials, and issued a newspaper public notice and news release. A Project website (available at http://aeptransmission.com/ohio/CoalTownship/index.php) was also created with Project mapping and a summary description. At the public information open house, AEP Ohio Transco representatives were available to answer questions, listen, and receive feedback from the public. A summary of the public information open house is provided below.

A single open house was held on January 25, 2018 at the Northview Elementary School in Jackson, OH. The siting team set up stations at the meeting and provided information related to engineering and design of the structures, Project need, real estate and ROW issues, and the siting process. The community was notified about the time and location of the meeting through the newspaper public notice, as well as coordination letters sent to 45 unique landowner addresses along the proposed Project routes which gave an overview of the proposed Project and invited each to attend the open house.

Printed maps at a scale of one inch equals 400 feet (1:4,800 scale) were provided at the open house for the public to review and were used to record written comments concerning sensitive resources in their local environment. Members of the siting team greeted meeting attendees, answered questions about the Project, and aided attendees in locating their property or other features of concern on aerial maps showing the Preferred and Alternate Route under consideration. Participants were encouraged to document the location of their houses, places of business, property of concern, or other sensitive resources on the printed maps. After the public open house, handwritten comments were digitized and entered into a Geographic Information System ("GIS") database.

Comment sheets were distributed to all meeting attendees. Attendees were asked to fill out the sheet completely, including contact information. The siting team read completed comment sheets, and scanned and stored them in the Project database as a record of meeting attendance and public comments. One comment card was submitted on the Project at the open house. The comment received was concerning the new ROW and concern that it will be too close to their house and will destroy woods/wildlife. Specific adjustments were not made to either the Preferred or Alternate Route as a result of the public comment received.

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 land marks.

(1) Project Area Map

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

The information on the map was updated by reviewing digital, georeferenced aerial photography, and property parcel data from Jackson County Engineer, and field reconnaissance completed in August 2017. The aerial photographs are georeferenced, orthocorrected color images derived from ESRI ArcGIS Online**.**

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

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

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

	Route Alternatives	
	Preferred	**Alternative**
Proposed ROW area (in acres)	43.5	43.5
Length (in miles)	3.6	3.6
Number of Properties Crossed (by ROW)	25	27

(B) ROUTE OR SITE ALTERNATIVE FACILITY LAYOUT AND INSTALLATION

(1) Site Clearing, Construction, and Reclamation

The following paragraphs provide information on the proposed site clearing, construction methods, and reclamation operations for the Project.

(a) Surveying and Soil Testing

The selected transmission line route will be civil surveyed to establish the centerline, ROW, and pole locations. The surveying will be completed using conventional and/or aerial methods. Topographic features and manmade structures near the proposed route that may affect the design will be identified during the civil survey. Minimal clearing of small trees and brush may be required if the civil surveyor's line of sight is obstructed. Offsets will be used to survey around large trees and other large obstructions. Profile measurements of the topography will be obtained by conventional and/or aerial methods. The centerline and ROW will be staked prior to construction.

Soil and rock tests will be performed along portions of the final approved route, if foundations for poles are necessary. Augured test borings will be achieved using a machine-driven auger at least four inches in diameter. Soil samples will be obtained at approximately 2.5 foot intervals for the first 10 feet, five foot intervals below 10 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 be performed to a depth of 30 to 40 feet. If rock is encountered, a carbide-tipped bit will be drilled five to ten feet into the rock.

(b) Grading and Excavation

Soil surface grading for the Project is not anticipated. Some laydown and set-up areas for construction equipment may require minor local leveling, but this will be restricted to the immediate area. It is anticipated most 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 feet to eight feet in diameter and 20 to 35 feet deep. A portion of the excavated soil will be used for backfill around the foundation, and the excess soil material will be placed around the pole or hauled offsite to an approved spoil disposal site.

(c) Construction of Temporary and Permanent 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 for the Preferred Route are presented on Figures 8-2A through 8-2C. Note these access roads cannot be fully planned and identified until after a final route is approved and contact with affected landowners for transmission line easements has been completed by AEP Ohio Transco. Where access across wetlands or streams is necessary, timber mats or equivalent will be used 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 obtained/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 (i.e., such as conductor reels, ground wire reels, and the wire tensioner). Conductor installation will be accomplished 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 crew members 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 crew members 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 for each concrete foundation will be approximately 5.5 to eight 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 restored and seeded with a suitable grass seed mixture that will be 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 reseeding 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 original condition. Landscaping or landscape plantings damaged during construction will also be restored to original condition or replaced as directed by the affected property owner. After restoration is complete, AEP Ohio Transco will periodically inspect the ROW to identify areas of erosion, sediment accumulation, 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 substations or switch stations are proposed for the Project.

(a) Transmission Line Route Map

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

AEP Ohio Transco 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, AEP Ohio Transco will provide final locations that support this Project.

(b) Proposed Layout Rationale

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

(c) Plans for Future Modifications

Except as otherwise described in this application, AEP Ohio Transco currently has no plans for future modifications of the proposed Project.

(C) DESCRIPTION OF PROPOSED TRANSMISSION LINES

(1) Electric Power Transmission Line

(a) Design Voltage

The Project will be designed at 138 kV and operated at 69 kV, until the need to increase the voltage due to customer demand deems it necessary.

(i) Tower Designs, Pole Structures, Conductor Size and Number per Phase, and Insulator Arrangement

The majority of the line will be composed of a tangent, H-Frame structure (Figure 5-1) with an estimated aboveground height of 100 feet. The conductor used for the new transmission line will be a 1,033 thousand circular mil (“kcm”) 54/7 aluminum conductor steel-reinforced cable (“ACSR”) per

phase. The new line will utilize one 7#10 Alumoweld shield wire and one AlumaCore Optical Ground Wire ("OPGW") fiber shield wire. The 7#10 shield wire has a maximum strength of 10,020 lbs. and OPGW has a maximum strength of 24,522 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.

(b) Base and Foundation Design

All angle locations will require installation of one or three concrete foundations depending on structure type. The excavation for each concrete foundation will be approximately 5.5 to eight feet in diameter and 20 to 35 feet deep.

(c) Cable Type and Size, where Underground

No underground cables are associated with this Project; therefore, this section is not applicable.

(d) Other Major Equipment or Special Structures

No other major equipment or special structures are required for the Project.

(2) Diagram of Electric Power Transmission Substations

No new electric power transmission substations are proposed for this Project.

4906-5-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

(A) OWNERSHIP OF PROPOSED FACILITY

AEP Ohio Transco will construct, own, operate, and maintain the Project.

(B) CAPITAL AND INTANGIBLE COSTS ESTIMATE FOR ELECTRIC POWER TRANSMISSION FACILITY ALTERNATIVES

The applicable capital and intangible costs for a variety of components of the Project are included below. 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 items marked as not applicable ("NA") are components that do not apply to this Project.

TABLE 6-1
Estimates of Applicable Intangible and Capital Costs

FERC Account Number	Description	Preferred Route	Alternate Route
350	(1) Land and Land Rights	$1,632,135	$1,088,090
352	(2) Structures and Improvements	NA	NA
353	(3) Substation Equipment	NA	NA
354	(4) Towers and Fixtures	NA	NA
355	(5) Poles and Fixtures	$3,363,509	$4,170,751
356	(6) Overhead Conductors and Devices	$825,966	$1,024,198
357	(7) Underground Conductors and Insulation	NA	NA
358	(8) Underground-to-Overhead Conversion Equipment	NA	NA
359	(9) ROW Clearing and Roads, Trails or Other Access	$2,601,484	$2,443,887
	TOTAL	**$8,423,094**	**$8,726,926**

FERC = Federal Energy Regulatory Commission

(C) CAPITAL AND INTANGIBLE COSTS ESTIMATE FOR GAS TRANSMISSION FACILITY ALTERNATIVES

This application is for an electric transmission line therefore this section is not applicable.

(D) PUBLIC INTERACTION AND ECONOMIC IMPACT

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

Both routes, including all areas within 1,000 feet of the centerlines, are located within and cross Coal, Liberty, and Lick Townships of Jackson County, OH. Neither the Preferred nor the Alternate Route are located within any incorporated village or city. Both the Preferred and Alternate Route begin at the existing Pine Ridge Switch (at existing Structure 76) and terminate at the proposed Heppner Switch Station.

(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 or will be provided a digital or hard copy of the application.

(3) Planned Public Interaction

AEP Ohio Transco's planned and completed public interaction included mailing letters to residents, tenants, and elected officials, issuing a public notice and a news release to the local media, creating a Project website, and hosting a public information open house. During the construction of this Project, AEP Ohio Transco 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 are included in Appendix 6-2.

During any phase of this Project, the public may contact Erin Miller, Project Outreach Specialist, at 614-552-1929 or 877-215-9261, or email ecmiller1@aep.com to ask questions or provide comments. To access the Project's website, please visit:

http://aeptransmission.com/ohio/CoalTownship/index.php.

For copies of this application, the public can do any of the following:

- Go to the local Library;
- Go to http://opsb.ohio.gov/ and search for this project's case number (Case No. 18-0031-EL-BTX); or

- Access the project's website on http://aeptransmission.com/ohio/CoalTownship/index.php and follow the directions to obtain a copy.

AEP Ohio Transco is logging comments and information provided through its public interaction program. This information will be shared with the OPSB Staff.

At least seven days prior to any construction activities, an AEP Ohio Transco ROW agent will notify the affected landowners or the tenant by mail, telephone, or in person, depending on landowner/tenant preference.

(4) Liability Insurance or Compensation

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

- AEP Ohio Transco maintains bodily injury and property damage liability insurance with limits of at least $1,000,000 for each occurrence; and,

- AEP Ohio Transco is a qualified self-insuring employer under the State of Ohio Worker's Compensation law. AEP Ohio Transco maintains insurance as required by the Industrial Commission of Ohio statutes.

(5) Tax Revenues

The Preferred and Alternate Routes are located within Jackson County. Local school districts, park districts, and fire departments will receive tax revenue from the Project. AEP Ohio Transco will pay property taxes on 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 very similar, with the Preferred Route totaling $256,570 and the Alternate Route totaling $288,560.

Based on the 2015 tax rates, the following information includes preliminary estimates for these taxing authorities:

Preferred Route:

Jackson County	$53,900
Coal Township	$4,080
Coal Township Exc Coalton Corp	$3,790
Gallia-Jackson-Vinton JVSD	$11,350
Jackson CSD	$139,000
Liberty Township	$15,740
Rio Grande Community College	$5,670
Wellston CSD	$23,040
Total	**$256,570**

Alternate Route:

Jackson County	$60,630
Coal Township	$4,580
Coal Township Exc Coalton Corp	$4,250
Gallia-Jackson-Vinton JVSD	$12,770
Jackson CSD	$156,070
Liberty Township	$17,740
Rio Grande Community College	$6,380
Wellston CSD	$26,140
Total	**$288,560**

4906-5-07 HEALTH AND SAFETY, LAND USE, AND REGIONAL DEVELOPMENT

(A) HEALTH AND SAFETY

(1) Compliance with Safety Regulations

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

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

> *The AEP Ohio Transco 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, and*
> - *Conscientious observance of governmental and company safety regulations.*

AEP Ohio Transco also administers a contractor safety program. Contractors 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

EMF calculations for winter normal conductor rating, emergency line loading and normal maximum loading are provided for the proposed single-circuit line configuration representative of the most common structure design planned for the Project. Refer to Section (a)(iv) below for further justification. This configuration, representing the H-Frame design, is shown on Figure 5-1. EMF levels were computed within the ROW of the line configuration at the point of minimum ground clearance,

where EMF is the highest. Lower EMF levels are expected beyond the ROW edge. Because the line configurations associated with the Preferred and Alternate Routes are similar, EMF levels produced by these configurations in any route selected for the Project would be the same.

Factors that affect EMF include the ROW width, operating voltage, current flow magnitude, phase configuration, conductor height aboveground, electrical unbalance, and other nearby objects. Nominal voltages and balanced conditions are assumed, with line conductors arranged in a horizontal configuration depicted in Figures 5-1. No trees, shrubs, buildings, or other objects that can block EMF are assumed in proximity to the proposed line.

All calculations were obtained at the height of 3.28 feet (1 meter) aboveground using the Electric Power Research Institute EMF Workstation computer program. Three loading conditions were examined: (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 (i.e., contingency) conditions, which exists 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 the circuit would operate at its WN rating in the foreseeable future.

Loading levels used in the EMF calculations, along with key line design data, are presented in the tables below. These levels are based on the 2019 projected system conditions.

TABLE 7-1
Ground Clearances, Right-of-Way, and Projected Loading

Pine Ridge Switch-Heppner 138 kV Line Design	Phase Cond. (kcm ACSR)	Ground Clearance [a]		Right-of-Way		Line Loading (A)		
		A (feet)	B (feet)	Width (feet)	Edge [b] (feet)	Normal Max.	Emerg. Load	Winter Rating
Single-Circuit	1033	18.6	26.0	100	50	96.2	468.6	1568.9

Notes:

[a] Minimum ground clearance: A – normal maximum and emergency load and B – winter normal rating.

[b] Distance from centerline to ROW edge.

The calculated electric and magnetic fields for the two line configurations are summarized in Table 7-2.

TABLE 7-2
EMF Calculations

Pine Ridge Switch-Heppner 138 kV Single-Circuit			
Condition	**Pine Ridge Switch to Heppner (A)**	**Electric Field (kV/m) [a]**	**Magnetic Field (mG) [a]**
(1) Normal Max. Loading	96.2	0.64/2.27/0.67	6.6/41.5/6.97
(2) Emergency Line Loading	468.6	0.64/2.27/0.68	32.69/202.21/33.72
(3) Winter Conductor Rating	1568.9	0.67/0.93/0.72	96.65/390.92/99.76

Notes:

[a] EMF levels (Left ROW Edge/Maximum/Right ROW Edge) calculated one meter aboveground, assuming balanced currents and nominal voltages. Electric fields reflect normal and emergency operation.

(b) Electric and Magnetic Field Strength Values

In accordance with O.A.C. 4905-5-07(2), EMF strength values are provided for the most utilized pole configuration for the Project; the majority of the line will be composed of a tangent, H-frame structure. As stated in 4906-5-05(C)(1)(a)(i), only one conductor is proposed to be used for the Project.

(c) 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 are commonly 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; they 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 replicate those results consistently 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 7-3.

TABLE 7-3
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
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 7-3
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 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, "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 wrote in its review of the epidemiologic literature on EMF and health:

> "…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."

In addition, in 2001, the 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 health risk is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia," (WHO, 2007). It added, however:

> "…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," (WHO, 2007).

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 [kilohertz] 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 Institute of Electrical and Electronics Engineers ("IEEE") and other organizations have established guidelines limiting EMF exposure for workers in a controlled environment and for the 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 as shown in Table 7-4 (IEEE, 2002).

TABLE 7-4
Recommended Power Frequency EMF Limits

	General Public	Controlled Environment
Electric Field Limit (kV/m)	5.0	20.0 [a]
Magnetic Field Limit (mG)	9040	27,100

Notes:
[a] 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 [extremely low frequencies]. 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).

AEP Ohio Transco 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, AEP Ohio Transco is a member of Electric Power Research Institute, an independent, non-profit organization sponsoring and coordinating EMF epidemiological, laboratory, and exposure studies.

(d) Line Design Considerations

Design alternatives were not considered because of EMF and their strength levels. Transmission lines, when energized, generate EMF. Laboratory studies have failed to establish a material correlation between exposure to EMF and effects on human health. However, some people are concerned that EMF has impacts on human health. Because of these concerns, EMF associated with the new circuits was calculated in Table 7-2. The EMF was computed assuming the highest possible EMF values that could exist along the proposed Project. Normal daily EMF levels will operate below these maximum load conditions. Based on studies from the National Institutes of Health, the magnetic field (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 Institutes 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

(e) EMF Public Inquiries Policy

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

AEP Ohio Transco 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

Radio interference can be experienced in the AM broadcast band (535-1605 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 TV, 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 discharges if received from air broadcasts (by "rabbit ears"). These problems have largely been addressed with the use of cable television.

(4) Noise from Construction, Operations, and Maintenance

Construction, operation, and maintenance activities will typically be completed during daylight hours.

(a) Blasting Activities

Dynamiting and blasting activities will not be necessary 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 occur from the construction equipment used to clear portions of the transmission line ROW and install the equipment. Standard construction techniques will be used, and procedures will comply with applicable OSHA standards. Therefore, the noise impact on nearby sensitive areas is anticipated to be minimal. The total duration of construction for the Project is estimated to be approximately 29 months. The Project will consist of phased construction, ending in the first quarter of 2023, followed by restoration which is anticipated to finish by summer of 2023.

(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

Pole structures will be installed by vehicle-mounted cranes or equivalent equipment. Self-supporting steel poles will require delivery of concrete for foundation construction, including excavation work for the foundation. There will be a temporary increase in noise during construction only.

(e) Truck Traffic

An increase in truck traffic is anticipated during the construction of the Project for equipment access and equipment delivery. No other additional traffic is anticipated for the Project beyond periodic mowing or removal of dangerous trees from the ROW.

(f) Installation of Equipment

The equipment will be installed using standard practices and equipment. There will be a temporary increase in noise during construction only.

(B) LAND USE

(1) Map of the Site and Route Alternatives

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

- Centerline and 2,000-foot corridor for the Preferred and Alternate Route;
- AEP facilities including existing switch, substation, and interconnect locations; and
- Land use types, road names, residences, cemeteries, waterbodies, and agricultural districts.

(2) Impact on Identified Land Uses

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

the rebuild segment, outside of the ROW of the existing 69kV line.

TABLE 7-5
Length and Percent of Land Uses Crossed By the Proposed Centerline

Land Use	Preferred Route		Alternate Route	
	Linear Feet	Percent	Linear Feet	Percent
Agriculture Land[a]	0	0.0	0	0.0
Industrial/Commercial	0	0.0	0	0.0
Open Land/Pasture	8,266	44.0	0	0.0
Residential	153	0.8	0	0.0
Institutional	0	0.0	0	0.0
Recreational	549	2.9	418	2.2
Road Right-of-Way	25	0.1	0	0.0
Utility Right-of-Way	3,308	17.6	18,356	97.8
Woodlot	6,501	34.6	0	0.0
Water/Wetlands	0	0.0	0	0.0
Total	**18,802**	**100**	**18,774**	**100**

Note:

[a] The Agriculture Land category includes parcels that may have specifically been given the Agricultural District Land designation, and may contain areas which would also be considered Open Land/Pasture.

TABLE 7-6
Acreage and Percent of Land Uses Crossed by the Proposed 100-foot Right-of-Way

Land Use	Preferred Route [a]		Alternate Route [a]	
	Acreage	Percent	Acreage	Percent
Agriculture Land	0.0	0.0	0.0	0.0
Industrial/Commercial	0.2	0.5	0.2	0.4
Open Land/Pasture	14.1	32.6	13.7	31.6
Residential	0.1	0.1	0.2	0.4
Institutional	0.0	0.0	0.0	0.0
Recreational	1.3	2.9	1.0	2.2
Road Right-of-Way	0.4	0.9	0.4	0.9
Utility Right-of-Way	12.8	29.5	21.2	49.0
Woodlot	14.5	33.5	6.7	15.4
Water/Wetlands	0.1	0.1	0.1	0.1
Total	**43.5**	**100**	**43.5**	**100**

Note:

[a] The Planned Potential Disturbance Area is a Nominal 100-Foot-Wide Corridor Centered on the route. The permanent ROW is the same as the construction ROW.

TABLE 7-6
Acreage and Percent of Land Uses Crossed by the Proposed 100-foot Right-of-Way

Land Use	Preferred Route [a]		Alternate Route [a]	
	Acreage	Percent	Acreage	Percent

TABLE 7-7
Number of Sensitive Features Within or Near the Potential Disturbance Area

	Route Alternatives	
	Preferred [a]	Alternate [a]
Length (in miles)	3.6	3.6
Features within 100-foot wide ROW		
Historic Structures	0	0
National Register of Historic Places	0	0
Previously Identified Archaeological Sites	1	1
Residences	0	0
Commercial Buildings	0	0
Industrial Buildings	0	0
Schools and Hospitals	0	0
Churches and Civic Buildings	0	0
State/Federal Forests and Recreational Lands	1	1
Airports	0	0
Features within 1,000 feet of Route Alternatives (centerline)		
Historic Structures	4	4
National Register of Historic Places	0	0
Previously Identified Archaeological Sites	6	6
Residences	30	30
Commercial Buildings	4	4
Industrial Buildings	0	0
Schools and Hospitals	0	0
Churches and Civic Buildings	0	0
State/Federal Forests and Recreational Land	1	1
Airports	0	0

Note:
[a] The planned potential disturbance area is a nominal 100-foot-wide corridor centered on the route.

(a) Residential

Preferred Route: The Preferred Route is located within 1,000 feet of 30 residences, none of which are within the planned potential disturbance area. As shown in Table 7-6, there is less than one percent (<1.0%) residential land within the Preferred Route ROW (<0.1-acre).

Alternate Route: The Alternate Route is located within 1,000 feet of 30 residences, none of which are within the planned potential disturbance area. As shown in Table 7-6, there is less than one percent (<1.0%) residential land within the Alternate Route ROW (0.2-acre).

(b) Commercial

Both the Preferred and Alternate Route are located within 1,000 feet of four commercial buildings, none of which are within the planned disturbance area. As shown in Table 7-6, there is less than one percent (<1.0%) commercial land within the Preferred and Alternate Route ROWs (0.2-acre).

(c) Industrial

Neither the Preferred nor the Alternate Route is located within 1,000 feet of any industrial buildings.

(d) Schools and Hospitals

No schools or hospitals are located within the planned disturbance area or within 1,000 feet of the Preferred and Alternate Route.

(e) Churches and Civic Buildings

There are no churches or other civic buildings within the proposed ROW of either the Preferred or Alternate Route. Additionally, neither the Preferred nor Alternate Route are located within 1,000 feet of any churches or other civic buildings.

(f) Recreational

Recreational land, identified as the Coalton Wildlife Area, is crossed by the centerline and the ROW of both the Preferred and Alternate Route. The existing Berlin-Ross 69 kV transmission line ROW occupies approximately 0.5 acre through Coalton Wildlife Area. The Preferred Route would require an additional 0.8 acre of tree clearing through Coalton Wildlife Area, while the Alternate Route would require an additional 0.5 acre.

(g) Agricultural

Agricultural land is not located within the ROW of the Preferred or Alternate Route.

(3) Impact on Identified Structures

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

There are five and six single-family residences within 200 feet of the ROW of the Preferred and Alternate Route, respectively. For the Preferred Route, one residence is within 50 feet of the ROW, two residences are between 51-100 feet of the ROW, and two residences are between 151-200 feet of the ROW. For the Alternate Route, three residences are within 50 feet of the ROW, and three are between 151-200 feet of the ROW.

There is one commercial building located within 75 feet and 50 feet of the Preferred and Alternate Route ROW, respectively.

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

(b) Destroyed, Acquired, or Removed Buildings

There is one shed within the existing and proposed ROW for the Alternate Route, and none within the existing or proposed ROW for the Preferred Route. There are no residences within the limits of the existing or proposed ROW for either the Preferred or Alternate Route.

The potential removal of structures within the proposed ROW was mitigated during the RSS of the Preferred and Alternate Route by designing route options that avoid structure impacts to the extent feasible. It is unlikely that construction of the Preferred Route will require the removal of any structures. The structure within the Alternate Route ROW may require removal.

(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 AEP Ohio Transco's acquisition of the ROW for this Project, as part of the negotiated settlement between AEP Ohio Transco 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 AEP Ohio Transco as necessary to meet the appropriate installation requirements.

(C) AGRICULTURAL LAND IMPACTS

The potential impacts of the Project on agricultural land use include damage to crops that may be present, disturbance of underground field drainage systems, compaction of soils and potential for temporary reduction of crop productivity. There is no agricultural land within the ROW of either the Preferred or Alternate Route. Other agricultural open/pasture land comprises 14.1 acres of the

Preferred Route and 13.7 acres of the Alternate Route.

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

(1) Agricultural Land Map

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

(2) Impacts to Agricultural Lands and Agricultural Districts

The Jackson County Auditor was contacted to obtain information on current Agricultural District Land records; current data was received on March 2, 2018. The proposed permanent 100-foot-wide ROW for either the Preferred or Alternate Route do not cross a designated Agricultural District.

(a) Acreage Impacted

Table 7-6 provides the acreage impacted for agricultural land use and open land/pasture. The agricultural land use was based on aerial imagery and field observations. The Agriculture Land category may include parcels that have specifically been given the Agricultural District land designation, and may contain areas which would also be considered Open Land/Pasture.

(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 and the following agricultural facilities and practices within the Project area where present.

(i) Field Operations

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 during construction. Property owners will be compensated for crop damages resulting from AEP Ohio Transco's construction activities. No significant impacts to livestock operations or grazing areas are anticipated. Property owners may continue to utilize most of the ROW area for general use (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. AEP Ohio Transco

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 drainage tile systems is unlikely because the Preferred and Alternate Route ROW does not cross agricultural land and the Project involves the installation of mostly direct-embed steel pole structures, but AEP Ohio Transco will restore damaged systems to their pre-construction condition. AEP Ohio Transco will also work with the agricultural landowners to resolve conflicts with field drainage systems and other facilities that may be impacted by the Project where necessary.

(iv) Structures Used for Agricultural Operations

There are no structures used for agricultural operations that are within 200 feet of the Preferred 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 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 AEP Ohio Transco's acquisition of the ROW for the Project, as part of the negotiated settlement between AEP Ohio Transco and the property owner, or as determined in appropriation proceedings. Additionally, AEP Ohio Transco and the contractors hired to work on the Project have extensive experience in transmission line construction. Both AEP Ohio Transco and the selected contractors will work to minimize agricultural impacts during construction of the Project.

(i) Avoidance or Minimization of Damage

As previously mentioned, AEP Ohio Transco will restore damaged field tile drainage systems in agricultural areas to their pre-construction condition. AEP Ohio Transco will also work with the agricultural landowners to resolve conflicts with field drainage systems that may be impacted by the Project where necessary.

(ii) Field Tile System Damage Repairs

Repairs to irrigation or field tile drainage systems are not anticipated, but if identified, concerns will be addressed on a case-by-case basis with the individual property owner. In general, AEP Ohio Transco 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. Top soil will also be de-compacted and restored to original conditions, unless otherwise agreed to by the landowner.

(D) LAND USE PLANS AND REGIONAL DEVELOPMENT

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

(1) Impacts to Regional Development

This Project is expected to support regional development in Jackson and Ross Counties 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 Jackson County Planning Department was contacted in January 2018 for information regarding regional land use and/or development plans in the Project area. According to the Jackson County Planning Department, neither Jackson County, Coal Township, nor Liberty Township have a formally adopted plan regarding land use and/or development. Within Jackson County, there is no zoning ordinance outside of incorporated municipalities.

(E) CULTURAL AND ARCHAEOLOGICAL RESOURCES

Cultural resource studies of the Project area were conducted on behalf of AEP Ohio Transco. In addition to a background records check and literature review using data files from the State Historic Preservation Office ("SHPO") for both the Preferred and Alternate Route, detailed History/Architectural Investigations and a Phase I Archaeological Investigation have been completed. Copies of the reports detailing these efforts will 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 the 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 proposed routes. Cultural resources already in the public domain (churches, cemeteries, and OH Historic Inventory ["OHI"] structures) are identified on Figures 7-2A to 7-2C.

(2) Cultural Resources in Study Corridor

Field investigations resulted in the identification of one archaeological site (33JA0411), a rock shelter. No artifacts were collected from the identified rock shelter. Site 33JA0411 is a rock shelter that according to Weller is considered sensitive and with a high potential that important buried cultural components are buried within it and would be eligible for listing in the NRHP. In a letter dated November 16, 2017 (Appendix 8-2), the State Historic Preservation Office (SHPO) concurred that Site 33JA0411 is recommended potentially eligible for listing in the NRHP. In their letter, the SHPO requested additional information, which was provided by Weller. Therefore, a finding of 'no historic properties affected' was recommended for this Project, and the SHPO concurred.

In total, five individual properties of 50 years of age or older were identified with the Project Area of Potential Effect during field investigations. Photographs and structural data for each property were collected. All five sites that were identified were determined not eligible for listing in the National Register of Historic Places due to alterations, additions, a loss of historic integrity, or due to relocation from their original setting and loss of material integrity. In a letter dated November 16, 2017 (Appendix 8-2), the SHPO concurred that these five properties are not eligible for NRHP listing.

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

Based on the results of the cultural resources desktop review and field surveys, impacts to known cultural resources associated with the construction, operation, and maintenance of the proposed Project are not anticipated.

(4) Mitigation Procedures

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

(5) Aesthetic Impact

(a) Visibility of the Proposed Facility

The viewshed along both the Preferred and Alternate Route from residences and potentially sensitive vantage points may be slightly altered by the presence of the rebuild transmission line. This impact would not be substantial as there are already existing transmission structures and wires present immediately adjacent to the Preferred Route, and the Alternate Route is similar in appearance to the existing transmission line. Additionally, the area consists of gently rolling forested hills which limit the viewshed and serve as a natural screen and many roads in the area are paralleled by wood poles supporting distribution lines. The addition of the proposed Project as a rebuild of an existing adjacent line will not have a substantial negative impact on the overall visual landscape. At select locations, there may be an incremental change in the viewshed, including for some residences, and where tree clearing is required. 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 the Project would affect the existing visual aesthetics of the area, through which the transmission line passes, primarily from the removal of trees for the ROW expansion. 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, except where existing structures for the Berlin-Ross 69 kV line are being replaced in a relatively similar location. Because both the Preferred and Alternate Routes follow or replace similar facilities, the aesthetic impact would be reduced, because either route option creates an incremental visual change in the existing visual setting.

(c) Visual Impact Minimization

The ability to minimize the visual impacts of the Project is constrained by engineering requirements, existing land use, and the Project length. AEP Ohio Transco has limited the potential aesthetic impacts of the transmission line to the extent possible through the route selection process, and where practical, paralleling or rebuilding on centerline of the existing transmission, which this Project accomplishes.

4906-06-08 ECOLOGICAL INFORMATION AND COMPLIANCE WITH PERMITTING REQUIREMENTS

In summer 2017, AEP Ohio Transco conducted a study to assess the potential effects of construction and operation of the proposed Project on the ecology of the Project area. A map and literature search was conducted for a 1,000-foot corridor on either side of the centerline (2,000 feet total width) of the existing Berlin-Ross 69 kV transmission line, which includes both the Preferred and Alternate Route. A field survey of ecological habitat and resources was performed within 200 feet on either side of the existing Berlin-Ross 69 kV transmission line (hereafter referred to as the "Field Survey Area"), which includes both the Preferred and Alternate Routes. Field surveys were conducted in August 2017. While preliminary access roads have been identified and included with this Application, it should be noted that additional field surveys are required. Information in the following paragraphs addresses AEP Ohio Transco's ecological study conducted for both the Preferred and Alternate Route.

(A) Ecological Map

A map at a scale of 1:12,000 (one-inch = 1,000 feet) including the corridor 1,000 feet on either side of the centerline (referred to as the 2,000-foot corridor) of the Preferred and Alternate Route is presented as Figure 8-1. This map depicts soils data, soils exceeding 12 percent slope within the 2,000-foot corridor, lakes, ponds, reservoirs, waterbodies, NWI wetlands, and 100-year floodplains. All features were identified from published data. Figure 8-2 (at 1:12,000 scale) depicts field-delineated water features within the Field Survey Area.

(B) Field Survey Report for Vegetation and Surface Waters

The ecological survey of the Field Survey Area was conducted in the summer of 2017 by AEP Ohio Transco's consultant. The field survey was preceded by a review of published mapping, aerial photography, protected federal and state-listed species, and ecological information for at least 1,000 feet on either side of the Preferred and Alternate Route centerlines. Map sources included USGS 7.5-minute quadrangle topographic maps, U.S. Fish and Wildlife Service ("USFWS") National Wetlands Inventory ("NWI") maps, and U.S. Department of Agriculture Natural Resources Conservation Service ("NRCS") soil survey maps.

Published information regarding existing flora and fauna was requested from the ODNR - Division of Wildlife ("DOW") Ohio Natural Heritage Program. The request included available GIS shapefiles of location records of state-listed species within one mile of the Project. The information provided by the ODNR-DOW identified several records of state-listed species, including potentially threatened species, within one mile of the Project. More detail on the data provided by the ODNR-DOW is provided in Section 4906-5-08(C)(1).

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

(a) Vegetative Communities

Vegetation communities and land use types within the Field Survey Area include: agricultural and

pasture fields, old fields, scrub-shrub, palustrine emergent ("PEM") wetland, palustrine unconsolidated bottom ("PUB") wetland, residential, existing utility ROW, upland forest, and riparian woodland, in addition to the identified waterbodies. Details on the anticipated impacts from construction of the Project are provided in Section 4906-5-08(B)(3)(a) below and in Table 8-5.

(i) Agricultural and Pasture Fields

Portions of both the Preferred Route and Alternate Route cross pasture land. No row crops are crossed by the Project. Pastures were dominated by grasses maintained by grazing.

(ii) Old Field and Scrub-Shrub

Herbaceous cover exists in successional old field communities. Old-field plant communities are at the earliest stages of recolonization following disturbance. This community type is typically short-lived (less than 10 years), progressively giving way to shrub and forest communities unless periodically re-disturbed, in which case they remain as old fields. Old-field areas are located within some portions of the Project area, usually in inactive pastures or clear-cut areas. Portions of both the Preferred and Alternate Route have old-field and scrub-shrub communities. Dominant plant species include:.

- Deer-tongue rosette grass (*Dichanthelium clandestinum*);
- English plantain (*Plantago lanceolata*);
- Common yarrow (*Achillea millefolium*);
- Smooth brome (*Bromus inermis*);
- Common Timothy (*Phleum pratense*);
- Common dandelion (*Taraxacum officinale*);
- White clover (*Trifolium repens*);
- Red clover (*Trifolium pratense*);
- Fuller's teasel (*Dipsacus fullonum*);
- Kentucky blue grass (*Poa pratensis*);
- Tall fescue (*Festuca arundinacea*);
- American pokeweed (*Phytolacca americana*);
- Queen Anne's lace (*Daucus carota*);
- Orchard grass (*Dactylis glomerata*);
- Broom sedge (*Andropogon virginicus*);
- Blackberry (*Rubus* sp.);
- Ironweed (*Vernonia gigantea*);
- Rambler rose (*Rosa multiflora*);
- Bentgrass (*Agrostis* sp.); and
- Goldenrod (*Solidago* spp.).

(iii) Wetlands

Wetlands were observed and delineated within and beyond the Preferred Route and Alternate Route. Dominant plant species typically found in wetlands crossed by the Project are listed below.

Dominant plant species observed within PEM wetlands include the following:

- Japanese stilt grass (*Microstegium vimineum*);
- Tapered rosette grass (*Dichanthelium acuminatum*);
- Shallow sedge (*Carex lurida*);
- Large barnyard grass (*Echinochloa crus-galli*);
- Shallow sedge (Carex lurida);
- Spotted touch-me-not (*Impatiens capensis*);
- Dark-green bulrush (*Scirpus atrovirens*);
- Lamp rush (*Juncus effusus*); and
- Rice cut grass (*Leersia oryzoides*).

Dominant plant species observed within PUB wetlands include the following:

- Broad-leaf cat-tail (*Typha latifolia*)

(iv) Residential

Rural residential areas are occasionally crossed within the Preferred and Alternate Route Field Survey Area. Vegetation identified on residential property includes areas of grasses and other herbaceous species, such as fescue, common dandelion, white clover, and red clover maintained through mowing.

(v) Utility ROW

The primary utility ROW within the Field Survey Area is the existing Berlin-Ross 69 kV transmission line ROW. Vegetation along the existing Berlin-Ross 69 kV transmission line ROW has been maintained by mowing and consisted of grasses, herbaceous plants, and scrub-shrub vegetation. Vegetation with tall growth potential that poses a risk to the operation and maintenance of overhead electric transmission lines is typically removed periodically from the ROW. Dominant herbaceous vegetation identified included, but not limited to, were wood-sorrel (*Oxalis stricta*), common yarrow, ox-eye daisy (*Leucanthemum vulgare*), orchard grass, goldenrod, fescue, common dandelion, white clover, red clover, Queen Anne's lace, broom sedge, and Christmas fern (*Polystichum acrostichoides*).

(vi) Upland and Riparian Forest

Upland and riparian early successional or second growth forest is present throughout the Field Survey Area within the Preferred and Alternate Route. Dominant canopy and sub-canopy species include the following:

- Red maple (*Acer rubrum*);
- Sugar maple (*Acer saccharum*);
- American beech (*Fagus grandifolia*);
- Eastern white pine (*Pinus strobus*);
- Northern white oak (*Quercus alba*);
- Flowering dogwood (*Cornus florida*); and

- Eastern hop-hornbeam (*Ostrya virginiana*).

(b) Wetlands

According to the USACE, a wetland is defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation (hydrophytic) typically adapted for life in saturated (hydric) soil conditions.

AEP Ohio Transco's consultant used the onsite methodology described in the 1987 Technical Report Y-87-1, USACE Wetlands Delineation Manual, and subsequent guidance documents including the 2012 *Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0). Additionally, each identified wetland was evaluated in accordance with the Ohio Rapid Assessment Method ("ORAM") developed by Ohio Environmental Protection Agency (OEPA; Mack, 2001). Wetland categorizations were conducted in accordance with the latest quantitative score calibration procedure (Mack, 2001). To identify whether potential wetlands exist along the Preferred and Alternate Routes, a desktop study of available resources was performed prior to the field wetland delineations. Additionally, USFWS NWI maps and the NRCS soil survey and hydric soil list for Jackson County were reviewed for areas within 1,000 feet of the Preferred and Alternate Route.

(i) Summary of National Wetlands Inventory Data

USFWS NWI data, including freshwater wetlands and riverine areas, were mapped within 1,000 feet of the Preferred and Alternate Route, and reviewed to guide the wetland delineation as one factor in identifying potential wetland locations (USFWS, 2017). The NWI-mapped areas for the Preferred and Alternate Route are shown on Figure 8-1. Table 8-1 summarizes the NWI data by wetland classification and habitat type. The actual extent and type of field-delineated wetlands along the routes are discussed in the next section.

TABLE 8-1
NWI Wetlands Within 1,000 feet of the Preferred and Alternate Route

Wetland Type	NWI Code	NWI Habitat Type*	Total Number of Each Habitat Type Preferred/ Alternate
Freshwater Forested/Scrub-Shrub Wetland	PFO1/SS1A	Palustrine Forested Broad-Leaved Deciduous Scrub-Shrub Broad-Leaved Deciduous Temporary Flooded	2 – Preferred 2 – Alternate
Freshwater Forested Wetland	PFO1A	Palustrine Forested Broad-Leaved Deciduous Temporary Flooded	2 – Preferred 2 – Alternate
Freshwater Scrub-Shrub Wetland	PSS1A	Palustrine Scrub-Shrub Broad-Leaved Deciduous Temporarily Flooded	1 – Preferred 1 – Alternate
Freshwater Pond	PUBGx	Palustrine Unconsolidated Bottom Excavated	4 – Preferred 4 – Alternate
Riverine	R4SBC	Riverine Intermittent Streambed Seasonally Flooded	9 – Preferred 9 – Alternate

TABLE 8-1
NWI Wetlands Within 1,000 feet of the Preferred and Alternate Route

Wetland Type	NWI Code	NWI Habitat Type*	Total Number of Each Habitat Type Preferred/ Alternate
Riverine	R5UBH	Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded	4 – Preferred 4 – Alternate
Total Number of Preferred Route NWI Wetlands:			**22**
Total Number of Alternate Route NWI Wetlands:			**22**

Notes:
Total number of PFO = 8, PSS = 2, PUB = 8, R4SBC = 18, R5UBH = 8
* USFWS, 2017

(ii) Field-Delineated Wetlands

A total of seven wetlands (totaling 0.56-acre) were delineated within the Field Survey Area. A total of 0.07-acre of wetlands were delineated within the Preferred Route ROW and 0.06-acre within the Alternate Route ROW. These field-delineated wetlands for the Preferred and Alternate Route are mapped on Figures 8-2A through 8-2C.

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

TABLE 8-2
Delineated Wetlands within the Preferred and Alternate Route of the Environmental Field Survey Area and Potential Disturbance Area/ROW

Wetland Name	Route	Figure	Cowardin Wetland Type [a]	ORAM Score	ORAM Category	Length Crossed by Centerline (feet)	Acreage within Field Survey Area [b]	Acreage within Potential Disturbance Area/ROW [c]
Preferred Route Wetlands								
W001-PEM-CAT1	Preferred	8-2A	PEM	15	1	-	0.01	-
W002-PEM-CAT1	Preferred	8-2A	PEM	23	1	-	0.03	-
W003-PEM-CAT2	Preferred	8-2A	PEM	47.5	2	-	0.03	-
W004-PEM-CAT2	Preferred	8-2A	PEM	30	2	53	0.06	0.06
W005-PUB-CAT2	Preferred	8-2B	PUB	34	2	-	0.21	-
W006-PUB-CAT2	Preferred	8-2C	PUB	48	2	-	0.20	0.01
W007-PEM-CAT1	Preferred	8-2C	PEM	27	1	-	0.02	-
					Total	**53**	**0.56**	**0.07**
Alternate Route Wetlands								
W001-PEM-CAT1	Alternate	8-2A	PEM	15	1	-	0.01	-
W002-PEM-CAT1	Alternate	8-2A	PEM	23	1	-	0.03	-
W003-PEM-CAT2	Alternate	8-2A	PEM	47.5	2	-	0.03	-
W004-PEM-CAT2	Alternate	8-2A	PEM	30	2	20	0.06	0.06
W005-PUB-CAT2	Alternate	8-2B	PUB	34	2	-	0.21	-
W006-PUB-CAT2	Alternate	8-2C	PUB	48	2	-	0.20	-
W007-PEM-CAT1	Alternate	8-2C	PEM	27	1	-	0.02	-
					Total	**20**	**0.56**	**0.06**

Note

[a] Wetland Type: PEM = palustrine emergent, PUB = palustrine unconsolidated bottom.

[b] The width of the Field Survey Area was 400 feet centered on the existing Berlin-Ross 69 kV transmission line.

[c] The width of the potential disturbance area and the final maintained ROW is planned to be 100 feet.

(c) Waterbodies

(i) Field-Delineated Streams

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

A total of 31 streams were identified within the Field Survey Area. Of these streams, 29 were evaluated using the HHEI method and two were evaluated using OEPA's Qualitative Habitat Evaluation Index ("QHEI") method for streams with drainage areas greater than one square mile or maximum pool depths of greater than 40 cm.

Streams identified during the ecological survey on the Preferred and Alternate Route are shown on Figures 8-2A through 8-2C. Detailed information on each identified stream is included in Table 8-3. Aquatic life use designations within the Scioto River drainage basin obtained from O.A.C. 3745-1-09 are also provided. The Scioto River, located approximately 9.0 miles northwest of the Preferred and Alternate Route, is a traditionally navigable waterway as defined by USACE.

Approximately 3,183 linear feet of streams are located within the Preferred Route ROW, while approximately 2,544 linear feet are located within the Alternate Route ROW.

The Preferred Route centerline has 16 stream crossings with all the streams being crossed once, with the following exception: stream S011 is crossed twice. The Alternate Route centerline has 13 stream crossings with all the streams being crossed once, with the following exception: streams S011is crossed twice. The total length of streams located within the Field Survey Area is approximately 10,688 linear feet. Construction impacts on these features are included in Table 8-

3 and further discussed in Section 4906-5-08(B)(3)(c).

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
Preferred Route												
S001 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Ephemeral	4	0	HHEI	11	—	Class I PHWH	Yes	440	143
S002 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Ephemeral	3	0	HHEI	10	—	Class I PHWH	No	334	NC
S003 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Intermittent	4	2	HHEI	25	—	Class I PHWH	Yes	531	111
S004 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Ephemeral	2	0	HHEI	10	—	Class I PHWH	No	23	NC
S005 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Ephemeral	3	0	HHEI	10	—	Class I PHWH	No	192	NC

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S006 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Intermittent	6	0	HHEI	39	—	Class II PHWH	Yes	539	108
S007 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Intermittent	4	4	HHEI	45	—	Class II PHWH	Yes	508	144
S008 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A	Intermittent	5	4	HHEI	54	—	Class III PHWH	Yes	987	287
S009 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A/B	Intermittent	4	4	HHEI	48	—	Class II PHWH	Yes	180	180
S010 Salt Lick Creek (Little Salt Creek)	Preferred	8-2A/B	Perennial	50	—	—	—	WWH	—	Yes	445	101

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S011 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2A/B	Perennial	5	—	QHEI	50	—	Fair	Yes	1291	380
S012 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B	Ephemeral	3	0	HHEI	20	—	Class I PHWH	No	206	76
S013 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B	Ephemeral	4	0	HHEI	31	—	Class II PHWH	No	260	NC
S014 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B	Ephemeral	4	0	HHEI	31	—	Class II PHWH	Yes	435	101
S015 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B	Ephemeral	4	0	HHEI	34	—	Class II PHWH	Yes	491	118

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S016 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B	Ephemeral	4	0	HHEI	31	-	Class II PHWH	Yes	390	390
S017 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B	Intermittent	5	4	HHEI	55	—	Class II PHWH	No	187	NC
S018 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B	Intermittent	5	4	HHEI	51	—	Class II PHWH	Yes	195	105
S019 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B/C	Perennial	6	9	QHEI/ HHEI	44/62	—	Class III PHWH/ Fair	Yes	496	146
S020 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B/C	Intermittent	3	4	HHEI	33	—	Class II PHWH	Yes	437	118

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S021 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B/C	Intermittent	3	4	HHEI	34	—	Class II PHWH	No	90	NC
S022 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B/C	Intermittent	3	4	HHEI	33	—	Class II PHWH	No	125	NC
S023 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2B/C	Ephemeral	3	0	HHEI	21	—	Class I PHWH	No	155	47
S024 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2C	Ephemeral	4	0	HHEI	30	—	Class II PHWH	No	160	56
S025 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2C	Ephemeral	5	0	HHEI	35	—	Class II PHWH	No	185	72

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S026 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2C	Ephemeral	5	0	HHEI	29	—	Class I PHWH	No	63	54
S027 UNT to Salt Lick Creek (Little Salt Creek)	Preferred	8-2C	Ephemeral	3	0	HHEI	14	—	Class I PHWH	No	85	NC
S028 UNT to Horse Creek	Preferred	8-2C	Intermittent	5	2	HHEI	41	—	Class II PHWH	Yes	443	105
S029 UNT to Horse Creek	Preferred	8-2C	Ephemeral	5	0	HHEI	36	—	Class II PHWH	No	129	61
S030 UNT to Horse Creek	Preferred	8-2C	Ephemeral	2	0	HHEI	20	—	Class I PHWH	No	73	49
S031 UNT to Horse Creek	Preferred	8-2C	Intermittent	4	4	HHEI	46	—	Class II PHWH	Yes	613	231

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
										Total	**10,688**	**3,183**
Alternate Route												
S001 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Ephemeral	4	0	HHEI	11	—	Class I PHWH	No	440	11
S002 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Ephemeral	3	0	HHEI	10	—	Class I PHWH	No	334	NC
S003 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Intermittent	4	2	HHEI	25	—	Class I PHWH	Yes	531	130
S004 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Ephemeral	2	0	HHEI	10	—	Class I PHWH	No	23	23

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S005 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Ephemeral	3	0	HHEI	10	—	Class I PHWH	No	192	NC
S006 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Intermittent	6	0	HHEI	39	—	Class II PHWH	Yes	539	134
S007 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Intermittent	4	4	HHEI	45	—	Class II PHWH	Yes	508	131
S008 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A	Intermittent	5	4	HHEI	54	—	Class III PHWH	Yes	987	287
S009 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A/B	Intermittent	4	4	HHEI	48	—	Class II PHWH	Yes	180	180

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S010 Salt Lick Creek (Little Salt Creek)	Alternate	8-2A/B	Perennial	50	—	—	—	WWH	—	Yes	445	101
S011 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2A/B	Perennial	5	—	QHEI	50	—	Fair	Yes	1291	380
S012 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B	Ephemeral	3	0	HHEI	20	—	Class I PHWH	No	206	NC
S013 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B	Ephemeral	4	0	HHEI	31	—	Class II PHWH	No	260	9
S014 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B	Ephemeral	4	0	HHEI	31	—	Class II PHWH	Yes	435	108

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S015 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B	Ephemeral	4	0	HHEI	34	—	Class II PHWH	Yes	491	125
S016 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B	Ephemeral	4	0	HHEI	31	—	Class II PHWH	No	390	301
S017 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B	Intermittent	5	4	HHEI	55	—	Class II PHWH	No	187	NC
S018 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B	Intermittent	5	4	HHEI	51	—	Class II PHWH	No	195	34
S019 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B/C	Perennial	6	9	QHEI/ HHEI	44/62	—	Class III PHWH/ Fair	Yes	496	103

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S020 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B/C	Intermittent	3	4	HHEI	33	—	Class II PHWH	Yes	437	134
S021 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B/C	Intermittent	3	4	HHEI	34	—	Class II PHWH	No	90	NC
S022 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B/C	Intermittent	3	4	HHEI	33	—	Class II PHWH	No	125	NC
S023 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2B/C	Ephemeral	3	0	HHEI	21	—	Class I PHWH	No	155	NC
S024 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2C	Ephemeral	4	0	HHEI	30	—	Class II PHWH	No	160	NC

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S025 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2C	Ephemeral	5	0	HHEI	35	—	Class II PHWH	No	185	NC
S026 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2C	Ephemeral	5	0	HHEI	29	—	Class I PHWH	No	63	NC
S027 UNT to Salt Lick Creek (Little Salt Creek)	Alternate	8-2C	Ephemeral	3	0	HHEI	14	—	Class I PHWH	No	85	NC
S028 UNT to Horse Creek	Alternate	8-2C	Intermittent	5	2	HHEI	41	—	Class II PHWH	Yes	443	115
S029 UNT to Horse Creek	Alternate	8-2C	Ephemeral	5	0	HHEI	36	—	Class II PHWH	No	129	NC

TABLE 8-3
Streams within the Preferred and Alternate Route Environmental Field Survey Area and Potential Disturbance Area/ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation [a]	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline [b]	Length (linear feet) within Field Survey Area [c]	Length (linear feet) within Potential Disturbance Area/ROW [d]
S030 UNT to Horse Creek	Alternate	8-2C	Ephemeral	2	0	HHEI	20	—	Class I PHWH	No	73	NC
S031 UNT to Horse Creek	Alternate	8-2C	Intermittent	4	4	HHEI	46	—	Class II PHWH	Yes	613	238
										Total	**10,688**	**2,544**

Notes:

[a] WWH = Warm Water Habitat

[b] NC = Not crossed by proposed ROW.

[c] The width of the Field Survey Area was 400 feet centered on the existing Berlin-Ross 69 kV transmission line.

[d] The width of the potential disturbance area and the final maintained ROW is planned to be 100 feet.

UNT = unnamed tributary

(ii) Lakes, Ponds, and Reservoirs

No major lakes, ponds, or reservoirs were observed within the Field Survey Area. Therefore, impacts from construction, operation, or maintenance of the proposed transmission line are not anticipated.

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

Detailed maps at 1:12,000 scale depicting the delineated features and proposed ROW for the Preferred and Alternate Route are provided as Figure 8-2.

(3) Construction Impacts on Vegetation and Surface Waters

(a) Construction Impacts on Vegetation

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

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

Land Use Type	Length of Route (in feet)	Length of Route (in miles)	Acreage within ROW
Preferred Route			
Agricultural	-	-	-
Industrial / Commercial	-	-	0.2
Open Land / Pasture	8,266	1.57	14.1
Road / Railroad ROW	25	<0.01	0.4
Utility ROW	3,308	0.63	12.8
Water	-	-	0.1
Woodlot	6,501	1.23	14.5
Alternate Route			
Agricultural	-	-	-
Industrial/Commercial	-	-	0.2
Open Land / Pasture	-	-	13.7
Road / Railroad ROW	-	-	0.4
Utility ROW	18,356	3.48	21.2
Water	-	-	0.1

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

Land Use Type	Length of Route (in feet)	Length of Route (in miles)	Acreage within ROW
Woodlot	-	-	6.7

(b) Construction Impacts on Wetlands

Preferred Route: During wetland and surface water delineations, two wetlands were identified within the proposed ROW, totaling 0.07-acre. The delineated wetlands are shown on Figures 8-2A through 8-2C. Detailed information about each feature can be found in Table 8-2 in Section 4906-05-08(B)(b)(ii). One of these wetlands is crossed by the Preferred Route centerline for a length of 53 linear feet. Impacts to the wetlands will be avoided by placing transmission line structures outside of the wetland boundaries. Where temporary construction access through a wetland cannot be avoided, the crossing will occur during dry conditions and protective construction matting will be used to minimize impacts from construction vehicles.

ORAM categories for wetlands delineated in the Preferred Route ROW are detailed below:

- Category 1 wetlands: No Category 1 wetlands were identified within the Preferred Route ROW; therefore, no construction impacts are anticipated.
- Category 2 wetlands: Two Category 2 wetlands with ORAM scores of 30 and 48 were identified within the Preferred Route ROW, totaling 0.07-acre. One wetland is a PEM wetland and one is a PUB wetland.
- Category 3 wetlands: No Category 3 wetlands were identified within the Preferred Route ROW; therefore, no construction impacts are anticipated.

Alternate Route: During wetland and surface water delineations, one wetland was identified within the proposed Alternate Route ROW, totaling 0.06-acre. The delineated wetlands are shown on Figures 8-2A through 8-2C. Detailed information about each feature can be found in Table 8-2 in Section 4906-05-08(B)(b)(ii). This wetland is crossed by the Alternate Route centerline for a length of 20 linear feet. Impacts to this wetland will be avoided by placing transmission line structures outside the wetland boundary. Where temporary construction access through a wetland cannot be avoided, the crossing will occur during dry conditions and protective matting will be used to minimize impacts from construction vehicles.

ORAM categories for wetlands delineated in the Alternate Route ROW are detailed below:

- Category 1 wetlands: No Category 1 wetlands were identified within the Alternate Route ROW; therefore, no construction impacts are anticipated.
- Category 2 wetlands: One Category 2 wetland (PEM) with an ORAM score of 30 was identified within the Alternate Route ROW, totaling 0.06-acre.

- Category 3 wetlands: For the Alternate Route, no Category 3 wetlands will be crossed; therefore, no construction impacts are anticipated.

Through appropriate planning and permitting, care will be taken near wetlands to avoid temporary impacts or minimize filling and sedimentation during construction. AEP Ohio Transco will avoid the placement of pole structures within wetlands to the extent practical. Selective clearing will be required to remove specific types of woody vegetation in wetlands that might impede construction or interfere with operation of the transmission line. Where wooded or forested wetlands occur within the ROW, the trees will be removed.

To minimize soil erosion and sedimentation during construction, best management practices ("BMPs") such as utilization of silt fences and construction matting will be implemented as required during construction. Sedimentation potential at wetlands is unlikely because of the plans for structure placement outside of wetlands, and the fact that construction equipment will only cross wetlands if necessary, and will do so using construction matting if wet conditions require.

Disturbance of soils in wetland areas during construction will be minimized. Temporary fill material (in the form of construction matting) may be placed in a wetland area utilized for access. Although not anticipated, if it is necessary to place a pole or guy wires within a wetland, they will be accessed using construction matting if wet conditions exist at the time of construction. No excavation other than the boring of a hole for pole installation will be performed within the wetland. In the event that pole placement is required within a wetland, no additional fill will be placed in the wetland beyond the placement of the pole structure and borehole backfill.

Wetland areas will be clearly staked prior to the commencement of any clearing in order to minimize incidental vehicle or construction impacts. Other than the remote possibility of pole locations within wetlands, as discussed above, operation of heavy mechanized equipment is not planned within an identified wetland, although some construction equipment may need to cross wetlands on construction matting if wet conditions exist at the time. Woody vegetation in wetlands will be hand-cut by chain saws or other non-mechanized techniques. When necessary, rubber-wheeled vehicles, or vehicles equipped with tracks, will be used to remove vegetation debris. AEP Ohio Transco will perform all construction work in accordance with the conditions and requirements of regulatory permits obtained for the Project.

(c) Construction Impacts on Waterbodies

The Preferred Route centerline crosses 16 streams. The Alternate Route centerline crosses 13 streams. Streams S011 is crossed twice by the centerline. Detailed information about each feature can be found in Table 8-3 in Section 4906-5-08(B)(c)(i).

Approximately 3,183 linear feet of streams are located within the Preferred Route ROW, while approximately 2,544 linear feet are located within the Alternate Route ROW.

AEP Ohio Transco will not conduct mechanized clearing within 25 feet of any stream, and will only

clear (using hand cutting techniques) those trees in this area that are tall enough to or have the potential to interfere with safe construction and operation of the line. No streams will be filled or permanently impacted. Some streams may have to be crossed by construction vehicles. Exact pole locations have not been fully determined to date. Access paths to proposed pole locations will be evaluated when more detailed engineering is performed and landowner negotiations progress. If a new stream crossing were necessary, it would comply with one of the following two proposed methods to cross streams:

- Temporary culvert stream crossings
- Temporary access bridge

Culvert stream crossings are proposed for crossing marginal quality perennial, ephemeral, and intermittent streams with a drainage basin of less than one mile. These crossings may be removed or remain in place in order to provide maintenance access to the line (critical if service is to be reliable).

- Disturbance of the stream will be kept to a minimum, stream bank vegetation will be preserved to the maximum extent practical, and the stream crossing width will be kept as narrow as possible. Clearing will be done by hand-cutting techniques rather than grubbing. Roots and stumps will be left in place to aid stabilization and to accelerate re-vegetation.
- Sediment laden runoff will be controlled to minimize flow from the access road directly into the stream. Diversions and swales will be used to direct runoff to storm water management locations. Silt fence will be used as needed according to local topographic conditions.
- Culvert pipes will be placed on the existing streambed to avoid a drop or waterfall at the downstream end of the pipe, which would be a barrier to fish migration. Crossings will be placed in shallow areas rather than pools.
- Culverts will be sized to be at least three times the depth of the normal stream flow at the crossing location. The minimum diameter culvert that will be used is 18 inches.
- There will be a sufficient number of culvert pipes to cross the stream completely with no more than a 12-inch space between each one.
- Stone, rock, or aggregate of ODOT number 1 as a minimum size will be placed in the channel, and between culverts. To prevent washouts, larger stone may be used with gabion mattresses. No soil will be placed in the stream channel.

- After completion of construction, some rock aggregate and structures such as culvert pipes used for the crossing will be left in place if approved by the landowner. Care will be taken so that aggregate does not create an impoundment or impede fish passage. Structures such as gabion mattresses will be removed.

- Stream banks will be stabilized and revegetated as appropriate.

Temporary access bridges or culvert stream crossings will be used for high quality perennial, ephemeral, and intermittent streams and streams with a drainage basin greater than one square mile.

- Disturbance of the stream will be kept to a minimum, stream bank vegetation will be preserved to the maximum extent practical, and the stream crossing width will be kept as narrow as possible. Clearing will be done by hand cutting rather than grubbing. Roots and stumps will be left in place to aid stabilization and to accelerate re-vegetation.

- Sediment laden runoff will be controlled to minimize flow from the access road directly into the stream. Diversions and swales will be used to direct runoff to storm water management locations. Silt fence will be used as needed according to local topographic conditions.

- Bridges will be constructed to span the entire channel. If the channel width exceeds eight feet, then a floating pier or bridge support may be placed in the channel. No more than one pier, footing, or support will be allowed for every eight feet of span width. No footings, piers, or supports will be allowed for spans of less than eight feet.

- No fill other than clean stone, free from soil, will be placed within the stream channel.

These stream crossings will be addressed in the Project Stormwater Pollution Prevention Plan ("SWPPP"). Some of the access routes may be left in place for maintenance activity. Details regarding the proposed access road stream crossing methods will be provided to the OPSB separately.

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

During operation of the transmission line along either the Preferred or Alternate Route, the impacts on vegetation are anticipated to be minor. Undeveloped non-forested land not significantly disturbed by construction should retain its current vegetative composition. Periodic cutting along the proposed 100-foot-wide transmission line ROW is not expected to result in a significant environmental impact to the vegetation in these types of areas, particularly due to the proposed use of a portion of the existing ROW for the Preferred and Alternate Route.

The potential impacts on woody and herbaceous vegetation along either of the proposed routes will be limited to maintenance activities along the proposed transmission line ROW and access roads for safe and reliable operation of the transmission line. Trees adjacent to the proposed

transmission line ROW, that are dead, dying, diseased, leaning, significantly encroaching, or prone to failure may require clearing to allow for safe operation of the transmission line. Vegetative waste (such as tree limbs and trunks) that is generated during the construction phase will be windrowed or chipped and disposed of appropriately depending on individual landowner requests.

Once the transmission line is in operation, no significant impacts to streams or drainage channels are anticipated. Only periodic selective removal of vegetation that interferes with the operation of the transmission line will be required. No major lakes, ponds, or reservoirs should be affected by the operation or maintenance of the Preferred or Alternate Route, as none of these features were identified within the Field Survey Area.

AEP Ohio Transco does not anticipate significant wetland impacts from the operation or maintenance of the Preferred or Alternate Route. Vegetation that occurs within wetland areas may require periodic cutting. It is not anticipated that such activities would result in erosion or water quality degradation. Maintenance cutting of woody vegetation in wetland areas would be hand-cut by chain saws or other non-mechanized techniques.

(5) Mitigation Procedures

The following mitigation procedures will be used during construction, operation, and maintenance of the proposed Project to minimize the impact on vegetation and surface waters. A SWPPP will also be prepared and implemented, and will be made available onsite during Project construction.

(a) Site Restoration and Soil Stabilization

A SWPPP will be developed specifically for the Project and specified BMPs will be implemented during construction to control erosion and sedimentation. Areas where soil has been disturbed will be seeded and mulched to prevent soil erosion and sedimentation. Experience shows that seeding in non-wetland and non-agricultural areas is advantageous to control erosion on areas disturbed by construction activities. In lightly disturbed wetland areas, existing seed banks are quite often capable of quickly reestablishing vegetation that is compatible with the surrounding wetland. If any unanticipated significant disturbance occurs in wetlands, topsoil will be segregated and replaced so that the existing seed banks will be allowed to revegetate the areas initially. Additional seeding will only take place if the existing seed bank does not repopulate an area. These measures should preserve the aesthetic qualities along the ROW, prevent erosion, and promote habitat diversity.

Construction access routes and staging areas will be selected to minimize impacts to wetlands and streams to the extent practical. Following construction, pole locations, material storage sites, and temporary access roads will be seeded with a suitable grass seed mixture as specified in the SWPPP for restoring these disturbed areas.

(b) Contingency Plan Stream and Wetland Crossings

The Project does not include a stream or wetland crossing by horizontal direction drill. Therefore, a detailed frac-out contingency plan will not be required for the Project.

(c) Demarcation and Protection Methods

Wetlands, streams, waterbodies, and any other environmentally sensitive areas will be clearly staked, flagged, or fenced in accordance with the SWPPP prior to the commencement of any clearing in order to minimize incidental impacts. BMPs such as utilization of silt fences and construction matting will be implemented as required during construction.

(d) Procedures for Inspection and Repair of Erosion Control Measures

Procedures for inspection and repair of erosion control measures, especially after rainfall events will be outlined in the SWPPP.

(e) Stormwater Runoff Measures

BMPs, including utilization of silt fence or filter socks, will be used as appropriate during construction to minimize runoff and sedimentation of streams and wetlands. Measures to divert stormwater runoff away from fill slopes and other exposed surfaces will be outlined in the SWPPP.

(f) Vegetation Protection Methods

Vegetation that occurs within wetland areas may require periodic cutting. Maintenance cutting of woody vegetation in wetland areas would be hand-cut by chain saws or other non-mechanized techniques. Cutting of woody vegetation in wetlands and near stream banks will be limited to removal of only the cut back required to safely perform construction and continue operation of the transmission line. AEP Ohio Transco will adhere to regulatory permit requirements and conditions that will be obtained or authorized for the Project, including specifying that no mechanized clearing of vegetation be performed within the prescribed distance of a wetland or waterbody as discussed below.

(g) Clearing Methods

AEP Ohio Transco will not conduct mechanized clearing within 25 feet of any stream, and will only clear (using hand cutting techniques) those trees in this area that are tall enough to or have the potential to interfere with safe and reliable construction and operation of the transmission line. Selective clearing will be required to remove woody vegetation in wetlands that might impede construction, or interfere with operation of the transmission line. Where wooded wetlands occur within the ROW, the trees will be removed. Trees adjacent to the proposed transmission line ROW that are dead, dying, diseased, leaning, significantly encroaching, or prone to failure may require clearing to allow for safe and reliable operation of the transmission line. Vegetative waste (such as tree limbs and trunks) that is generated during the construction phase will be windrowed or chipped and disposed of appropriately depending on landowner requests.

(h) Expected Use of Herbicides

AEP Ohio Transco does not anticipate the use of herbicides on the Project.

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

The Project area is mostly forested, with interspersed agricultural and rural residential land use. There is minimal commercial or industrial lands found within 500 feet of the Project area. Both the Preferred and Alternate Route have potential habitat for wildlife species. Lists of commercial and recreational species were created utilizing professional experience and the ODNR-DOW 2017-2018 Hunting and Trapping Regulations (ODNR-DOW, 2017a).

Lists of protected species are typically based on their range within Jackson County, as reported in correspondence from the ODNR-DOW and the review of USFWS county species distribution lists. Details on the expected impacts of construction, operation, maintenance, and mitigation procedures can be found following the threatened and endangered, commercial, and recreational species descriptions as follows.

(1) Project Vicinity Species Descriptions

(a) Protected Species

Coordination with ODNR-DOW was initiated to obtain Ohio Natural Heritage Database records within a one-mile buffer around the Preferred and Alternate Route. ODNR records of state- and federally listed species, provided in August 2017, indicated records of seven species located within a one-mile radius of the Project that were state or federally listed. Current information on the species provided through consultation with USFWS (USFWS, 2017) and the ODNR-DOW Ohio Natural Heritage Database is provided in Table 8-5.

A consultation request was submitted to the USFWS on May 16, 2017 and their e-mail response was received on May 31, 2017. USFWS stated there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project. USFWS also confirmed that two federally listed bat species listed in Table 8-5 may occur in the Project area and recommended winter tree clearing (October 1 through March 31) to avoid adverse effects to these species. AEP Ohio Transco proposes to adhere to this seasonal tree clearing restriction. To address USFWS concerns regarding running buffalo clover (*Trifolium stoloniferum*) and timber rattlesnake (*Crotalus horridus horridus*), AEP Ohio Transco proposes to complete a habitat assessment for these species within the Project area.

A consultation request was submitted to the ODNR on May 16, 2017, and their response was received on August 22, 2017. The ODNR-DOW indicated that if suitable habitat occurs in the Project area for the Indiana bat (*Myotis sodalis*) and trees must be cut, it is recommended that tree cutting occurs between October 1 and March 31, which AEP Ohio Transco proposes to adhere to. The ODNR-DOW also identified a freshwater mussel and fish species that may occur in the Project area, however, habitat for these species is either not present or in-stream impacts to

waterbodies where the mussel species may occur are not proposed to occur. Two snake species were identified that may occur in the Project area. The ODNR response stated that impacts to the Kirtland's snake (*Clonophis kirtlandii*) are not anticipated due to the location, the type of habitat along the Project route and within the vicinity of the Project route. To address ODNR concerns regarding timber rattlesnake, AEP Ohio Transco proposes to complete a habitat assessment for this species within the Project area. One amphibian, mud salamander (*Clonophis kirtlandii*), was identified with records within one mile of the Project route. To address ODNR concerns regarding mud salamander, AEP Ohio Transco proposes to complete a habitat assessment for this species within the Project area. The ODNR-DOW also identified a mammal, black bear (*Ursus americanus*), that may occur in the Project area, however, due to the mobility of this species, the Project is not likely to impact the species. Lastly, the ODNR Division of Natural Areas and Preserves indicated that a state-threatened plant species, Bartley's reed grass (*Calamagrostis porter* spp. *insperata*), has been documented in the Ohio Natural Heritage Database in and around the proposed Project area. A survey for this species was completed by the ODNR and was not identified within the Project area.

AEP Ohio Transco will utilize a 100-foot-wide permanent ROW for the Project to allow for safe and reliable construction and operation of the transmission line and prevent encroachment. AEP Ohio Transco will not conduct mechanized clearing within 25 feet of any stream, and will only clear (using hand cutting techniques) those trees in this area that are tall enough to have the potential to interfere with safe construction and reliable operation of the line. Once the final route is approved, AEP Ohio Transco's consultant will review habitat along the route, based on observations recorded during the completed ecological survey, and coordinate with the USFWS and ODNR for survey plans if necessary.

TABLE 8-5
ODNR and USFWS Rare, Threatened or Endangered Species

Common Name	Scientific Name	Habitat Type	Listing Status[1]	Habitat Type Present within the Project Area	Impacts to Habitat/Species Anticipated	Restricted Construction Dates
Amphibians						
Mud salamander[2]	*Pseudotriton montanus*	Springs, seeps and creeks under large, flat stones	T	Potentially	Unknown; **A habitat suitability survey will be conducted, as requested by the ODNR-DOW**	-
Mammals						
Indiana bat[2,4]	*Myotis sodalist*	Trees >3" dbh	E, FE	Yes	No; Avoided with winter tree clearing	April 1 to September 30
Northern long-eared bat[4]	*Myotis septentrionalis*	Roost in cavities or in crevices of both live trees and snags; hibernate in caves and mines with constant temperatures, high humidity, and no air currents	SC, FT	Yes	No; Avoided with winter tree clearing	April 1 to September 30
Black bear[2]	*Ursus americanus*	Thick understory vegetation and large quantities of edible material	E	Yes	No; Impacts are not anticipated due to the migratory nature of this species	-
Fishes						
Ohio lamprey[2]	*Ichthyomyzon bdellium*	The Ohio River and the lower portion of its tributaries	E	No	No; Known habitat types are not present within the Project area	April 15 to June 30
Lake chubsucker[2]	*Erimyzon sucetta*	Natural lakes and very sluggish streams or marshes with dense aquatic vegetation and clear waters	T	No	No; Known habitat types are not present within the Project area	April 15 to June 30
Mussels						
Little spectaclecase[2]	*Villosa lienosa*	Small to medium streams in sand or gravel	E	Yes	No; In-stream work is not proposed and the ODNR-DOW states the	-

Common Name	Scientific Name	Habitat Type	Listing Status[1]	Habitat Type Present within the Project Area	Impacts to Habitat/Species Anticipated	Restricted Construction Dates
					Project is not likely to impact this species	
Plants						
Cumberland grain o' wheat moss[3]	*Diphyscium mucronifolium*	Shaded rocky surfaces, especially sandstone	E	No	No; Known habitat types are not present within the Project area	-
Bigleaf magnolia[3]	*Magnolia macrophylla*	Mesic wooded ravines and near the tops of ravines in oak woods	E	No	No; Known habitat types are not present within the Project area	-
Running buffalo clover[3,4]	*Trifolium stoloniferum*	Mesic habitats with partial sunlight including woodlands and mowed lawns	E, FE	Potentially	Unknown; **A habitat suitability survey will be conducted for the Project area running through Liberty Township, as requested by the USFWS response**	March 31 to July 31 (if habitat is present)
Bartley's reed grass[2,3]	*Calamagrostis porter* spp. *insperata*	Dry upland areas in sun or partial shade	T, FSC	Yes	No; Survey completed by ODNR indicates species is not present in Project area	-
Reznicek's sedge[3]	*Carex reznicekii*	Dry woods and sandy soils	T	No	No; Known habitat types are not present within the Project area	-
Spotted panic grass[3]	*Dichanthelium yadkinense*	Rich or damp woods, thickets, bottomslands and swamps	P	Yes	No; Impacts to this species are not anticipated, per the agency responses	-
Short's hedge-hyssop[3]	*Gratiola viscidula*	Wet places of many types: stream margins, ditches, ponds, and swamps, in both sun and semi-shade	P	Yes	No; Impacts to this species are not anticipated, per the agency responses	-
One-sided rush[3]	*Juncus secundus*	Damp or dry, open situations; in acid, sandy, rocky, or clay soil: prairies, clearings,	P	Yes	No; Impacts to this species are not	-

Common Name	Scientific Name	Habitat Type	Listing Status[1]	Habitat Type Present within the Project Area	Impacts to Habitat/Species Anticipated	Restricted Construction Dates
		sandstone cliffs, and along railroads			anticipated, per the agency responses	
Umbrella magnolia[3]	*Magnolia tripetala*	Mesic shaded ravines and coves	P	No	No; Known habitat types are not present within the Project area	-
Feather-bells[3]	*Stenanthium gramineum*	Moist rocky woods, rich wooded slopes; most frequent on acid soils	P	No	No; Known habitat types are not present within the Project area	-
Reptiles						
Timber rattlesnake[2,3,4]	*Crotalus horridus*	Wooded areas, sunlit gaps in the canopy for basking and deep rock crevices for as den sites for overwintering	E, FSC	Potentially	Unknown; **A habitat suitability survey will be conducted, as requested by the ODNR-DOW and USFWS**	-
Kirtland's snake[2]	*Clonophis kirtlandii*	Wet meadows and other wetlands	T	Yes	No; Per the ODNR response, this Project is not likely to impact this species	-

Notes:

1 E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; FSC = federal species of concern; FE = federal endangered; FT = federal threatened; FSC = federal species of concern.

2 State-listed species included in the ODNR response letter, dated August 22, 2017.

3 ODNR, Natural Heritage Database review results indicate a record of this species has been identified within a one-mile radius of the Project area.

4 Federally-listed species included in the USFWS response email, dated May 31, 2017.

(b) Commercial Species

The commercially important species along the proposed routes consist of those hunted or trapped for fur or other by-products, including the following species. This information was obtained from ODNR-DOW Species Guide Index (ODNR-DOW, 2017).

Beaver (*Castor canadensis*): Beavers occur in forested ponds, lakes, and rivers. In rivers, beavers make burrows with an underwater entrance in the riverbank. However, in streams, lakes and ponds, beavers usually build dams that incorporate a lodge. Based on the habitat present along the routes, beavers may inhabit Little Salt Creek along the Preferred and Alternate Route.

Coyote (*Canis latrans*): Historically, coyotes prefer open territory, but in Ohio, they have adapted to various habitat types. Coyotes are a very adaptable species that has prospered despite the expanding presence of human impact. This species is likely found near or within the Project area, but was not observed during field investigations.

Gray Fox (*Urocyon cinereogentus*): The gray fox prefers wooded areas and partially open brush land with little human presence. Based on habitat present along the routes, this species is likely found near or within the Project, but was not observed during field investigations. However, they are nocturnal animals.

Long-tailed weasel (*Mustela frenata*): The long-tailed weasel is an adaptable animal that can be found in terrestrial habitats near water. Based on habitat present along the routes, this species is likely found near or within the Project, but was not observed during field investigations. However, they are generally nocturnal animals.

Mink (*Mustela vison*): Mink are usually found near water, both running and standing. Minks prefer wooded or brushy areas. Based on habitat present along the routes, this species is likely found near or within the Project, but was not observed during field investigations.

Muskrat (*Ondatra zibethicus*): The muskrat is a large freshwater rodent. This species was not observed during the field investigations and is not likely to inhabit any areas along the Preferred and Alternate Route.

Raccoon (*Procyon lotor*): The raccoon is widespread in Ohio, even in many suburban and urban areas. Raccoons prefer wooded areas with water nearby. This nocturnal species was not observed during the field investigations, but it is likely present throughout the Project area.

Red fox (*Vulpes vulpes*): The red fox inhabits a wide range of habitats. This species was not observed during field surveys, but is likely present throughout the Project area.

River otter (*Lontra canadensis*): River otters live in aquatic habitats such as rivers, lakes, and marshes. They prefer tributaries of large, clean drainages where there is minimal human disturbance. This species was not observed during field surveys, but may be present throughout the Project area.

Striped skunk (*Mephitis mephitis*): The skunk is an adaptable animal that occupies both rural and suburban areas. Their dens may be located under buildings, in open fields, on hillsides, or under logs in the woods, which may have been self-created or formerly used by other animals. This primarily nocturnal species was not observed during the field investigations, but it likely exists along the Preferred and Alternate Routes.

Virginia opossum (*Didelphis virginiana*): This marsupial's preferred habitat is an area interspersed with woods, wetlands, and farmland; however, they are an adaptable animal that can also be found in urban and suburban areas. This species was not observed during the field investigations, but it likely exists along the Preferred and Alternate Routes.

(c) Recreational Species

Recreational terrestrial species consist of those hunted as game. Recreational species expected to inhabit areas along the ROW include the following. This information was obtained from ODNR-DOW Species Guide Index (ODNR-DOW, 2017).

(i) Fowl

American Crow (*Corvus brachyrhynchos*): The American Crow is found in all Ohio counties. They prefer habitats with open fields and trees. American Crows were observed during the field investigations along the majority of the Preferred and Alternate Routes.

American Woodcock (*Scolopax minor*): Woodcock prefer open, interspersed, early successional habitats with moist loam soils, which provide earthworms. The largest populations occur in northeast, north-central, and central regions of Ohio. This species was not observed during field surveys, but may occur within the Project area.

American Coot (*Fulica americana*): Coots inhabit the shallows of freshwater lakes, ponds, or marshes. It is unlikely that this species would exist along the proposed routes based on the absence of large waterbodies. This species was not observed during surveys.

Goose: Several goose species can be found in Ohio, although typically during migration: Snow Goose (*Anser caerulescens*), Greater White-fronted Goose (*Anser albifrons*), Cackling Goose (*Branta hutchinsii*), and Brant (*Branta bernicla*). The Canada Goose (*Branta canadensis*) is commonly found throughout Ohio, both as residents and migrants. Habitat for Canada Goose was observed along the routes and Canada Goose were the only wild goose species observed during field surveys.

Mourning Dove (*Zenaida macroura*): Mourning Doves are found near rural and suburban residences, nesting in shrubs and trees. They are also frequent in rural farmlands nesting in fencerows and edge habitats. Habitat for this species is present throughout the routes. This species was observed frequently during field surveys.

Mergansers: Several merganser species can be found in Ohio, such as the Common Merganser (*Mergus merganser*), Red-breasted Merganser (*Mergus serrator*), and Hooded Merganser

(*Lophodytes cucullatus*). Habitat for these species is not likely present within the Project area due to the absence of large waterbodies. This species was not observed during field surveys.

Northern Bobwhite (*Colinus virginianus*): The Northern Bobwhite is a forest edge species. This species could exist in select locations along the routes; however, it was not observed during field surveys.

Ring-necked Pheasant (*Phasianus colchicus*): This species can be found primarily along agricultural edges. Pheasants succeed where farming is intensive if there is adequate undisturbed cover for nesting, and sufficient food and cover during winter. This species likely inhabits select locations along the routes; however, no pheasants were observed during field surveys.

Ruffed Grouse (*Bonasa umbellus*): Grouse habitat includes mixed hardwood shrub and forest stands. Although the Ruffed Grouse was not observed during field surveys, there are select locations along the proposed routes that contain appropriate habitat.

Teal: Several teal species could be found in Ohio including Cinnamon Teal (*Anas cyanoptera*), Green-winged Teal (*Anas crecca*), and Blue-winged Teal (*Anas discors*). They are usually birds of fresh, shallow marshes and rivers instead of large lakes and bays. These species may occur within the larger perennial streams crossed by and adjacent to the Project routes.

Various duck species: Various duck species can be found in Ohio, most of which are present only during migration. The American Black Duck (*Anas rubripes*), Redhead (*Aythya americana*), Greater Scaup (*Aythya marila*), Lesser Scaup (*Aythya affinis*), Canvasback (*Aythya valisineria*), and Northern Pintail (*Anas acuta*) are usually only found in Ohio during migration and could be found near the proposed routes at that time. The Mallard (*Anas platyrhynchos*) and Wood Duck (*Aix sponsa*) are two duck species that regularly reside and migrate through Ohio and may occur within the Project area.

- Mallard: Most mallards occupy extensive wetlands; however, they are very adaptable. Mallards can be found inhabiting small farm ponds, ditches with flowing water, streams, lakes, and ponds in urban areas. Habitat for this species does exist throughout the Project area. This species was not observed during field surveys.

- Wood Duck: The Wood Duck prefers mature riparian corridors, quiet backwaters of lakes, ponds bordered by large trees, and secluded wooded swamps. Habitat for this species may be present in select locations along the routes. This species was not observed during field surveys.

Wild Turkey (*Meleagris gallopavo*): Wild Turkeys are adaptable animals. Although they prefer mature forests, they can thrive in areas with as little as 15 percent forest cover. This species was not observed during the field surveys, but likely occurs along the Preferred and Alternate Routes.

(ii) Mammals

Eastern cottontail rabbit (*Sylvilagus floridanus*): This species is found in both rural and urban areas. They prefer open areas bordered by thickets or brush areas. This species prefers habitat found throughout the routes. While the species was not observed during the field surveys, its habitat is

present along the Preferred and Alternate Routes.

Gray, red, and fox squirrels (*Sciurus carolinensis, Tamiasurius hudsonicus,* and *Sciurus niger*, respectively): The fox squirrel is primarily an inhabitant of isolated woodlots 10 to 20 acres in size with a sparse understory. The eastern gray squirrel prefers more extensive woodland areas. The red squirrel prefers coniferous and mixed forests. Squirrels were observed during the field surveys along the Preferred and Alternate Routes.

White-tailed deer (*Odocoileus virginianus*): White-tailed deer are found in rural and suburban areas. Indirect evidence, although no sightings of this species, was observed during the field surveys along the Preferred and Alternate Routes.

Woodchuck (*Marmota monax*): Woodchucks live in open grasslands, pastures, and woodlands. This species was not observed during field surveys, but is likely present throughout the Preferred and Alternate Routes.

(iii) Game Fish

Based upon the hydrologic connectivity and the nature of the surface water habitats known to occur within the project area, diverse game fish species are anticipated to inhabit some of the streams that are crossed by the Routes. A list of game fish known to occur in Ohio was obtained from ODNR-DOW's Sport Fish of Ohio Identification Guide (ODNR-DOW, 2012). The list was narrowed to fish most likely to be found within the project area based on professional judgment and experience, and as such, the list of species presented in this section is not an exhaustive list of all species potentially present in the project area. The listed species are known to be regionally common and likely to occur on a case-by-case basis, within the surface water features proposed to be crossed or encroached. Neither aquatic species nor habitat surveys were completed as part of the field surveys.

Bluegill (*Lepomis macrochirus*): Bluegill are found throughout the state, preferring clear ponds and lakes with rooted vegetation. This species is not likely to occur in streams or PUB wetlands identified along the Preferred and Alternate Routes.

Bullhead Catfish (*Ameiurus* sp.): Bullhead catfish are common throughout the state. Brown bullheads prefer clean, clear water, while black bullheads can tolerate more turbid water. Yellow bullheads prefer areas with heavy vegetation. Bullhead catfish are not likely to be found within the Project area.

Common Carp (*Cyprinus carpio*): Carp can be found throughout the state, preferring turbid waters rich in organic matter. It is unlikely that common carp are present in streams along the Preferred and Alternate Routes.

Channel Catfish (*Ictalurus punctatus*): Channel catfish are found throughout the state in large streams and lakes. Channel catfish prefer areas with deep water, clean gravel, and boulder substrates with low to moderate current. This species is not likely to occur in streams along the Preferred and Alternate Routes.

Flathead Catfish (*Pylodictis olivaris*): Flathead catfish are found in large rivers, a few inland lakes, and some reservoirs that are outside the Project area in Ohio. They prefer deep pools with slow current and cover. Flathead catfish are not likely to be found along the Preferred and Alternate Routes.

Freshwater Drum (*Aplodinotus grunniens*): This species can be found in large, shallow lakes and big rivers, typically in deeper pools. Freshwater drum are not likely to be found in the Project area.

Green Sunfish (*Lepomis cyanellus*): Green sunfish are present in most lakes and streams throughout the state and are tolerant of turbid water. They are regularly associated with some type of structure such as brush, vegetation, or rocks. This species is likely to occur in perennial streams along the Preferred and Alternate Routes.

Largemouth Bass (*Micropterus salmoides*): Largemouth bass are found in ponds, lakes, and slow sluggish streams throughout the state. This species is likely to be found in the Project area.

Longear Sunfish (*Lepomis megalotis*): Longear sunfish are found in streams and lakes throughout the state. They prefer sluggish, clear streams of moderate size with beds of aquatic vegetation. This species is likely to be found in the Project area.

Longnose Gar (*Lepisosteus osseus*): Longnose gar are a common Ohio fish. This species is not likely to occur in streams along the Preferred and Alternate Routes.

Rock Bass (*Ambloplites rupestris*): Rock bass are widespread throughout the state. They prefer clear streams with coarse gravel and boulders. This species is likely to be found in streams along the Preferred and Alternate Routes.

Smallmouth Bass (*Micropterus dolomieu*): Smallmouth bass are often abundant in quarries and thrive in streams with gravel or rock bottoms with a visible current. This species is likely to occur in streams along the Preferred and Alternate Routes.

Spotted Bass *(Micropterus punctulatus*): Spotted bass occur in low gradient streams in southern Ohio. Spotted bass are likely to be found in the Project area.

White Crappie (*Pomoxis annularis*): White crappie can be found in larger ponds, lakes, and rivers. White crappie can tolerate a wide variety of habitats and conditions. This species is regularly found near structures such as fallen trees, stumps, docks, rocks, and aquatic vegetation. This species is not likely to occur in streams along the Preferred and Alternate Routes.

(2) Construction Impacts on Identified Species

Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated, but habitat assessments for running buffalo clover, mud salamander, and timber rattlesnake are pending completion. During the ODNR survey completed for Bartley's reed grass, a population of Flattened sedge *(Carex complanata)* was identified but will not be impacted by the Project. AEP Ohio Transco will conduct winter tree

clearing, and no in-water work in perennial streams from April 15 through June 30 is proposed to reduce impacts to indigenous aquatic species and their habitat. In-water work is not anticipated in a waterbody that would require a mussel survey for the little spectaclecase, therefore no impacts to this species are anticipated to occur as a result of the Project. AEP Ohio Transco will coordinate with USFWS and ODNR regarding specific construction requirements, if required by these agencies. The construction impact on other specific identified species (recreational and commercial) is expected to be minor because equivalent habitat that would be impacted during construction exists immediately adjacent to the construction ROW, and the identified species are mobile.

(3) Operation and Maintenance Impacts on Identified Species

Minimal impacts are anticipated to protected wildlife during operation and maintenance of the transmission line. Clearing of secondary growth vegetation will be required along most of the Preferred Route ROW and additional supplemental ROW along the Alternate Route; however, approximately 25 feet of existing ROW along the Alternate Route will be allowed to return to an early successional vegetative community. Operational activities and periodic maintenance of the ROW are not anticipated to impact wildlife significantly because of the minimal permanent ground disturbance and available adjacent habitat available.

(4) Mitigation Procedures

If areas are identified during the informal consultation process with USFWS and ODNR that are of special concern, AEP Ohio Transco will coordinate with these agencies to develop appropriate mitigation measures. The mitigation measure will be implemented if the area of special concern is located within the route approved by the OPSB.

(D) Site Geology

(1) Site Geology

Both routes are located within the Ironton Plateau physiographic province (ODNR, 1998). The Ironton Plateau region is characterized by elevations between 515 – 1,016 feet above mean sea level. It is a dissected plateau with moderately high relief (300 feet).

For the Ironton Plateau, the region consists of common Pennsylvanian-age bedrock. The region along the proposed route contains fragipan both paralithic and lithic bedrocks with a typical minimum depth of contact between 20 - 40 inches. Typical maximum depth of contact with bedrock is between 84 – 120 inches. In regions where fragipan may exist, a minimum depth of bedrock contact may be as low as 14 inches.

Along both routes, the subsurface soils in the Ironton Plateau region mostly consists of cycles of Pennsylvanian-aged cycles of sandstone, siltstones, shale and coal-bearing rock sequences. Minford Clay, silt-loam, and channery colluvium also exist in the region (USGS, 2005; USGS, 2018). Soils are typically of the natural drainage class ‘Moderately well drained or better’, although some soil types

may experience somewhat or very poor drainage. Nearly a third of the soils in this region are silt loam type (Lathma-Wharton, Omulga, Pope, Stendal, Tilsit, and Warton) with slopes up to 25 percent.

Its regions consist of clay-filled Teays Valley remnants. Silts and clays are deposited in lakebeds and the ice margin. Floodplains of modern streams may contain fine sand (Great Lakes Geological Mapping Coalition, 2017). Teays Valley remnants are often filled with common lacustrine clay.

The water table along the proposed route varies from a maximum depth of 80+ inches to a minimum of 0 inches. The typical static water level is between a minimum depth of 16 to 36 inches and a maximum depth of over 80 inches. However, a few locations along the proposed route may encounter a high water table according to the Web Soil Surveys of Jackson County (Shaw, 1985), OH.

(2) Slopes and Foundation Soil Suitability

Slopes exceeding 12 percent, obtained from the NRCS, are identified on Figure 8-1. Approximately 85 percent of the area within 1,000 feet of the Preferred Route occurs where slopes exceed 12 percent. Similarly, slopes exceeding 12 percent occur within approximately 85 percent of the area within 1,000 feet of the Alternate Route. During construction, AEP Ohio Transco will implement a SWPPP and associated BMPs as necessary to control erosion and sedimentation in areas with slopes exceeding 12 percent. Once construction is complete, soils will be revegetated and stabilized. As a result, no erosional impacts resulting from slopes exceeding 12 percent are expected.

The bedrock geologies and overlaying soils present along both routes are generally expected to be suitable for foundation construction. To obtain further site-specific details on the suitability of the soils for foundation construction, AEP Ohio Transco will conduct detailed engineering design and geotechnical soil borings. Engineering design and geotechnical test drilling will likely be completed soon after the Project is certificated by OPSB and engineering plans and boring logs will be provided to the OPSB staff shortly thereafter.

At a minimum, geotechnical soil borings will provide the following information to be utilized for structure placement and foundation design engineering as needed:

(1) Subsurface Soil Properties

(2) Static Water Level

(3) Rock Quality Description

(4) Percent Recovery

(5) Depth and Description of Bedrock Contact

AEP Ohio Transco anticipates that foundations will only be required at some angle structures that will be ultimately determined during the engineering design. When required, foundations will be engineered based on the results of geotechnical soil boring and laboratory test results to ensure they

are sited in locations considered suitable based on soil and rock properties and surface slope.

(E) Environmental and Aviation Regulation Compliance

(1) Licenses, Permits, and Authorizations Required for the Facility

AEP Ohio Transco anticipates submitting a Notice of Intent for coverage under the OEPA General National Pollutant Discharge Elimination System ("NPDES") Permit. Coverage under USACE's Nationwide Permit 12 for wetland and waterbody impacts associated with Utility Line Activities may be required, but will be determined once the construction plan is finalized and impacts to waters can be determined. It is also anticipated that multiple road crossing permits will be required.

(2) Construction Debris

The site will be kept clean of debris resulting from the work. Debris associated with construction of the proposed transmission line will likely include conductor scrap, construction material packaging including cartons, insulator crates, conductor reels and wrapping, and used stormwater erosion control materials. Clearance poles, conductor reels and other materials with salvage value will be removed from the construction area for reuse or salvage. Construction debris will be disposed of in accordance with state and federal requirements in an OEPA-approved landfill or other appropriately licensed and operated facility. Where vegetation must be cleared, the resulting brush will be removed or windrowed along the edge of the ROW or as requested by individual property owners. Marketable timber will generally be cut into appropriate lengths for sale or disposition by the landowner.

(3) Stormwater and Erosion Control

A SWPPP will be prepared, BMPs implemented to minimize soil erosion and sedimentation and other pollutant discharges, and these will be made available onsite during Project construction. The SWPPP will include the following General Conditions, at a minimum:

<u>Erosion and Sediment Controls</u>

Implementation of erosion and sediment control practices will be based on the methods and standards described in the ODNR Rainwater and Land Development Manual (ODNR, 2014); and the OEPA NPDES Permit Program for the discharge of stormwater from construction sites.

Wetlands, streams, and other environmentally sensitive areas will be clearly marked before the start of clearing or construction. No construction or access will be permitted in these areas unless clearly specified in the SWPPP.

No permanent impacts to streams or headwaters are anticipated. No poles are anticipated to be located in streams and no permanent stream crossings are anticipated. Streams, including beds and banks, if disturbed during construction, will be re-stabilized immediately after in-channel work is completed.

Grubbing activities are not anticipated. Sediment basins, traps, and perimeter sediment controls will be implemented within seven days of grubbing activities. Sediment controls will continue to function until disturbed areas are permanently stabilized.

Silt Fence: Silt fencing or other appropriate BMPs for erosion control will be installed as needed before ground-disturbing work begins. Silt fence will be installed according to the methods recommended in the Rainwater and Land Development Manual (ODNR, 2014) before upslope land disturbance begins. In general, silt fence will be used where there is the possibility that sheet flow will carry sediment-laden water into downstream creeks or wetlands. Other methods will be used where flow in ditches, channels or gullies is anticipated. The following installation guidelines will be followed:

- Silt fence will be installed before upslope land disturbance begins;
- All silt fence will be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length;
- Ends of the silt fence will be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends;
- Silt fence will be placed on the flattest area available;
- Where possible, vegetation will be preserved for five feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it will be reestablished within seven days from the installation of the silt fence;
- The height of the silt fence will be a minimum of 16 inches above the original ground surface;
- The silt fence will be placed in an excavated or sliced trench cut a minimum of six inches deep. The trench will be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth;
- The silt fence will be placed with the stakes on the downslope side of the geotextile. A minimum of eight inches of geotextile will be below the ground surface. Excess material will lay on the bottom of the 6-inch deep trench. The trench will be backfilled and compacted on both sides of the fabric; and,
- Seams between sections of silt fence will be spliced together only at a support post with a minimum 6-inch overlap prior to driving into the ground.

Soil Stabilization: Disturbed areas that remain unworked for more than 21 days will be stabilized with seed and mulch no later than 14 days after the last construction in that area.

Maintenance and Inspection: Erosion and sediment control practices will be inspected at least once every seven days and within 24 hours after any storm event greater than 0.5-inch of rain per 24-hour period.

AEP Ohio Transco will maintain erosion control measures in good working order. If a repair is necessary, it will be initiated within 24 hours of report. Silt fencing will be inspected for depth of sediment, for tears, for assurance fabric is securely attached to the fence posts, and to ensure that the fence posts are firmly in the ground. Seeded areas will be inspected for evidence of bare spots or washouts. Permanent records of the maintenance and inspection will be maintained throughout the construction period. Records will include, at a minimum, the name of the inspector, major observations, date of inspection, certification of compliance, and corrective measures taken.

(4) Disposition of Contaminated Soil and Hazardous Materials

All materials stored onsite will be kept in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure. Products will be kept in their original containers with the original manufacturer's label. Manufacturer's recommendations for proper use and disposal will be followed. Material Safety Data Sheets ("MSDS") or Safety Data Sheets will be retained and available onsite at all times.

The following general conditions will also be included in the SWPPP to address disposition of contaminated soil and hazardous materials generated or encountered during construction:

Spill Prevention

The following spill prevention methods and procedures are proposed:

- All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, which are clearly labeled;
- Secondary containment will be provided for all onsite fuel storage tanks required during construction;
- All sanitary waste will be collected in portable units and emptied regularly by a licensed sanitary waste management contractor, as required by local regulations;
- All spills will be cleaned up immediately after discovery. Manufacturer's recommended methods for spill cleanup will be followed. Materials and equipment necessary for spill cleanup will be kept in a designated storage area onsite;
- Spills will be reported to the appropriate government agency as required; and,

- Suspected hazardous materials encountered during construction will be reported to the regional environmental coordinator by the transmission construction representative. In addition, the Project manager will be notified.

The Project requires a Spill Prevention Plan to be created and available for review onsite. This Spill Prevention Plan will cover proper handling techniques for all electrical equipment, materials and construction equipment that require a MSDS. AEP Ohio Transco also requires its employees and contractors to follow all federal and state-mandated material-handling requirements.

AEP Transmission follows an internal Spill Prevention Notification Plan that is closely aligned to AEP Ohio Transco's Spill Response and Cleanup – Field Guide. This Spill Response and Cleanup – Field Guide covers the following procedures:

- Oil/Polychlorinated Biphenyl ("PCB") Spill Response and Cleanup Procedure;
- When to Report an Oil/PCB Spill to the Region Environmental Coordinator;
- Hazardous Substance Spill Response Procedure; and,
- Region Environmental Coordinator Contact List.

This field guide outlines spill response and cleanup procedures as well as the reporting that is required. The Spill Response and Cleanup – Field Guide will be available upon request.

(5) Maximum Height of Aboveground Structures

The height of the tallest anticipated aboveground structure and construction equipment is designed to be approximately 100 feet. The nearest airport, Baisden Airport, is located approximately 1.6 miles northeast of the southern terminus of the Project.

The Federal Aviation Administration ("FAA") Form 7460-1, "Notice of Proposed Construction or Alteration," is used for FAA notification. This can be filed electronically or by standard U.S. mail. A 7.5-minute quadrangle topographic map showing the proposed construction must be attached to the completed Form 7460-1. The Form 7460-1 must be submitted 45 days prior to the proposed start of construction.

Additionally, a permit from the ODOT, Office of Aviation, must be obtained prior to the start of any construction on or near airports in Ohio that are open to the public. A duplicate of the federal filing fulfills the state permit application requirements as set forth in O.A.C. 5501:1-10-06.

(a) Filing Criteria

The FAA Form 7460-1 must be filed for any construction or alteration of more than 200 feet in height. Additionally, any construction or alteration extending outward and upward in excess of specific slope angles in reference to aircraft take-off or landings on airport runways may require filing with the FAA.

Upon completion of the final design, AEP Ohio Transco will review the need for any permitting with the FAA and will follow recommendations made by the FAA.

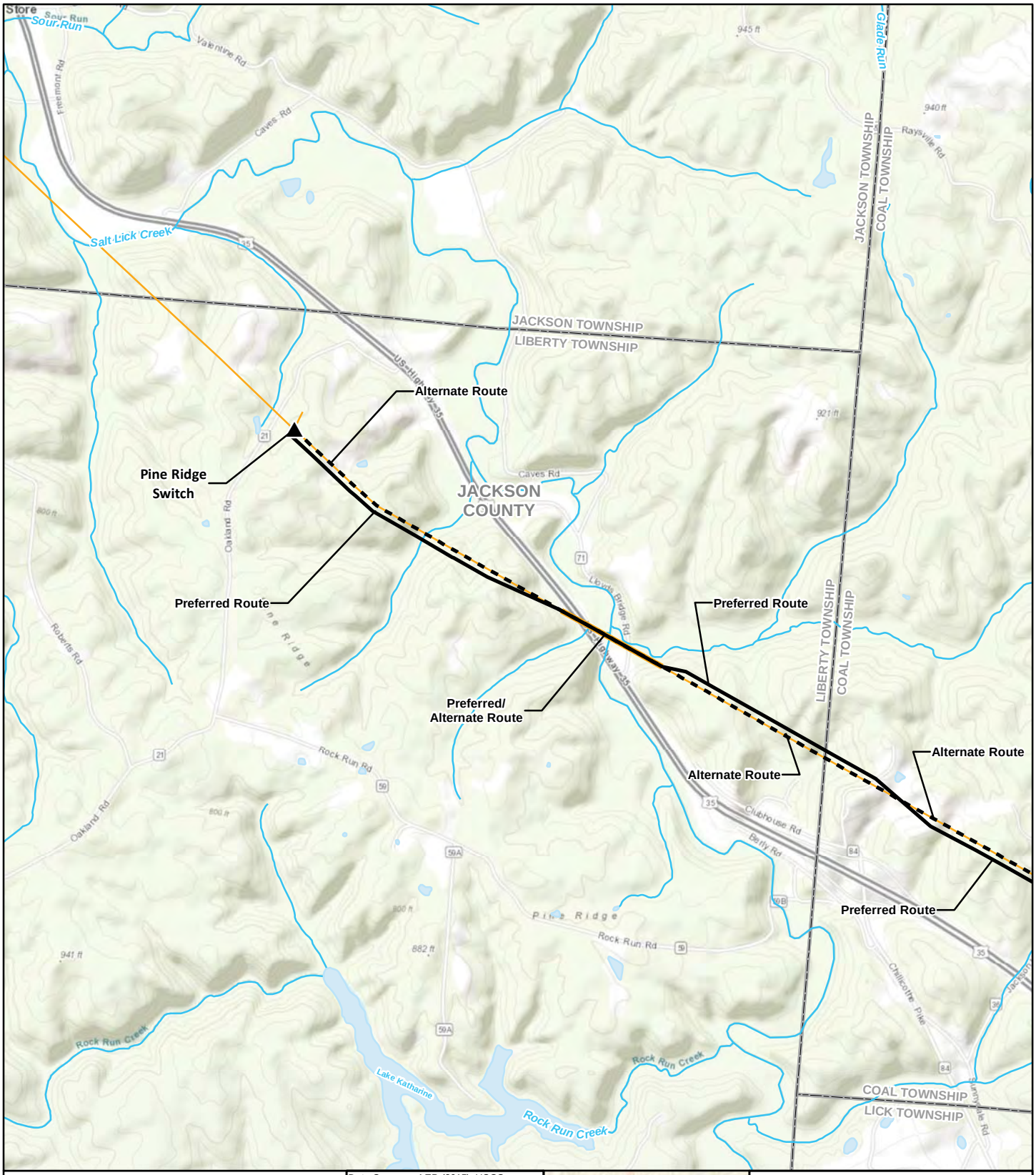
(6) Dusty or Muddy Conditions Plan

(a) Dust Control

The site and surrounding areas will be kept free from dust nuisance resulting from site activities. During excessively dry periods of active construction, dust suppression will be implemented where necessary through irrigation, mulching, or application of tackifier resins.

(b) Excessive Muddy Soil Conditions

Construction entrances will be established and maintained to a condition that will prevent tracking or flowing of sediment onto public ROW. Accumulated sediment spilled, dropped, washed, or tracked onto public ROWs will be removed as soon as practical.



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

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

NAD 1983 State Plane Ohio South Feet

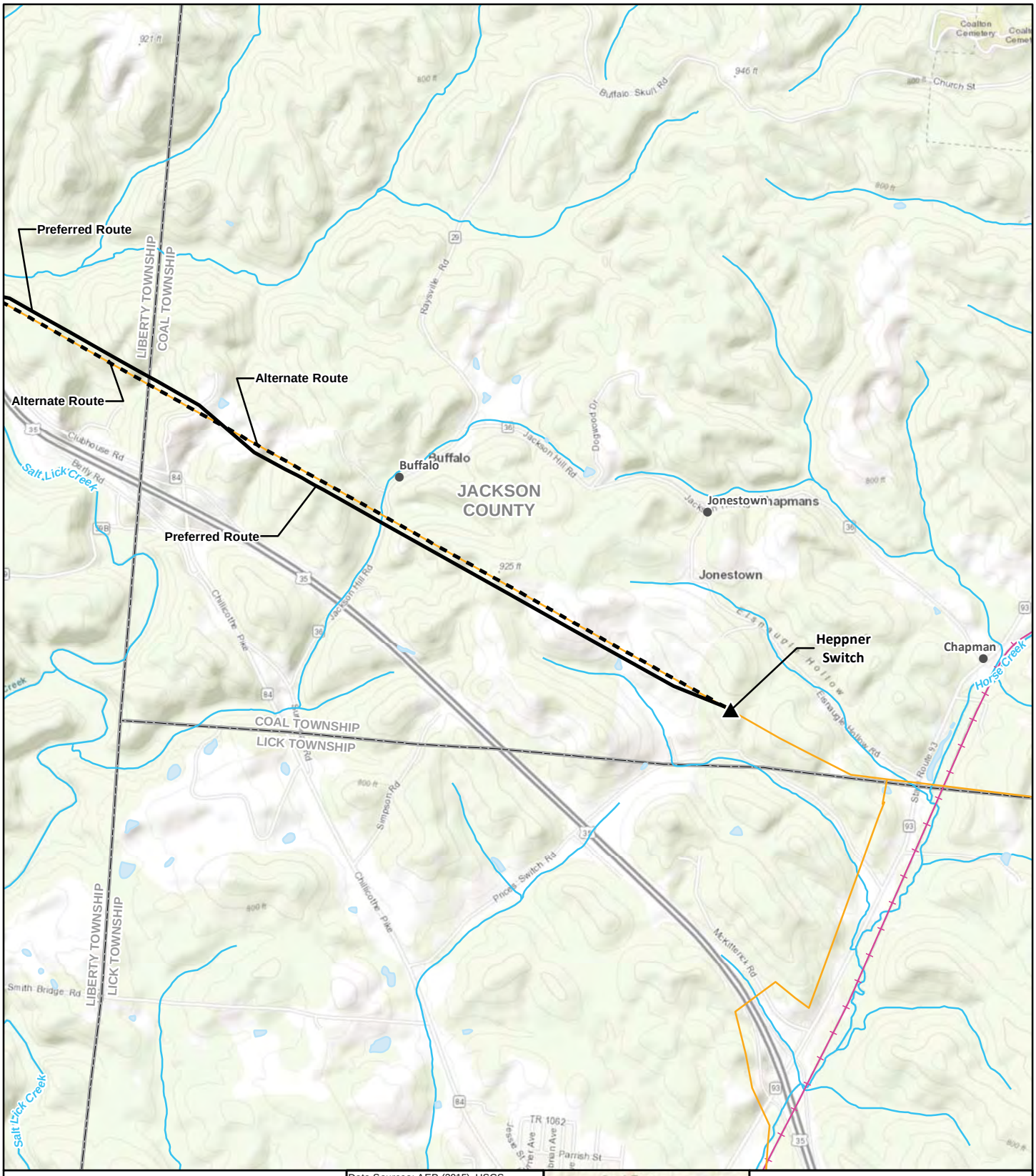
March 27, 2018

Figure 2-1A
Project Overview

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 500 1000 1500 2000
Feet



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

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

NAD 1983 State Plane Ohio South Feet

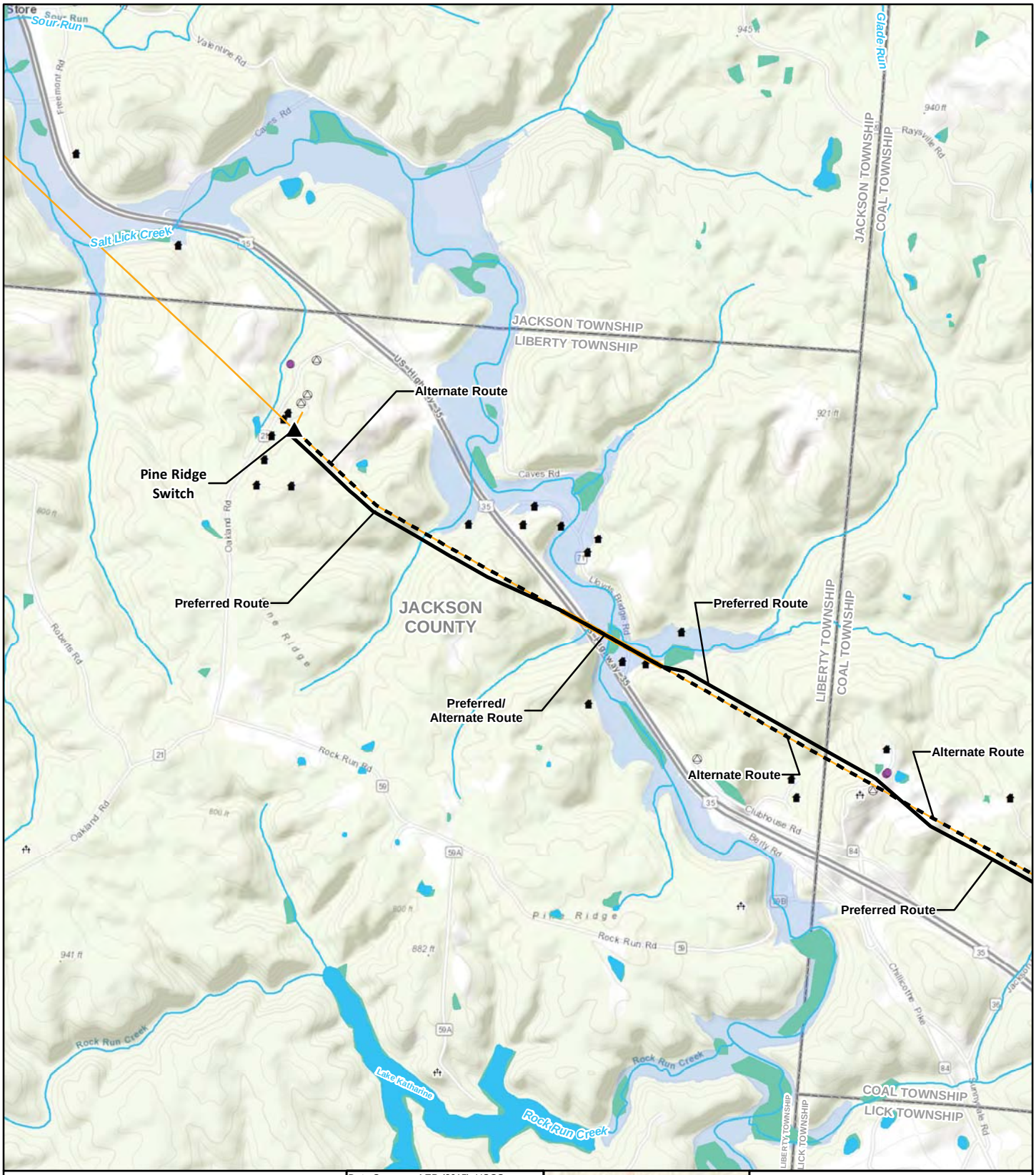
March 27, 2018

Figure 2-1B
Project Overview

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 500 1000 1500 2000
Feet



Substation
Preferred Route
Alternate Route
Cemetery
Residence
Commercial Building
Historic Structure
Existing 69kV Transmission Line
Stream or River
Waterbody
NWI Wetland
100-Year Floodplain
Administrative Boundary

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

NAD 1983 State Plane Ohio South Feet

March 27, 2018

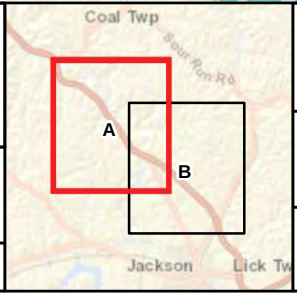


Figure 4-1A
Constraint Map

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 500 1000 1500 2000
Feet

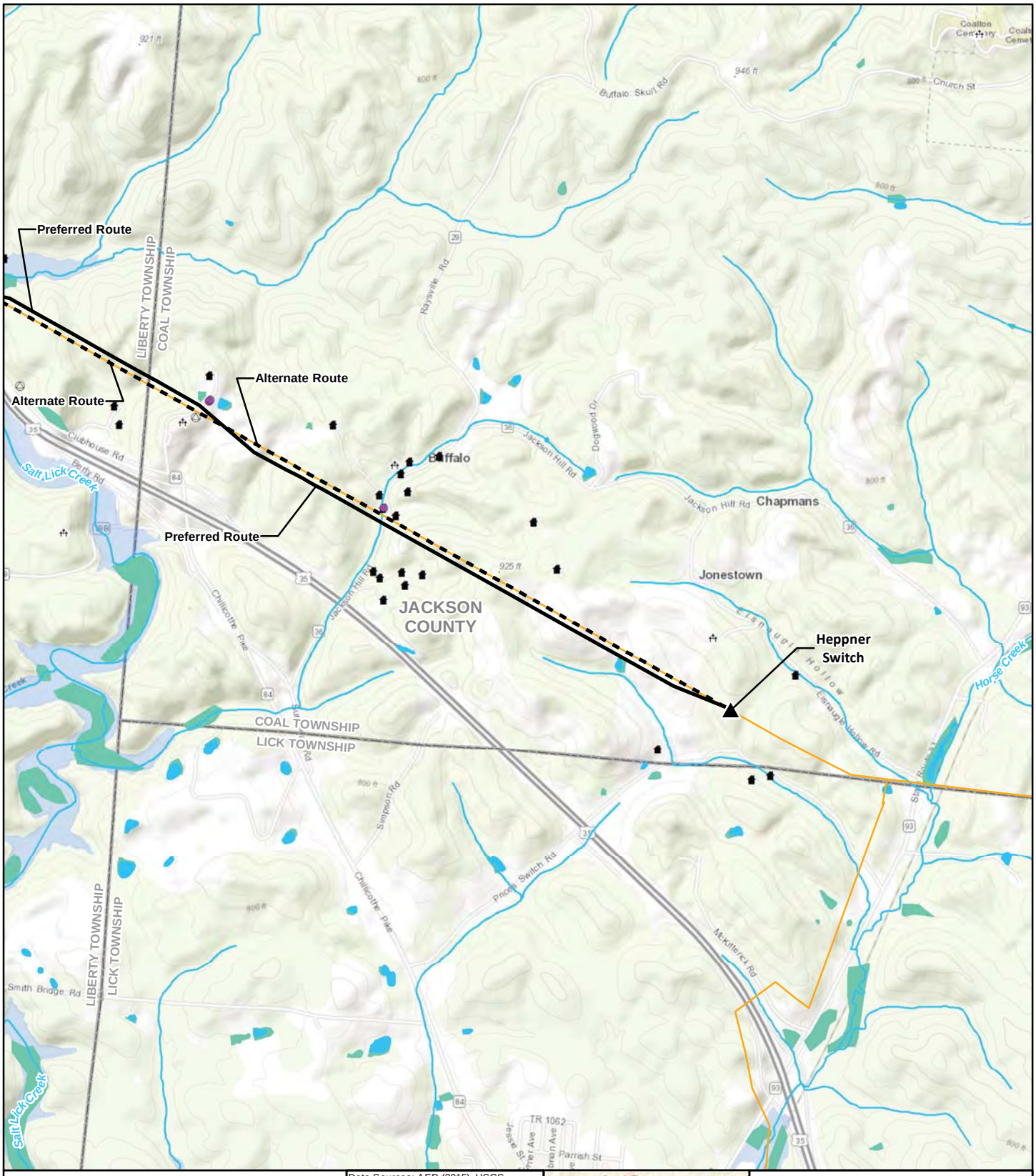


Figure 4-1B
Constraint Map

Pine Ridge Switch to Heppner 138kV Transmission Line Project

REF. DRAWINGS

ITEM	QTY.	ASSEMBLY	DESCRIPTION	
1	1	74E0-1272	ALL HEAVY SUSPENSION CROSSARM 40 FT - CONCRETE OR STEEL H-FRAME - GALVANIZED	
2	3	11B6-2722	138KV SUSPENSION INSULATOR, POLYMER, 25K, W/CORONA RING	
3	2	30T0-1102	OHGW, SUSPENSION, CONCRETE, STEEL OR WOOD POLE	
4	2	21SE-1456	GROUND ROD FOR DIRECT EMBEDDED STEEL POLE	
5	2	71A0-1971	A449 1IN - HIGH STRENGTH DOUBLE ARMING BOLT, CONCRETE OR STEEL	

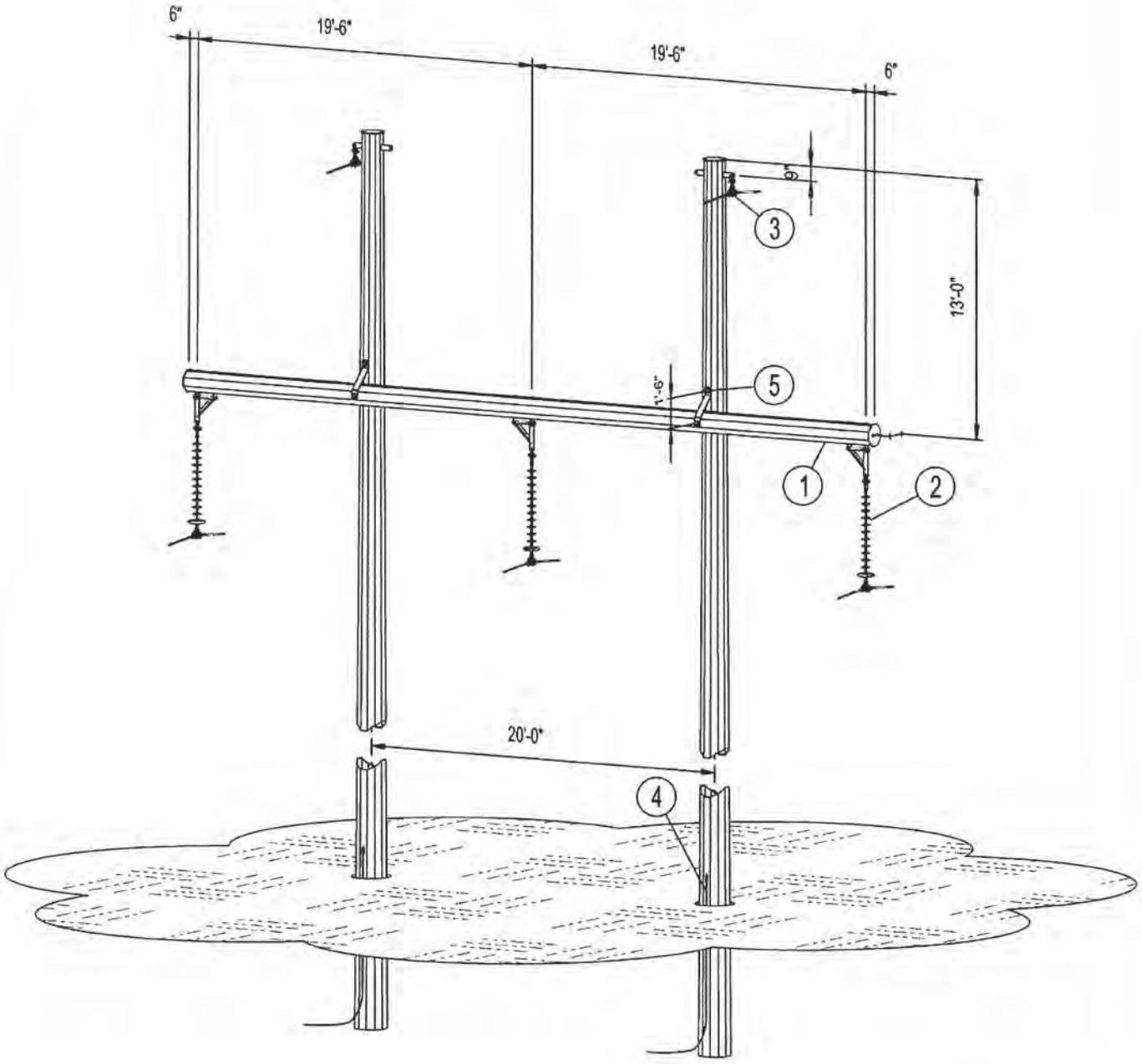


Figure 5-1

REV	DESCRIPTION	BY	DATE
1	REVISED BILL OF MATERIAL	McP	04/30/15

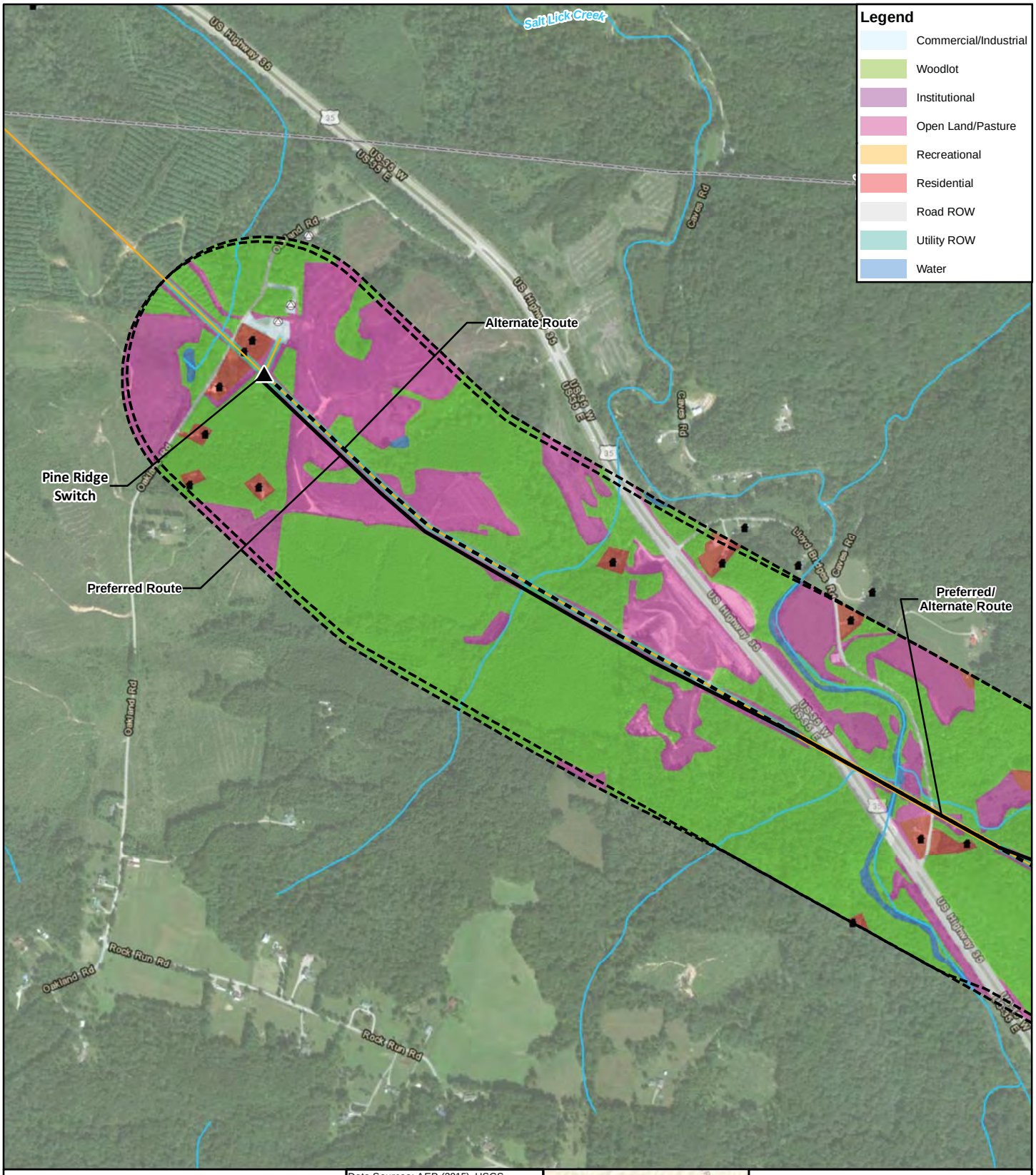
AEP AMERICAN ELECTRIC POWER

TRANSMISSION LINE STANDARDS

POLYMER - 138KV HEAVY SUSPENSION W/CORONA RING, H-FRAME, GALVANIZED STEEL

ENGR:	DRAWN: SAS	CHECKED: McP	APPROVED: JCN	DATE: 10/23/12

DRAWING No. CS45-2472 | SHEET No. 1 | REV. No. 1



Substation
Preferred Route
Alternate Route
1,000-Foot Buffer
Existing 69kV Transmission Line
Cemetery
Residence
Commercial Building
Stream or River
Administrative Boundary

Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH SHPO (2017), Jackson County Assessor (2017)

Notes: Agricultural District lands were reviewed but not present within the map area.

NAD 1983 State Plane Ohio South Feet

March 27, 2018

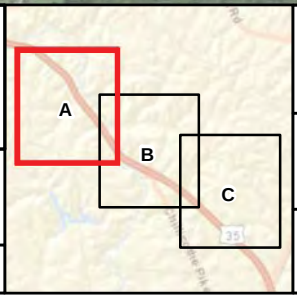
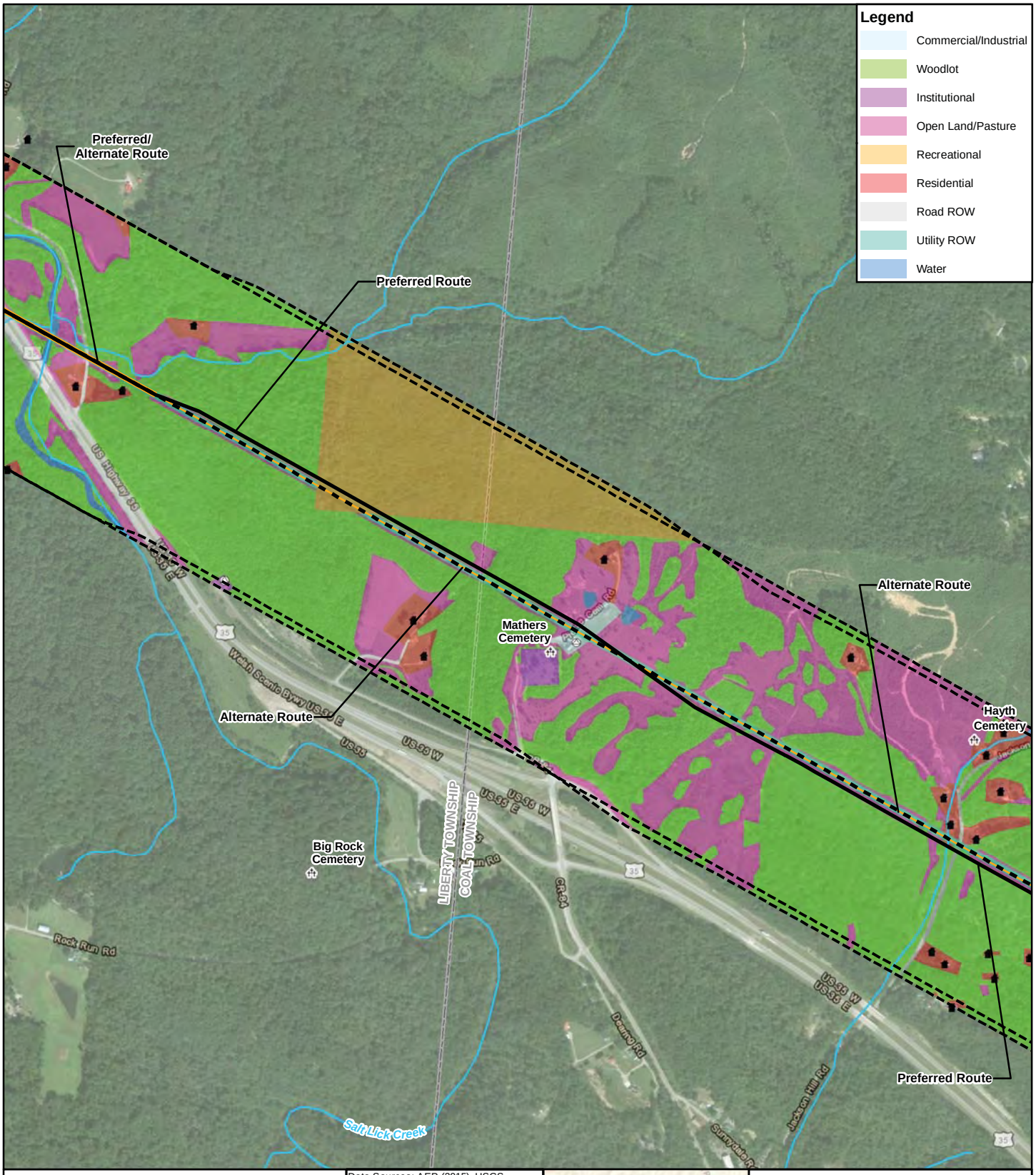


Figure 7-1A
Land Use

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 250 500 750 1000
Feet



Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH SHPO (2017), Jackson County Assessor (2017)

Notes: Agricultural District lands were reviewed but not present within the map area.

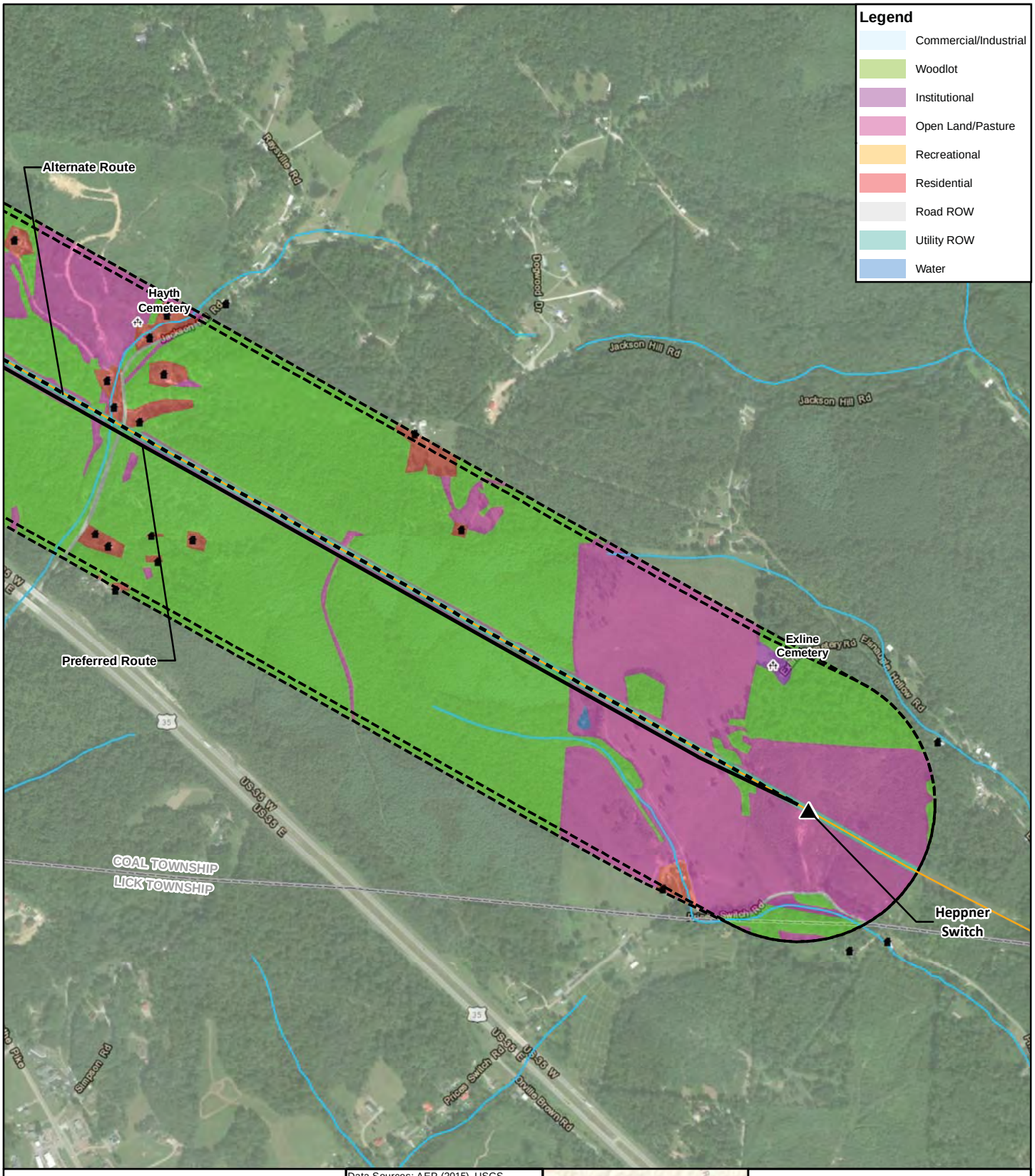
NAD 1983 State Plane
Ohio South Feet

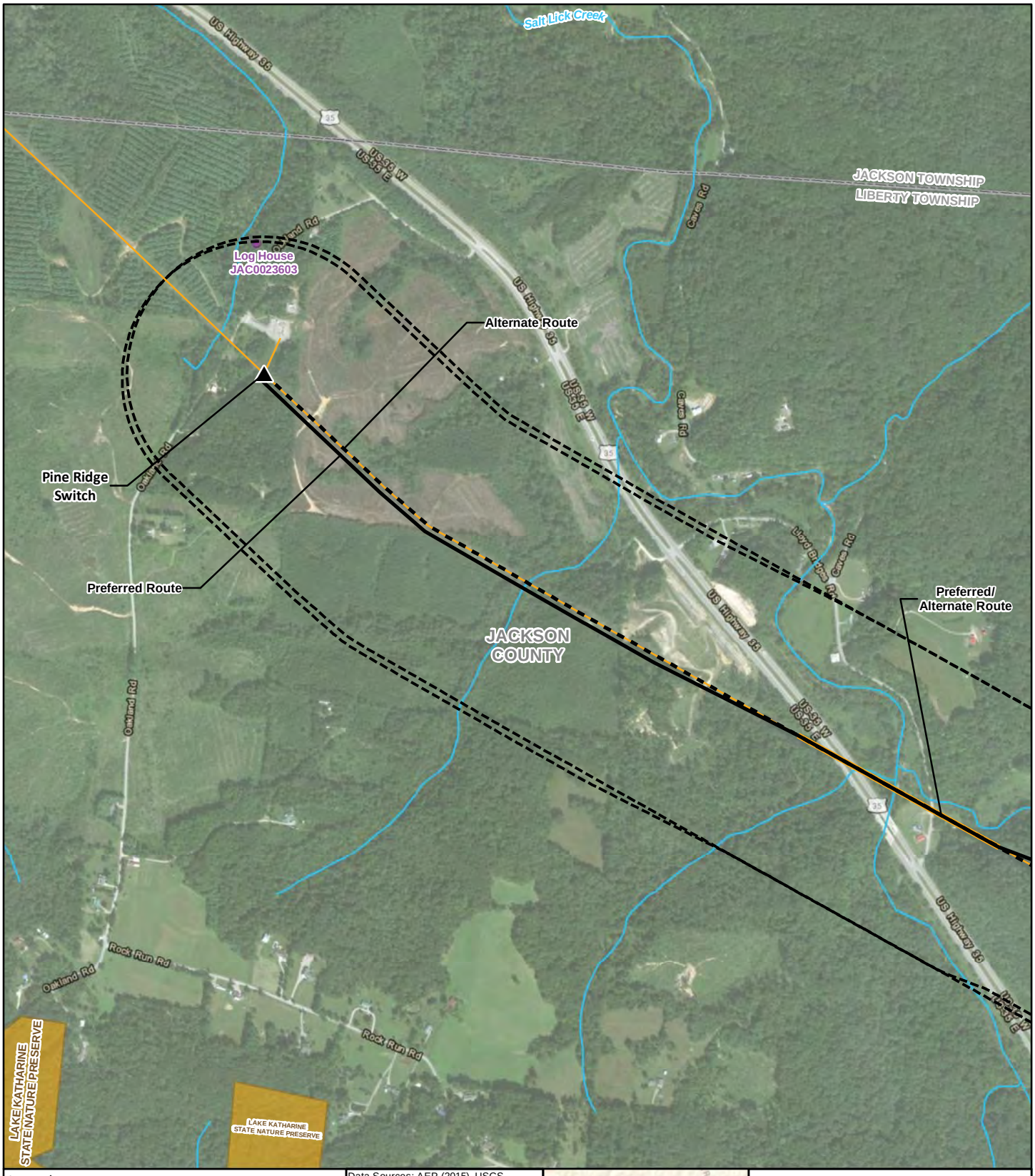
March 27, 2018

Figure 7-1B
Land Use

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner
138kV Transmission Line Project


Legend
Commercial/Industrial
Woodlot
Institutional
Open Land/Pasture
Recreational
Residential
Road ROW
Utility ROW
Water
Alternate Route
Hayth Cemetery
Preferred Route
Exline Cemetery
Heppner Switch
Jackson Hill Rd
Dogwood Dr
US 33 W
US 33 E
COAL TOWNSHIP
LICK TOWNSHIP
Price Switch Rd
Simpson Rd
Substation
Preferred Route
Alternate Route
1,000-Foot Buffer
Existing 69kV Transmission Line
Cemetery
Residence
Commercial Building
Stream or River
Administrative Boundary
Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH SHPO (2017), Jackson County Assessor (2017)
Notes: Agricultural District lands were reviewed but not present within the map area.
NAD 1983 State Plane Ohio South Feet
March 27, 2018
A
B
C
Figure 7-1C
Land Use
Pine Ridge Switch to Heppner
138kV Transmission Line Project
0 250 500 750 1000
Feet



Legend

- Substation
- Preferred Route
- Alternate Route
- 1,000-Foot Buffer
- Existing 69kV Transmission Line
- Historic Structure
- Cemetery
- Stream or River
- State Land
- Administrative Boundary

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

NAD 1983 State Plane Ohio South Feet

March 27, 2018

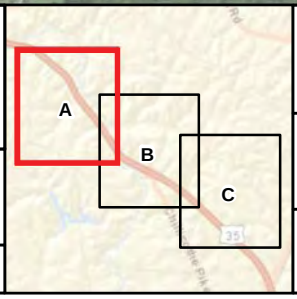


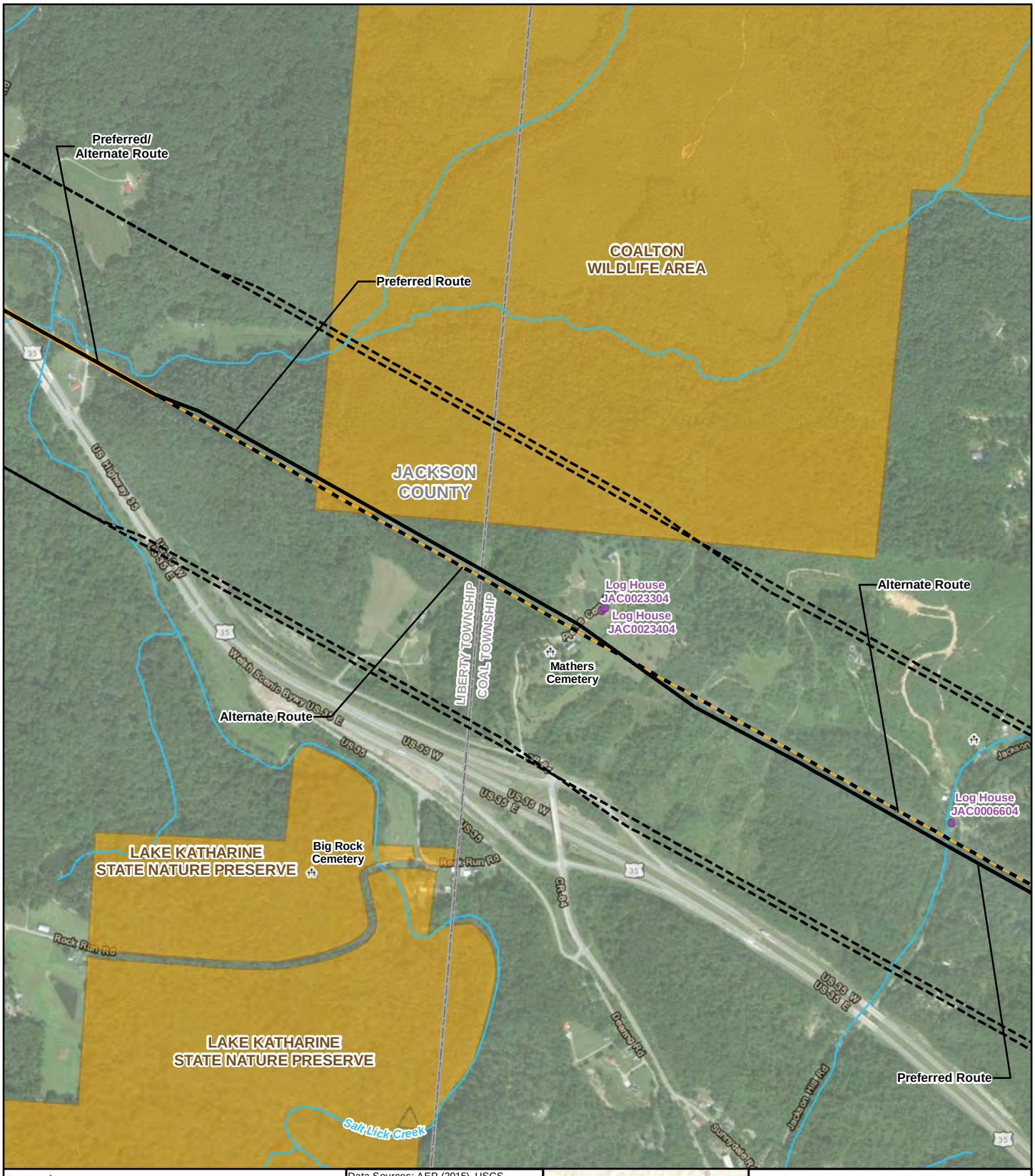
Figure 7-2A
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 250 500 750 1000

Feet



Legend

- Substation
- Preferred Route
- Alternate Route
- 1,000-Foot Buffer
- Existing 69kV Transmission Line
- Historic Structure
- Cemetery
- Stream or River
- State Land
- Administrative Boundary

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

NAD 1983 State Plane
Ohio South Feet

March 27, 2018

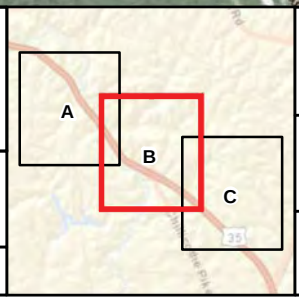
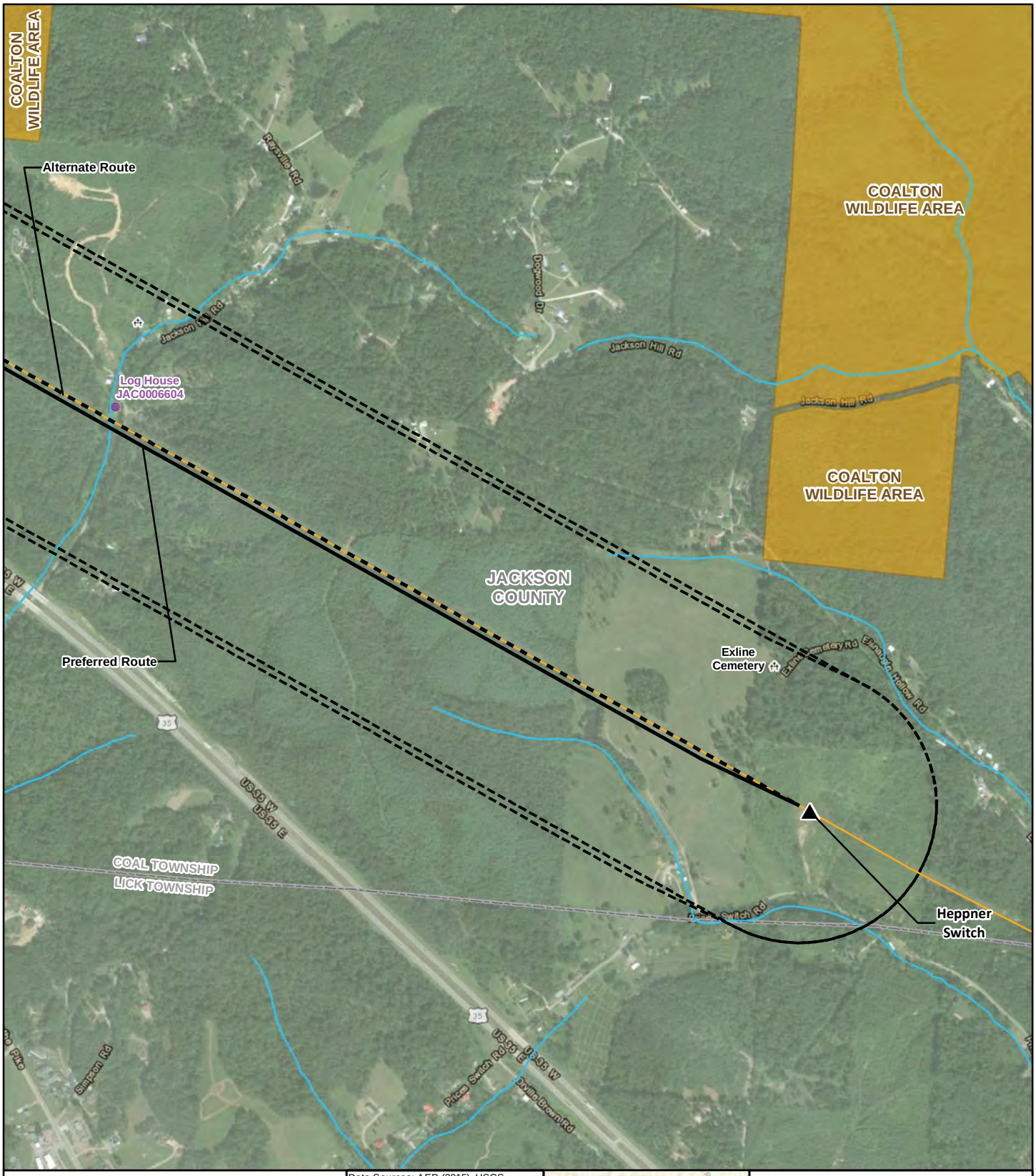


Figure 7-2B
Recreational and Cultural Resources

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 250 500 750 1000
Feet



Legend

- Substation
- Preferred Route
- Alternate Route
- 1,000-Foot Buffer
- Existing 69kV Transmission Line
- Historic Structure
- Cemetery
- Stream or River
- State Land
- Administrative Boundary

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

NAD 1983 State Plane Ohio South Feet

March 27, 2018

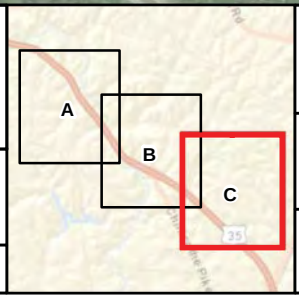


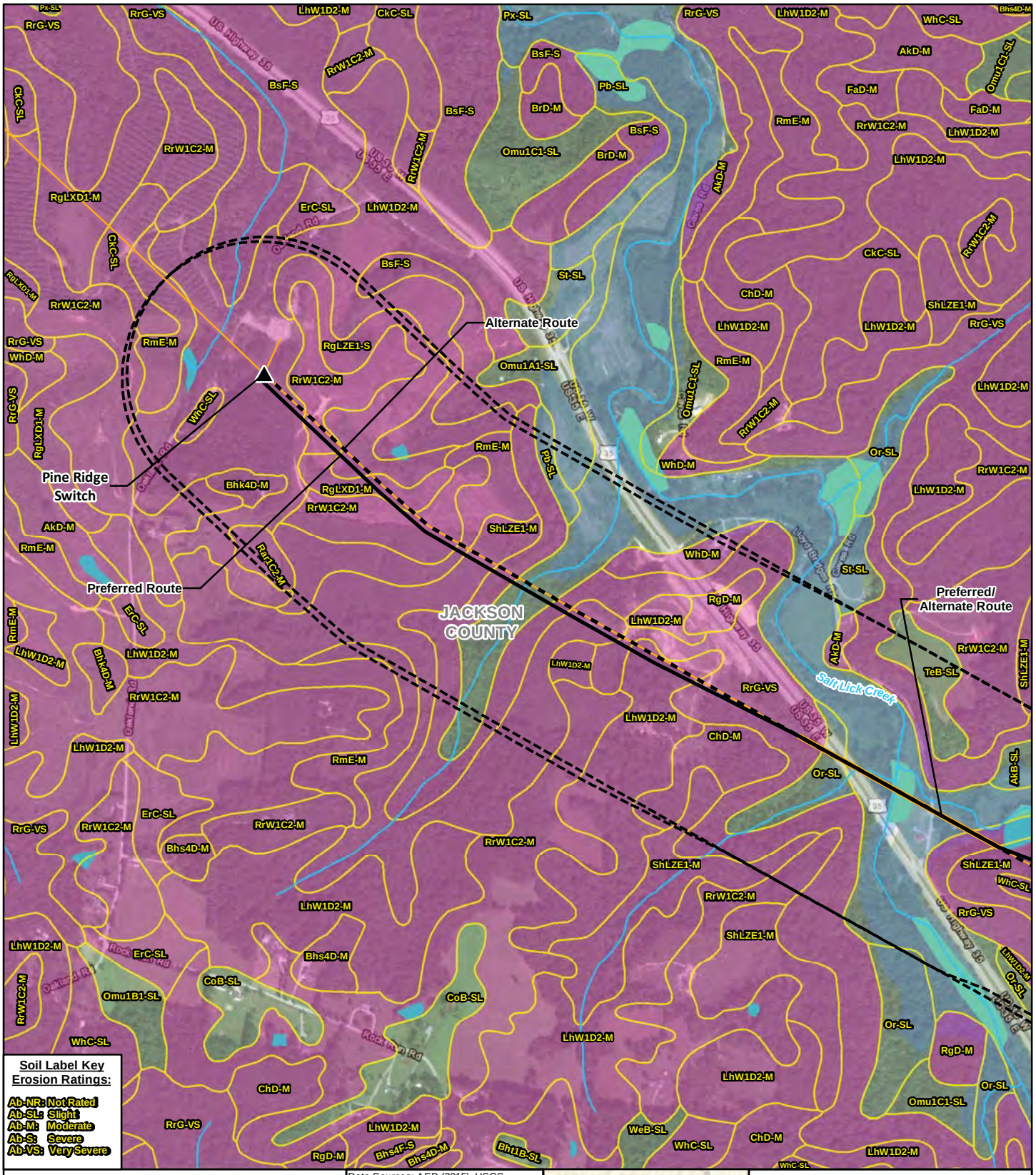
Figure 7-2C
Recreational and Cultural Resources

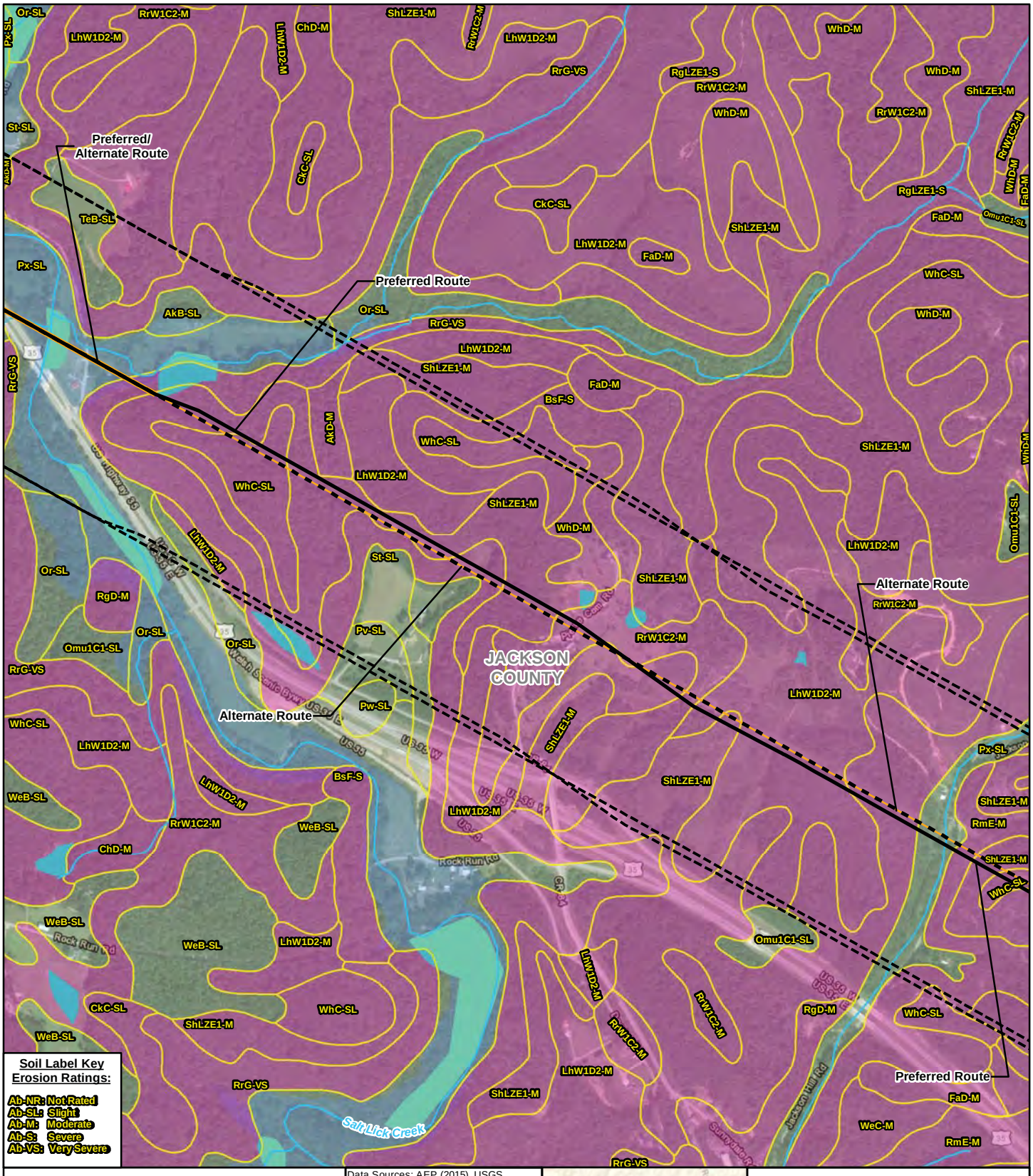
AEP OHIO TRANSMISSION COMPANY

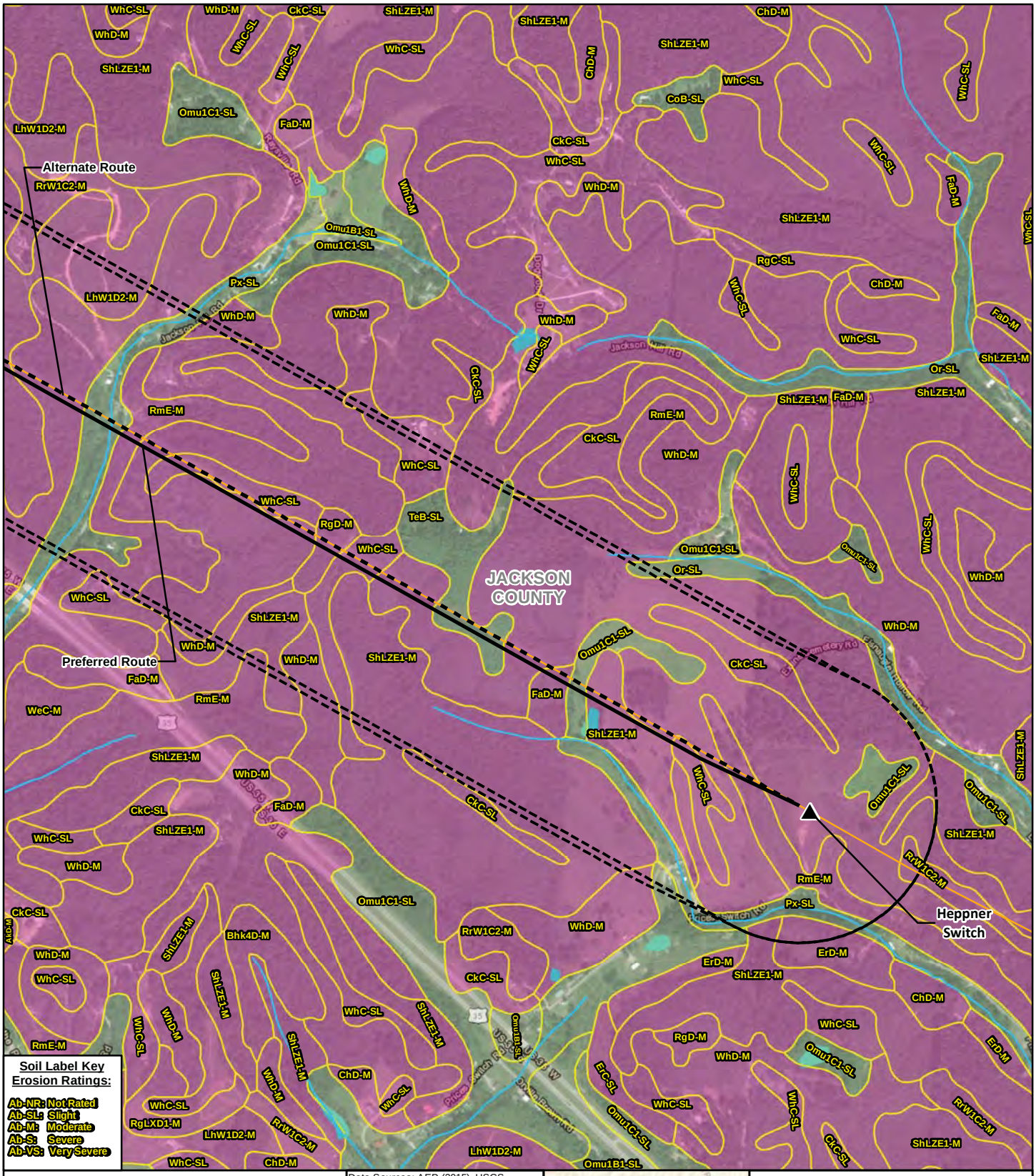
Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 250 500 750 1000

Feet


Alternate Route
Pine Ridge Switch
Preferred Route
Preferred/ Alternate Route
JACKSON COUNTY
Salt Lick Creek
US Highway 35
Soil Label Key
Erosion Ratings:
Ab-NR: Not Rated
Ab-SL: Slight
Ab-M: Moderate
Ab-S: Severe
Ab-VS: Very Severe
Substation
Preferred Route
Alternate Route
1,000-Foot Buffer
Existing 69kV Transmission Line
Stream or River
NWI Wetland
100-Year Floodplain
Soil Unit Slope Exceeds 12%
Soil Unit Boundary
Administrative Boundary
Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH SHPO (2017), ODNR (2014), FEMA (2015), USFWS (2017)
NAD 1983 State Plane Ohio South Feet
March 27, 2018
A
B
C
Figure 8-1A
Ecological Resources
Pine Ridge Switch to Heppner 138kV Transmission Line Project
0 250 500 750 1000
Feet


Preferred/
Alternate Route
Preferred Route
Alternate Route
Alternate Route
Preferred Route
JACKSON
COUNTY
Rock Run Rd
Salt Lick Creek
Jackson Hill Rd
Soil Label Key
Erosion Ratings:
Ab-NR: Not Rated
Ab-SL: Slight
Ab-M: Moderate
Ab-S: Severe
Ab-VS: Very Severe
Substation
Preferred Route
Alternate Route
1,000-Foot Buffer
Existing 69kV Transmission Line
Stream or River
NWI Wetland
100-Year Floodplain
Soil Unit Slope Exceeds 12%
Soil Unit Boundary
Administrative Boundary
Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH SHPO (2017), ODNR (2014), FEMA (2015), USFWS (2017)
NAD 1983 State Plane Ohio South Feet
March 27, 2018
A
B
C
Figure 8-1B
Ecological Resources
Pine Ridge Switch to Heppner
138kV Transmission Line Project
0 250 500 750 1000
Feet


Alternate Route
Preferred Route
Heppner Switch
JACKSON COUNTY
Soil Label Key
Erosion Ratings:
Ab-NR: Not Rated
Ab-SL: Slight
Ab-M: Moderate
Ab-S: Severe
Ab-VS: Very Severe
Substation
Preferred Route
Alternate Route
1,000-Foot Buffer
Existing 69kV Transmission Line
Stream or River
NWI Wetland
100-Year Floodplain
Soil Unit Slope Exceeds 12%
Soil Unit Boundary
Administrative Boundary
Data Sources: AEP (2015), USGS (2015), ESRI (2017), OH SHPO (2017), ODNR (2014), FEMA (2015), USFWS (2017)
NAD 1983 State Plane Ohio South Feet
March 27, 2018
A
B
C
Figure 8-1C
Ecological Resources
Pine Ridge Switch to Heppner 138kV Transmission Line Project
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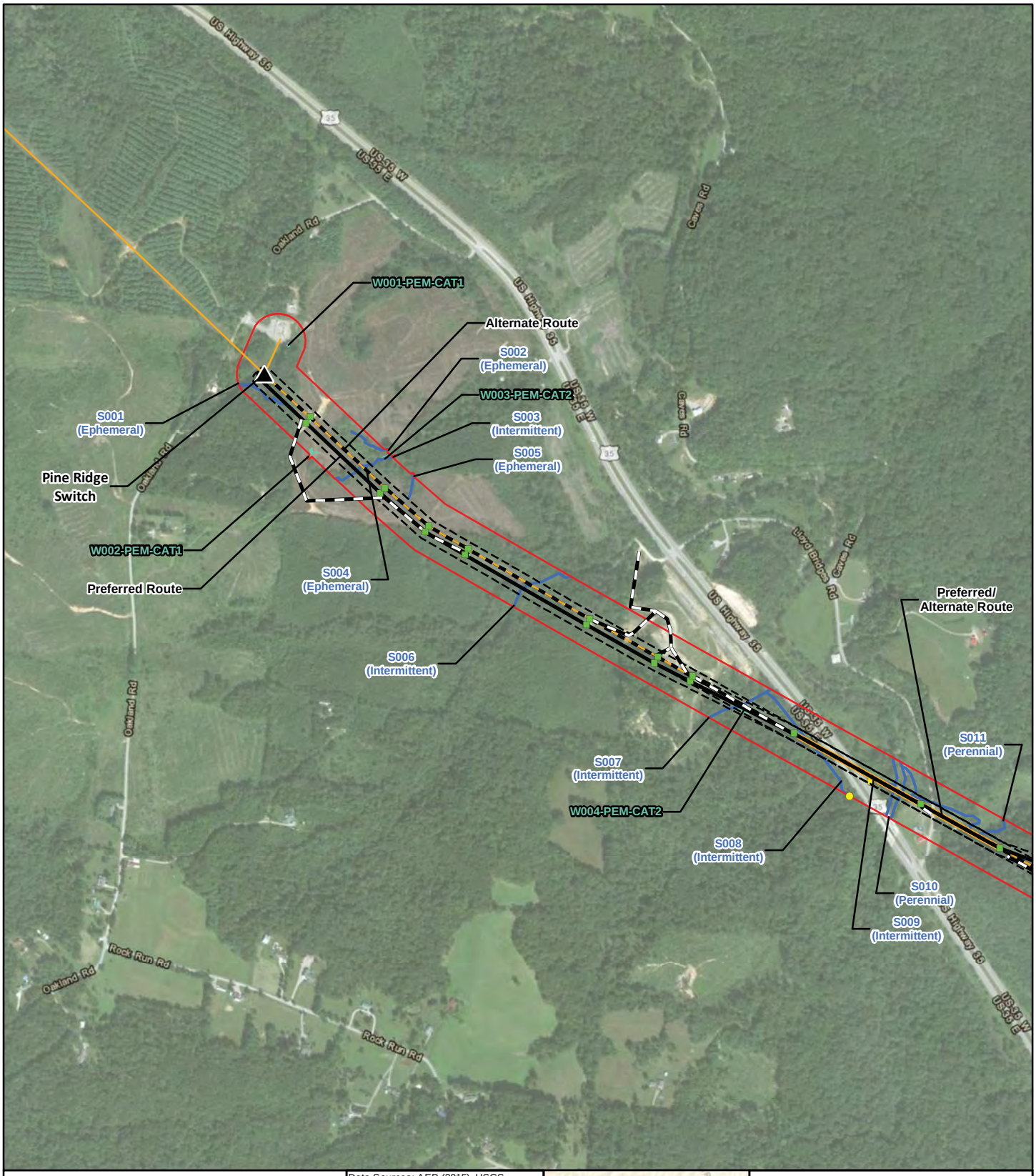
Feet



Substation
Proposed Structure
Preferred Route
Alternate Route
Proposed Access
100-Foot ROW
Existing 69kV Transmission Line
Culvert
Drainage Feature
Field-Delineated Stream
Field-Delineated Wetland
Survey Area

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

NAD 1983 State Plane Ohio South Feet

March 27, 2018

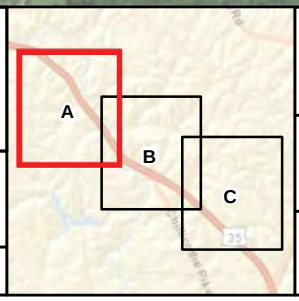


Figure 8-2A
Delineated Wetlands and Waterbodies

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 250 500 750 1000
Feet

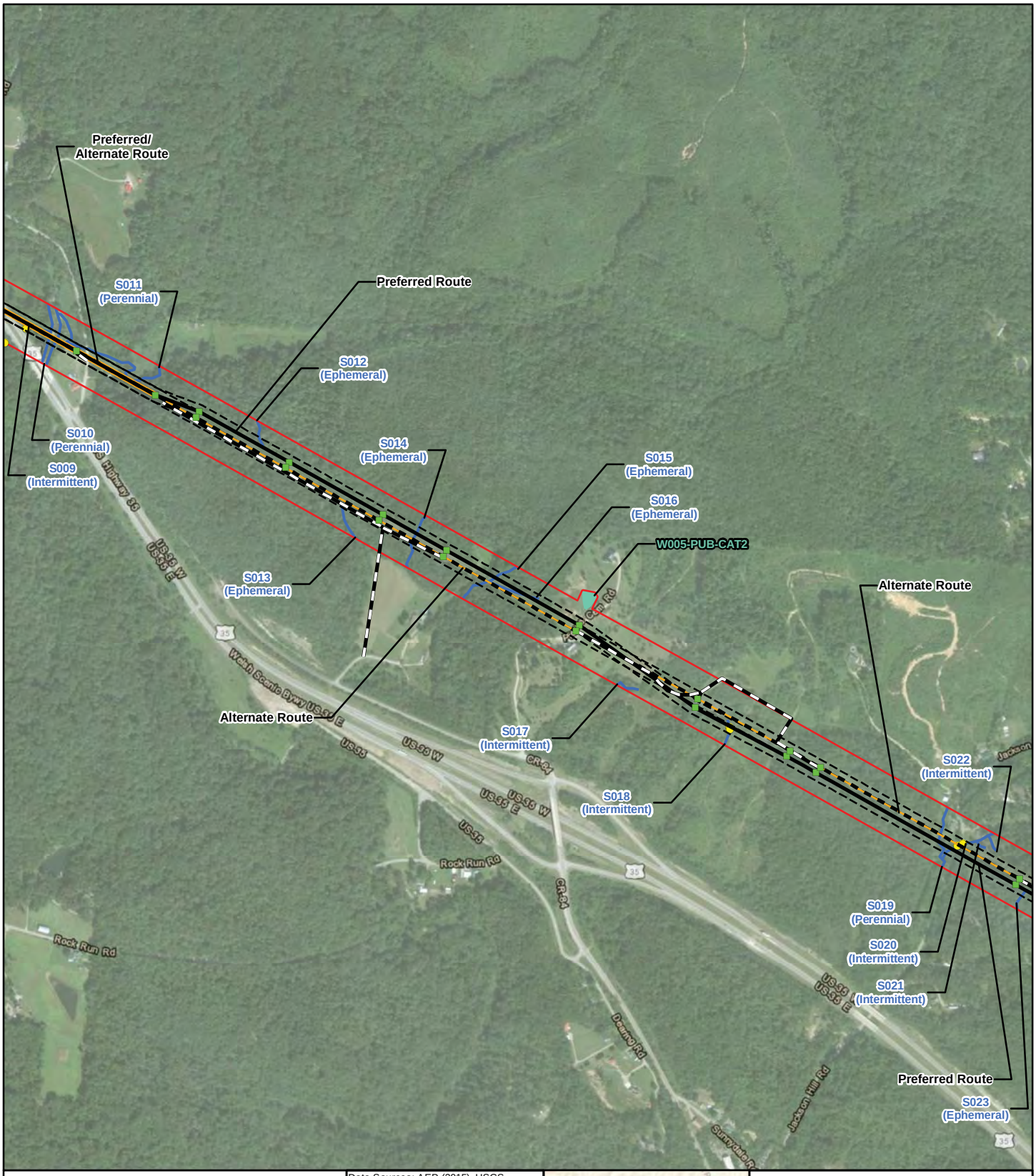
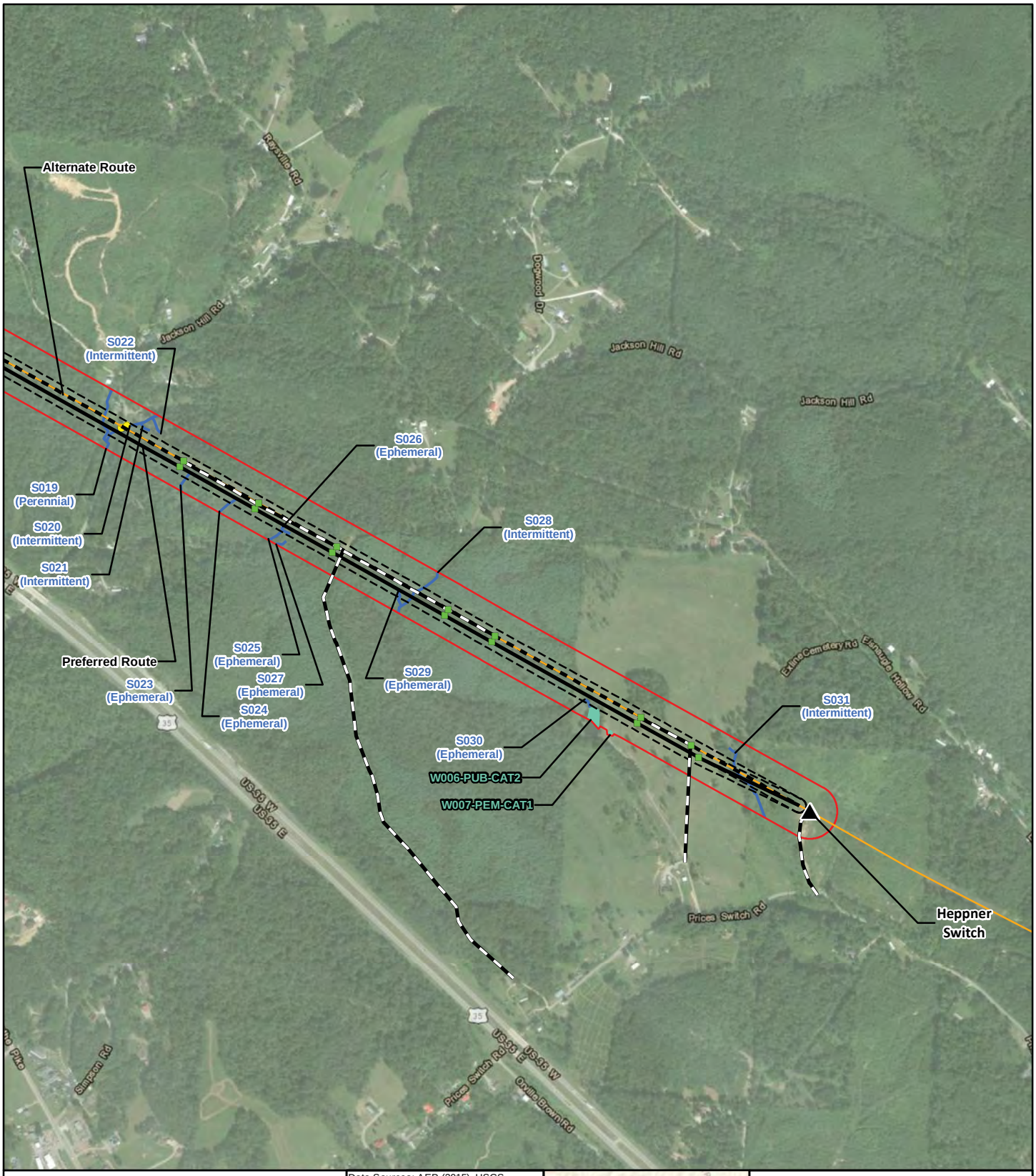


Figure 8-2B
Delineated Wetlands and Waterbodies

Pine Ridge Switch to Heppner 138kV Transmission Line Project



Substation
Proposed Structure
Preferred Route
Alternate Route
Proposed Access
100-Foot ROW
Existing 69kV Transmission Line
Culvert
Drainage Feature
Field-Delineated Stream
Field-Delineated Wetland
Survey Area

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

NAD 1983 State Plane Ohio South Feet

March 27, 2018

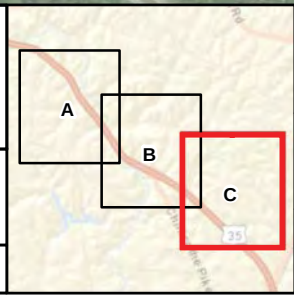


Figure 8-2C
Delineated Wetlands and Waterbodies

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 250 500 750 1000
Feet

APPENDIX 4-1

Rebuild Siting Study

Pine Ridge Switch to Heppner 138 kV Transmission Line Project OPSB Case No. 18-0031-EL-BTX

Prepared for:

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY™

Submitted to:

Ohio Power Siting Board

Prepared by:

GAI Consultants, Inc.
3720 Dressler Road NW
Canton, OH 15120-2700

March 2018

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Key Terminology

Alternate Routes	Assemblage of routes for analysis and comparison.
Constraints	Specific areas that should be avoided to the extent reasonably practical during the route development and site selection process.
Focus Area	Areas along the existing route where rebuilding may not be feasible due to the presence of constraints.
Opportunity Feature	Areas where the transmission line may have less disruption to area land uses and the natural and cultural environment.
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.
Project Endpoint	The project starting and ending point(s), which may include substations, switch stations, tap points, or other locations defined by the Company's planners and engineers.
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.
Substation	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.
Switching Station	A particular type of substation without transformers and operating only at a single voltage level.
Tap Point	The location where power is tapped from an existing transmission line to source a substation or customer.
Transmission Line	An electric line that moves bulk electric power from a generating plant to a substation or between substations.

ACRONYMS

AEP Ohio Transco	American Electric Power Ohio Transmission Company, Inc.
DNP	Division of Natural Areas and Preserves
DOW	Division of Wildlife
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
GAI	GAI Consultants, Inc.
GIS	Geographic information system
kV	Kilovolt
NERC	North American Electric Reliability Corporation
NCED	National Conservation Easement Database
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
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
OPSB	Ohio Power Siting Board
PEM	Palustrine Emergent
ROW	Right-of-way
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic Database
USDA	U.S. Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Weller	Weller & Associates, Inc.

1.0 PROJECT OVERVIEW

American Electric Power Ohio Transmission Company, Inc. (AEP Ohio Transco) is proposing to rebuild 3.6 miles of electric transmission line from the existing Pine Ridge Switch to the proposed Heppner Switch Station, located in Jackson County, Ohio. The Project is referred to as the Pine Ridge Switch to Heppner 138 kilovolt (kV) Transmission Line Project (Project; Figure 1). The Project is part of the overall Ross-Jackson Area Improvements Project to improve reliability and address performance issues, and involves upgrading the existing Berlin-Ross 69 kV electric transmission line to 138 kV standards. The Project requires an Application for a Certificate of Environmental Compatibility and Public Need (Application) to the Ohio Power Siting Board (OPSB), which is part of the Ohio Public Utilities Commission. As an initial step in the development of the Project, AEP Ohio Transco retained GAI Consultants, Inc. (GAI) to identify Focus Areas and evaluate Study Segments for overall environmental suitability and feasibility. These efforts have resulted in a final "Preferred" and "Alternate" Route for the Project. This process is further described in this Rebuild Siting Study.

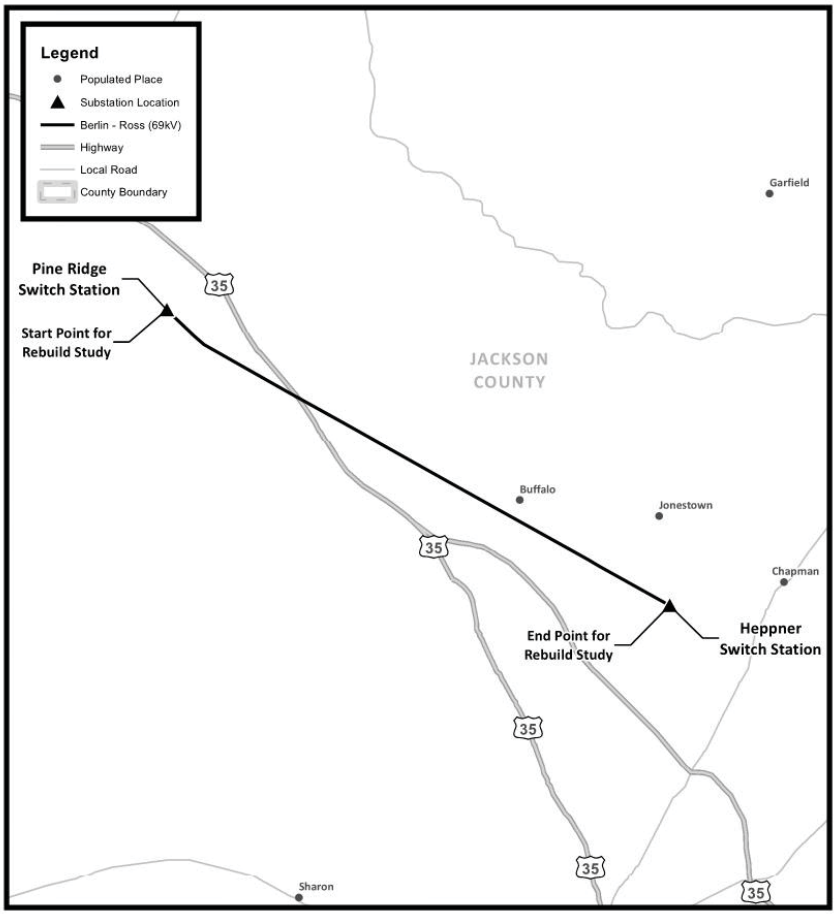

Figure 1. Project Location Map

1.1 Project Purpose and Need Summary

The purpose of the Project is to update aging infrastructure to improve its condition and address performance issues. This will improve the reliability of the electric transmission grid in Ross and Jackson County, Ohio, as part of the overall Ross-Jackson Area Improvements Project. The existing Berlin-Ross 69 kV transmission line was constructed in 1926 and will be retired and replaced with a new 138 kV transmission line, which will initially be energized at 69 kV. The Ross-Jackson Area Improvements Project serves several customers, which may not immediately have the ability to upgrade their facilities. Therefore, by constructing the line to 138 kV standards, it enables AEP Ohio Transco to energize the line at 138 kV in the future when customers are ready. The benefits of this Project include faster recovery of service after outages, fewer service interruptions, and overall improved service to customers.

1.2 Project Characteristics

1.2.1 Project Endpoints and Improvement Description

The Project starts at the existing Pine Ridge Switch located east of County Road 21 (Oakland Road) (Latitude 39.1140, Longitude -82.6880) and continues 3.6 miles southeast to the proposed Heppner Switch Station located north of Township Road 253 (Prices Switch Road) (Latitude 39.0872, Longitude -82.6313). The Project is located within Liberty and Coal Townships, Jackson County, Ohio. The study corridor utilized for this siting study does not cross any designated communities or otherwise incorporated municipalities. Costs for the Project are anticipated to be approximately $8 million including both construction and right-of-way (ROW) expenses.

1.2.2 Transmission Line and Substation Design and ROW Requirements

The existing Berlin-Ross 69 kV transmission line is a single circuit line constructed in 1926 on wood H-frame structures within an approximately 50-foot-wide ROW. The existing structures are approximately 60 to 70 feet tall. The Project will be constructed as a single 138 kV circuit comprised of conductors staged vertically on several structure types, primarily steel H-frames, averaging 100 feet in height (Figure 2). Due to the potential inability to de-energize long stretches of the existing Berlin-Ross 69 kV transmission line during construction, it is preferable to construct the Project generally parallel to the existing ROW, where feasible, to avoid outage constraints. The Project will require a permanent 100-foot-wide ROW that will utilize a portion of the existing ROW. Improvements to the Pine Ridge Switch are required to support this rebuild effort, along with construction of the proposed Heppner Switch Station, which were individually assessed and documented under separate cover.

Figure 2. Typical Transmission Structure

1.2.3 Construction and Maintenance Considerations

The proposed transmission line rebuild requires surveying, ROW clearing, foundation installation (if necessary), structure assembly and erection, conductor and shield wire installation, and restoration upon completion. Construction operations will be conducted with attention to the preservation and enhancement of natural habitats and the conservation of natural resources. Construction activities will be conducted in accordance with any and all local, state, and/or federal permits that are necessary for the Project.

1.3 Project Timeline and Overview of Regulatory Approvals

AEP Ohio Transco initiated the transmission siting process in July 2017. Potential routes were developed within the Project area and evaluated in August and September 2017. The potential routes were refined and presented to the public as a Preferred Route and Alternate Route during a public Open House meeting on January 25, 2018. Following the Open House meeting, AEP Ohio Transco finalized the routes and prepared a certificate application to the OPSB, which is scheduled for submittal in March 2018. Pending approval from the OPSB, construction is expected to begin in fall 2020, with the Project scheduled to be complete at the end of 2023.

1.4 Goal of the Siting Study

The goal of the Siting Study is to gain an understanding of the opportunities and constraints in the Project area and to facilitate the development of Study Segments, evaluate potential impacts associated with the Study Segments, and identify a Preferred Route and an Alternate Route. The Preferred Route is the route that: (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. For the purposes of this Project, development of Study Segments was not required due to the lack of constraints identified in the vicinity of the existing transmission line corridor. Instead, route options were defined and reviewed to develop a Preferred Route and an Alternate Route.

2.0 ROUTE AND SITE DEVELOPMENT PROCESS

2.1 Route Development Process Summary/Methodology

Two route alternatives were identified for the Project. Rebuilding the existing Berlin-Ross 69 kV transmission line was identified as an option, however, due to outage constraints, an additional alternative was also identified, which offsets the existing centerline by 50 feet. Due to the lack of constraints in the Project area, no further alternatives were considered.

2.2 Siting Team Members

A multi-disciplinary Siting Team performed the Siting Study. Team members were selected to bring wide experience to the Siting Study to achieve a thorough review of all aspects of developing the routes evaluated. 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 team worked together during the Siting Study to define the Project study area, develop siting criteria, identify siting constraints and opportunities, collect and analyze environmental and design data, solicit public input and concerns, consult with natural resource and permitting agencies, develop and revise the siting alternatives, and analyze and report on the selection of a Preferred Route.

2.3 Data Collection

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

2.3.1 Geographic Information System Data Collection

Aerial photography is an important tool for route selection. The primary sources of aerial imagery used in the route identification, analysis, and selection effort for the Project include:

- Environmental Systems Research Institute (ESRI) ArcGIS Online
- Microsoft
- Google Earth
- Bing

Updated information, such as the location of new residences and other constraints, was annotated to the photography by either paper maps (at the public open house) and transferred

into the Geographic Information System (GIS), or digitized directly into the GIS as identified during field inspections.

The study made extensive use of information in existing GIS data sets, obtained from many sources, including federal, state, and local governments. Much of this information was obtained through official agency GIS data access websites, some was provided directly by government agencies, and the Siting Team created some by digitizing information from paper-based maps, aerial photo interpretation, interviews with stakeholders, and field inspections.

GIS data sources vary with respect to their accuracy and precision. For this reason, GIS-based calculations and maps presented throughout 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 routes, with the assumption that any inherent errors or inaccuracies would be generally equal across all route options. Field reconnaissance is conducted to verify certain features (e.g., locations of residential, commercial and industrial buildings). **Attachment B** presents a list of the GIS data sources used for this study.

2.3.2 Field Reconnaissance

Siting Team members conducted field inspections along the existing transmission line corridor and throughout the Project area. The team members examined the route options by automobile from public roads and other points of public access and correlated observed features to information shown on aerial photography, United States Geological Survey (USGS) 7.5-minute topographic maps, road maps, and the range of GIS sources compiled. Prior to fieldwork, some key features such as residences, outbuildings, places of worship, cemeteries, and commercial and industrial areas were identified and mapped in GIS using aerial imagery, street view, and other publically available resources.

2.3.3 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 planning 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 State Historic Preservation Office (SHPO)

Local Agencies and/or Officials

AEP Ohio Transco and the Siting Team coordinated with local government agencies/officials to aid the route development process. These entities included:

- Jackson County
- Jackson County Planning Department

2.4 Siting Guidelines

2.4.1 General Guidelines

The primary goal for this siting effort was to identify a Preferred Route for the Project that: (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. Although no Preferred Route can optimally minimize impacts across all area resources, the Siting Team used a series of general siting guidelines to direct the development, evaluation, and selection of routes toward this overall goal.

The following guidelines were considered for this effort:

- Maximize use of the existing 69 kV transmission line corridor.
- Avoid or minimize outages and service disruptions.
- Consider parallel alignments along existing ROWs or other infrastructure.
- Maximize the separation distance from and/or minimize impact on dwellings, schools, daycare facilities, hospitals, and other community facilities.
- Consider stakeholder input as practical.
- Avoid or minimize visibility from populated areas, scenic roadways, and designated scenic resources.

- Minimize interference with economic activities, including agricultural activities.
- Avoid or minimize conflict with existing and proposed future development and land uses.
- Avoid crossing or minimize conflict with designated public resource lands such as national and state forests and parks, large camps and other recreation lands, designated battlefields, nature preserves or other designated historic resources and sites, and conservation areas.
- Avoid or minimize new crossings of large lakes, rivers and large wetland complexes, critical habitat, and other unique or distinct natural resources.
- Minimize habitat fragmentation and impacts on designated areas of biodiversity concern.

2.4.2 Technical Guidelines

Technical guidelines are driven by the physical characteristics and engineering limitations of the structures and lines themselves, and the design criteria necessary to meet AEP design standards, North American Electric Reliability Corporation (NERC) reliability standards, National Electric Safety Code, 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 Interconnection, LLC; and, (3) industry best practices.

The Siting Team considered the following technical guidelines during the development, evaluation, and comparison of routes.

- Minimize duration of outages during construction along existing 69 kV transmission line.
- Maintain a minimum of 50 feet of centerline-to-centerline separation when paralleling 138 kV or lower voltage transmission lines.
- Avoid angles greater than 65 degrees and steep slopes (more than 20 degree slopes for angle structures, and more than 30 degrees for tangent structures).

2.5 Public Involvement Process

2.5.1 Public Open House

A public Open House was conducted on January 25, 2018, at the Northview Elementary School located in Jackson, Ohio. The Siting Team set up stations at the meeting and provided information related to engineering and design of the structures, Project need, real estate and ROW issues, and the siting process. The community was notified about the time and location of the meeting through the following means:

1. AEP Ohio Transco sent notification letters to 50 property owners along the Project routes. Notification letters were also sent to 14 public officials and government agencies in Jackson County, the City of Jackson, Coal Township, and Liberty Township. These letters included an overview of the Project and invited each to attend the Open House.

2. Notices were placed in local newspapers to inform residents of the Open House date.

3. Notice was placed on the Project website.

Printed maps at a scale of 1-inch equal 400 feet (1:4,800 scale) were provided at the Open House for the public to review and were used to record written comments concerning sensitive resources in their local environment. Members of the Siting Team greeted meeting attendees, answered questions about the Project, and aided attendees in locating their property or other features of concern on aerial maps showing the Preferred and Alternate Routes under consideration. Participants were encouraged to document the location of their houses, places of business, property of concern, or other sensitive resources on the printed maps. After the public Open House, handwritten comments were digitized and entered into a GIS database.

Comment sheets were distributed to all meeting attendees. Attendees were asked to fill out the sheet completely, including contact information. The Siting Team read all comment sheets, and scanned and stored them in the Project database as a record of meeting attendance and public comments. One (1) comment was received following the public Open House.

2.5.2 Project Website and Virtual Open House

A Project website was launched that includes an overall Project description and map, a fact sheet, an area for Project updates and releases, and contact information. Visitors to the site can also provide comments digitally, or contact the Project Outreach Specialist directly via the listed telephone number. This information can be found at:

http://aeptransmission.com/ohio/CoalTownship/index.php

2.5.3 Consideration of Public Input

Aside from the single comment submitted on the Project at the public Open House, no other comments were received via telephone calls, US mail, or e-mail. The comment card received at the public Open House was a concern about the new ROW being in closer proximity to their house and additional tree clearing for the ROW which would impact woods/wildlife.

The Siting Team staff reviewed all comments from the public Open House and, where applicable, incorporated the information when reviewing, revising, and comparing the route options. No specific adjustments were made to either the Preferred Route or the Alternate Route as a result of the received public comments.

3.0 ALTERNATE ROUTE IDENTIFICATION

3.1 Focus Area Identification

For the purpose of this Siting Study, no focus areas were identified within the Project area, due to the lack of constraints identified in the vicinity of the existing transmission line corridor. The proposed routes are identified on **Map 2 of Attachment A.**

3.2 Opportunities and Constraints

The Siting Team identified and mapped siting constraints and opportunities within the Project area.

Siting Constraints

Constraints are specific areas that should be avoided to the extent practical during the route development and selection process. The Siting Team initially identifies larger constraints during the conceptual siting process. The following is a list of general large constraints:

- Urban areas, including towns, small villages, and other high concentrations of residential, commercial and industrial development areas
- National Register Historic Districts and adjacent areas
- Recreational areas such as parks and large recreational reservoirs
- Large streams, wetlands, flood zones or unique natural resource features, and critical habitat areas
- Designated federal or state forests and parks, state game lands, and other natural and conservation areas
- Large mining areas

As the Siting Team develops specific siting alignments, smaller constraints are identified. These constraints encompass other feature types found within smaller geographic areas, or site-specific locations. Through the iterative process of route development described above, the routes are adjusted to avoid small constraints where feasible, including:

- Individual residences (houses, mobile homes, and multi-family buildings)
- Commercial and industrial buildings
- Outbuildings and barns
- Cemeteries

- Churches
- Schools
- Hospitals
- Recorded sites of designated historic buildings and sites
- Small wetlands
- Specific recreational sites, facilities, and trails
- Radio and communications towers
- Designated scenic vista points

Siting Opportunities

The Siting Team defined siting opportunities as locations where the proposed transmission line might be located while reasonably minimizing adverse impacts. Siting opportunities typically include other linear infrastructure and utility corridors, such as existing electric and gas transmission networks, rail lines, and roads, but may also include reclaimed mine lands, or unused portions of industrial or commercial areas. The only significant siting opportunity identified within the Project area is the existing 69 kV transmission line (**Attachment A - Map 2**). The U.S. Highway 35 corridor was evaluated, but given the initial constraints with paralleling it, this option was not considered for inclusion in this rebuild siting study. There are no other transmission lines, gas lines, or other suitable utility corridors that traverse the region between the existing Pine Ridge Switch Station and the proposed Heppner Switch Station.

3.3 Route Development

Within the Project area, the Siting Team developed two (2) potential routes based on the siting process and criteria developed in Section 2.0. **Maps 2 through 4** reflect the resulting potential routes evaluated by the Siting Team.

Preferred Route

The Preferred Route begins at the existing Pine Ridge Switch Station, located east of County Road 21 (Oakland Road), and continues approximately 0.9-mile southeast while paralleling the existing Berlin-Ross 69 kV transmission line with a 50-foot offset on its southern edge. The offset to the south side of the existing ROW allows the Preferred Route to enter the Pine Ridge Switch Station at the appropriate location. The Preferred Route then realigns with the existing 69 kV transmission line centerline for approximately 0.3-mile to maintain the existing U.S. Highway 35 crossing. Following the 0.3-mile on existing centerline, the Preferred Route continues approximately 0.8-mile southeast while paralleling the existing Berlin-Ross 69 kV transmission

line with a 50-foot offset on its northern edge. The offset to the north side of the existing ROW allows the Preferred Route to avoid a residence to the south and avoids impacting a state-threatened plant species population identified along the southern edge of the existing ROW. Following the 0.8-mile of 50-foot offset to the north, the Preferred Route crosses the existing 69 kV transmission line to avoid a residence to the north. Now situated on the southern side of the existing 69 kV ROW, the Preferred Route continues approximately 1.6 miles southeast, paralleling the existing Berlin-Ross 69 kV transmission line with a 50-foot offset until reaching the proposed Heppner Switch Station located north of Township Road 253 (Prices Switch Road).

Alternate Route

The Alternate Route begins at the existing Pine Ridge Switch Station and continues southeast, utilizing the existing ROW of the 69 kV transmission line by rebuilding on the existing centerline. The Alternate Route continues southeast for approximately 3.6 miles until reaching the proposed Heppner Switch Station.

4.0 ROUTE COMPARISON

This section further discusses the route options and provides a quantitative and qualitative analysis of potential impacts to local communities, the environment, and cultural resources. The routes 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. Since 0.3-mile of transmission line at the U.S. Highway 35 crossing is to be rebuilt on centerline regardless of the selected route option, this route comparison was only completed for the 3.3 miles of the Preferred and the Alternate Route.

4.1 Natural Resources

Natural resource impacts may include potential impacts to vegetation and habitat, surface waters, threatened and endangered species, and conservation and recreation lands. Potential impacts discussed in this section are based on publically available maps and data as well as consultation with federal and state agencies. A comparison of the natural environment considerations for the route options is presented in **Table 2**. Natural resource constraints within the Project area are shown in **Attachment A - Map 3**.

The Project primarily traverses forested areas consisting of deciduous, evergreen, and mixed deciduous-evergreen stands. The Project also crosses a few areas of rural residential and successional scrub-shrub habitat. Both the Preferred and Alternate Routes cross an Abandoned Underground Mine near the southern end of the line.

Ecological surveys were conducted within the Project area on August 7 and 21 through 23, 2017. Five (5) Palustrine Emergent (PEM) wetlands and two (2) Palustrine Unconsolidated Bottom wetlands were identified and delineated within the Project area. In addition, thirty-one (31) stream segments (3 perennial, 12 intermittent, and 16 ephemeral) were also identified within the Project area during the field surveys. Additional information on the wetland and stream features can be found in the Ecological Survey Report dated February 2018.

Informal consultation with the ODNR and USFWS was initiated to determine if activities associated with the Project may affect state- and/or federally-listed Rare, Threatened, or Endangered species. The ODNR and USFWS consultation letters and responses are provided in **Attachment C**. The ODNR Natural Heritage Database (NHD) has identified twelve (12) state-listed species, the Ophir Hollow Conservation Site, the Weaver Hollow Conservation Site, the Coalton Wildlife Area, and the Lake Katherine State Nature Preserve as occurring at or within a one-mile (1.0) radius of the Project area. Additionally, the ODNR Division of Wildlife (DOW) states the Project is within the range of one (1) state-endangered mussel species, and that mussel surveys may be required if in-stream work is proposed. The Project is also within the range of

two (2) protected fish species. The ODNR indicated that if no in-stream work in perennial streams is proposed, then the Project is not likely to impact these species.

The Project is also within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state-threatened species, and black bear (*Ursus americanus*), a state-endangered species. However, the ODNR indicated that due to the location, habitat type along the Project route and within the vicinity of the Project route, and/or mobility of the species, the Project is not likely to impact these species.

The ODNR indicated that the Project is in the range of the timber rattlesnake (*Crotalus horridus horridus*), a state-endangered species, and the mud salamander (*Pseudotriton montanus*), a state-threatened species. The ODNR recommends that habitat suitability surveys be conducted by a DOW-approved herpetologist along the Project route to determine if suitable habitat exists for these species. AEP Ohio Transco will contract a DOW-approved herpetologist to complete habitat suitability surveys for timber rattlesnake and mud salamander for the Project. If suitable habitat for either species is determined to be present, the DOW recommends a presence/absence survey be completed, or an avoidance/minimization plan be developed and implemented by the approved herpetologist. AEP Ohio Transco will coordinate with the DOW as appropriate following the completion of the habitat suitability surveys.

Furthermore, the ODNR Division of Natural Areas and Preserves (DNP) stated that one (1) rare plant species, Bartley's reed grass (*Calamagrostis porteri insperata*) has been documented in and around the proposed Project area. The DNP's Chief Botanist completed a rare plant survey in the area of concern and did not observe the species. However, a population of flattened sedge (*Carex complanata*), a state-threatened species, was identified during the survey. This population is located in an area south of the existing ROW that is not proposed to be impacted by the Project.

Per the USFWS response, the Project is within the range of running buffalo clover (*Trifolium stoloniferum*), a federally-endangered species. The USFWS recommended completing the work between August 1 and March 30 after the perennial plant has died back for the season and foliage will not be damaged or destroyed. If work cannot be completed during the August 1 through March 30 time-frame, a survey for running buffalo clover must be completed between May and June when the plant is in flower. The USFWS indicated that a survey for running buffalo clover only needs to be completed for the section of line running through Liberty Township, Jackson County. AEP Ohio Transco will contract a certified surveyor to complete a habitat assessment for running buffalo clover along the Project area within Liberty Township, Jackson County. AEP Ohio Transco will coordinate with the USFWS as appropriate following the completion of the habitat assessment

Both the ODNR and USFWS indicated that the Project falls within the range of the state- and federally-listed Indiana bat (*Myotis sodalis*), and the federally-listed northern long-eared bat (*Myotis septentrionalis*). Both agencies recommend that any required tree cutting occur between October 1 and March 31. If this seasonal restriction cannot be met, then a mist net survey must be conducted between June 1 and August 15, prior to any cutting.

Due to the close parallel nature of the Preferred Route and Alternate Route, the potential impact upon natural resources is almost identical regardless of which route option is selected. An exception is seen with regard to the total tree clearing required between the two route options. The Preferred Route would require approximately 7.9 more acres of tree clearing as opposed to the Alternate Route. This is primarily due to the Alternate Route taking greater advantage of the existing, cleared ROW by remaining on centerline for its entire route. But this will still require new tree clearing to address the expanded ROW required of the proposed higher voltage line.

Table 1. Natural Resource Evaluation Criteria				
Criteria	**Unit**	**Project Area**		
		Preferred Route	**Alternate Route**	**Common Segment**
General				
Length	miles	3.3	3.3	0.3
Water Resources				
Total streams crossed (NHD)	count	2	2	2
High/Exceptional/Special Protection streams crossed (Ohio Environmental Protection Agency)	count	0	0	1
PEM wetlands in the ROW National Wetlands Inventory (NWI)	acres	0.0	0.0	0.0
Palustrine Forested/Palustrine Scrub-Shrub wetlands in the ROW (NWI)	acres	0.1	0.1	0.4
Waterbody crossings (NHD)	feet	0.0	0.0	0.0
Federal Emergency Management Agency (FEMA)-designated floodplain crossed by ROW	acres	0.0	0.0	1.5
FEMA-designated floodway crossed by ROW	acres	0.0	0.0	0.8
Geological, Topographical, and Soil Resources				
Prime and unique farmland foil in the ROW[1]	acres	0.0	0.1	0.0
Farmland of statewide importance in the ROW[2]	acres	0.0	0.0	0.0
Karst topography in the ROW	acres	0.0	0.0	0.0
Known caves or mines in the ROW	count	1	1	0
Wildlife and Habitat				
Tree clearing required in the ROW (digitized based on aerial photography)	acres	13.8	5.9	0.8
Length of clearing parallel to existing linear infrastructure	miles	1.3	0.0	0.0
Special natural areas crossed by the ROW	acres	1.3	1.0	0.0
Special natural areas within 250 feet of the ROW	count	1	1	0

[1] Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops.
[2] Soils that do not meet the prime farmland category but are still recognized for their productivity by states may qualify as soils of statewide importance.

4.2 Land Use

Land use 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. 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 options is presented in **Table 2.** Land use within the Project area is shown on **Attachment A - Map 4.**

As with the natural resources review criteria, land uses along the Preferred and Alternate Route are practically identical. Therefore, potential impacts to land use appear to be fairly equal regardless of which route option is selected. There are no residences within the limits of the existing or proposed ROW for the Preferred or Alternate Route, but two (2) residences occur within 100 feet of the centerline of the Alternate Route. In addition, there is one (1) shed within the existing ROW of the Alternate Route located west of Jackson Hill Road.

Cultural resource investigations were conducted by Weller & Associates, Inc. (Weller) in August 2017. A literature review of the Project indicated the presence of rock shelters within and adjacent to the existing ROW. A Phase I Archaeological Investigation was conducted for the Project in August 2017. Archaeological field teams surveyed a 100-foot-wide study area centered on the existing 69 kV transmission line. As a result of the field surveys, one (1) archaeological site, a rock shelter, was identified within the study area, and identified as 33JA0411. No artifacts were collected from the identified rock shelter. Site 33JA0411 may be eligible for listing in the National Register of Historic Places (NRHP) and was recommended for avoidance by Weller. The site is currently being spanned by the existing Berlin-Ross 69 kV transmission line; continued spanning of the line over the site was recommended by Weller. In a letter dated November 16, 2017 (**Attachment C**), the State Historic Preservation Office (SHPO) concurred that Site 33JA0411 is recommended potentially eligible for listing in the NRHP. In their letter, the SHPO requested additional information, which was provided by Weller. Therefore, a finding of 'no historic properties affected' was recommended for this Project, and the SHPO concurred.

A historic architecture investigation was completed for the Project that involved surveying all properties 50 years of age or older situated within 1,000 feet of the existing 69 kV transmission line. As a result of this survey, five (5) individual properties of 50 years of age or older were identified within the survey area. The previously recorded JAC0006604 resource was found to be no longer extant and thus not included in the total number of identified properties. Three (3) of the properties were not recommended eligible for listing in the NRHP due to alterations, additions, and a loss of historic integrity. The remaining two (2) properties within the survey area were advanced to detailed study to evaluate their eligibility for inclusion within the NRHP. The

JAC0023304/S-1 and JAC0023404/S-2 properties were recommended not to be eligible for inclusion in the NRHP due to relocation from their original setting and loss of material integrity. In a letter dated November 16, 2017 (**Attachment C**), the SHPO concurred that these two (2) properties are not eligible for NRHP listing.

Both the Preferred Route and Alternate Route clip the southwest corner of the Coalton Wildlife Area, which is owned and managed by the ODNR-DOW. The impact to this state-managed land is anticipated to be minimal regardless of which route option is selected. The Alternate Route, which utilizes the existing 69 kV transmission line ROW, would have an impact of 1.0-acre, whereas the Preferred Route would have an impact of 1.3 acres.

Table 2. Land Use Evaluation Criteria				
Criteria	Unit	Project Area		
		Preferred Route	Alternate Route	Common Segment
General				
Length	miles	3.3	3.3	0.3
Number of parcels[1] crossed	count	20	22	7
Landowners within ROW[2]	count	15	17	6
Municipalities, Counties, and Townships Crossed				
Jackson County	miles	3.3	3.3	0.3
Coal Township	miles	1.9	1.9	0.0
Liberty Township	miles	1.4	1.4	0.3
Residential				
Barns, outbuildings, sheds, garages and silos in the ROW (excludes abandoned features)	count	0	1	0
Residences/single-family dwellings within ROW	count	0	0	0
Residences/single-family dwellings within 100 feet of centerline	count	0	2	1
Residences/single-family dwellings within 250 feet of centerline	count	4	5	2
Residences/single-family dwellings within 500 feet of centerline	count	9	10	2
Residences/single-family dwellings within 1,000 feet of centerline	count	29	29	5
Multi-family dwellings[3] within ROW	count	0	0	0
Multi-family dwellings within 250 feet of centerline	count	0	0	0
Multi-family dwellings within 500 feet of centerline	count	0	0	0
Multi-family dwellings within 1,000 feet of centerline	count	0	0	0

[1] The number of parcels crossed refers to the number of individual plots of owned land recorded by each County.
[2] The number of landowners within the ROW represent the number of individual landowners, who each may own one or more parcels.
[3] Multi-family dwellings include townhome, condominium, and apartment complexes, and duplexes.

Table 2. Land Use Evaluation Criteria				
Criteria	Unit	Project Area		
		Preferred Route	Alternate Route	Rebuild Segment
Commercial/Industrial				
Businesses/commercial buildings[4] within the ROW	count	0	0	0
Businesses/commercial buildings within 250 feet of the centerline	count	1	1	0
Businesses/commercial buildings within 500 feet of the centerline	count	2	2	0
Businesses/commercial buildings within 1,000 feet of the centerline	count	4	4	0
Mining areas crossed	count	0	0	0
Quarries crossed	count	0	0	0
Agricultural				
Pasture/rangeland crossed in ROW [based on National Land Cover Database (NLCD) data]	acres	1.7	2.0	0.0
Cropland crossed in ROW (based on NLCD data)	acres	0.0	0.0	0.0
Tree farms/orchards crossed in ROW	acres	0.0	0.0	0.0
Community/Recreational Facilities				
Schools within 1,000 feet of centerline	count	0	0	0
Designated places of worship within 1,000 feet of centerline	count	0	0	0
Cemeteries within 250 feet of centerline	count	1	1	0
Hospitals, and assisted living facilities within 250 feet of centerline	count	0	0	0
Parks and recreation areas crossed by the ROW	count	1	1	0
Scenic byways crossed	count	0	0	0
Protected Land				
Federal/state land crossed by ROW	acres	1.3	1.0	0.0
Local public lands crossed by ROW	acres	0.0	0.0	0.0

[4] Commercial development includes retail, service, office, restaurants, and lodging establishments.

Table 2. Land Use Evaluation Criteria				
Criteria	Unit	Project Area		
		Preferred Route	Alternate Route	Rebuild Segment
Cultural Resources				
NRHP-listed sites within one mile of the centerline	count	0	0	0
National Landmarks within one mile of the centerline	count	0	0	0
Historic Districts within one mile of the centerline	count	0	0	0
Known NRHP-eligible sites within one mile of the centerline	count	1	1	1
Listed archaeological sites within ROW	count	0	0	0
Listed archaeological sites within 250 feet of centerline	count	1	0	0

4.3 Constructability

This section discusses the feasibility of a proposed transmission line as it relates to engineering and construction concerns. Constructability evaluates the use of existing transmission corridors, engineering challenges, and accessibility issues of a Preferred and Alternate Route. Major factors that affect constructability include, but are not limited to, steep topography, condensed ROWs, high angles, proximity to major highways, accessibility, safety and cost. A comparison of the engineering and construction considerations for the route options is presented in **Table 3.**

The principal constructability issue that differentiates the Preferred Route and Alternate Route is the extent of parallel versus rebuild associated with each route option. The Preferred Route parallels the existing Berlin-Ross 69 kV transmission line for 92 percent of its total length. This allows for the majority of the Preferred Route to be built without requiring an outage on the 69 kV transmission line. In contrast, the Alternate Route is located on the existing centerline of the Berlin-Ross 69 kV transmission line, utilizing the existing ROW to the fullest extent possible. This approach, however, would require an outage between sections for the duration of construction to allow the existing 69 kV transmission line infrastructure to be removed prior to constructing the new 138 kV line.

Table 3. Constructability Evaluation Criteria				
Criteria	Unit	Project Area		
		Preferred Route	Alternate Route	Common Segment
General				
Length	miles	3.3	3.3	0.3
Transportation Resources				
Interstate highways crossed	count	0	0	0
U.S. highways crossed	count	0	0	1
State highways crossed	count	0	0	0
Local roads and streets crossed	count	1	1	1
Railroads crossed	count	0	0	0
Airports within one mile of the centerline	count	0	0	0
Utility Resources				
Oil and gas pipelines crossed	count	0	0	0
Oil and gas wells within 250 feet from edge of ROW	count	0	0	0
Communication towers within 1,000 feet of the centerline	count	1	1	0
Existing AEP Transmission Lines Crossed	count	0	0	0
Engineering and Construction Considerations				
Steep slopes crossed by ROW (>20 percent), percent of total length	percent	61.6	61.1	32.9
Heavy angles, greater than 30 percent	count	0	0	0
Rights-of-Way Rebuild/Parallel				
Existing AEP transmission lines paralleled	miles	3.3	0.0	0.0
Existing distribution lines paralleled or underbuilt	miles	0.0	0.0	0.0
Existing AEP transmission lines rebuilt	miles	0.0	3.3	0.3
Oil and Gas Pipeline	miles	0.0	0.0	0.0
Interstate highways, U.S. highways, State highways, and local roads	miles	0.0	0.0	0.0
Railroad	miles	0.0	0.0	0.0
Total length paralleled	miles	3.3	0.0	0.0

Table 3. Constructability Evaluation Criteria				
Criteria	Unit	Project Area		
		Preferred Route	Alternate Route	Common Segment
Total percentage paralleled	percent	100	0	0
Total length rebuilt	miles	0.0	3.3	0.3
Total percentage rebuilt	percent	0	100	100

5.0 IDENTIFICATION OF THE PREFERRED ROUTE

As stated in the introductory sections, the goal in selecting a suitable route for the Project is to minimize impacts on land use and natural and cultural resources while avoiding circuitous routes, extreme costs, and non-standard design requirements. However, in practice it is not usually possible to optimally minimize all potential impacts at all times. There are often inherent tradeoffs in potential impacts to every siting decision. For example, in heavily forested areas, the route that avoids the most developed areas may likely have the greatest amount of forest clearing, while the route that has the least impact on vegetation and wildlife habitats may impact more residences or farm lands. Thus, an underlying goal of a siting study is to reach a reasonable balance between minimizing potential impacts on one resource versus increasing the potential impacts on another.

The following section summarizes the rationale for selection of the Preferred Route, and thus, the route the Siting Team considered to best minimize the overall impacts of the Project. The rationale presented is derived from the accumulation of the siting decisions made throughout the process, the knowledge and experience of the Siting Team, comments from the public and regulatory agencies, and the comparative analysis of potential impacts presented in Section 4.0.

5.1 Route Summary

A summary of the advantages and disadvantages associated with each route option are presented in **Table 4**.

Table 4. Route Summary (Advantages and Disadvantages)		
Advantages		
Criteria	**Project Area**	
	Preferred Route	**Alternate Route**
Tree clearing		Requires the least amount of tree clearing
Length of new ROW		Requires the least amount of new ROW
Outage requirements	Has the least stringent outage constraints	
Land use	No residences within 100 feet of the centerline	
Disadvantages		
Criteria	**Preferred Route**	**Alternate Route**
Tree clearing	Requires the most amount of tree clearing	
Length of new ROW	Requires 50 additional feet of new ROW	
Outage requirements		Would require a complete outage along the existing line during construction of the new line
Land use		Two residences within 100 feet of the centerline

5.2 Preferred Route

Based on a qualitative and quantitative review of information obtained from GIS data, existing easements, field reconnaissance, agency consultation and public outreach, as well as engineering, and outage constraints for the Project, the Siting Team recommends moving forward with the 3.3 miles of the 50-foot offset along the existing Berlin-Ross 69 kV transmission line—combined with the Rebuild Segment—as the Preferred Route. An overview of the Preferred Route is provided in **Attachment A - Map 5**.

Conclusion

A key factor in the decision to select the Preferred Route as the best route option was that it allows for the majority of the new transmission line to be built without requiring an outage on the existing Berlin-Ross 69 kV transmission line. This will minimize disruptions to the customers within the service area. In contrast, the Alternate Route is entirely located on centerline and within the existing ROW, thus requiring the 69 kV transmission line to be taken out of service for the duration of construction. The Preferred Route and Alternate Route are comparatively equal in regard to other factors evaluated. Collectively, the Siting Team believes that the Preferred Route meets the goal of minimizing impacts on land use, and the natural and cultural resources along the route, while avoiding circuitous routes, extreme costs, and non-standard design requirements.

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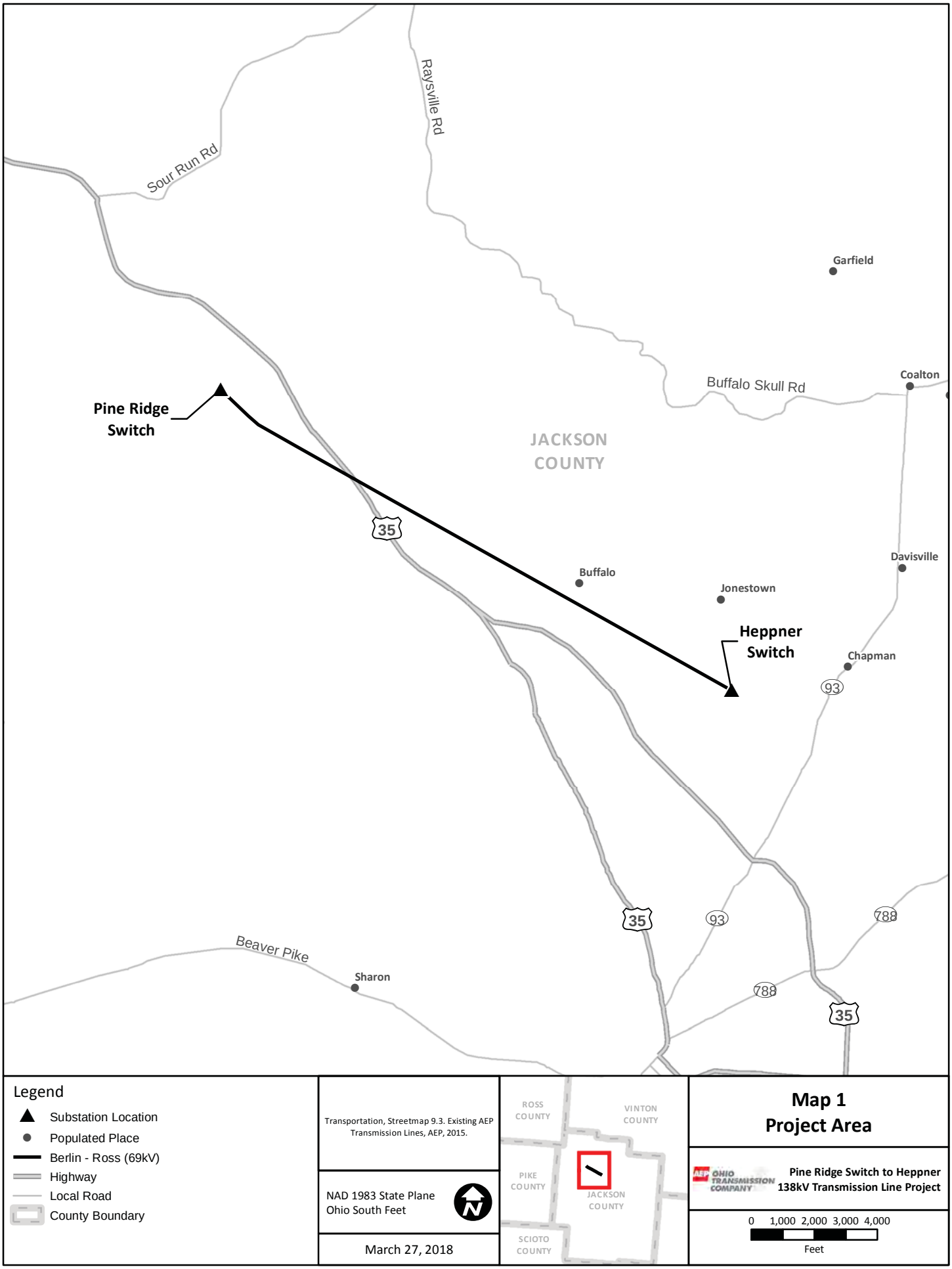
Attachment A: Maps


Raysville Rd
Sour Run Rd
Garfield
Coalton
Buffalo Skull Rd
Pine Ridge Switch
JACKSON COUNTY
35
Buffalo
Jonestown
Davisville
Heppner Switch
Chapman
93
35
93
788
Beaver Pike
Sharon
788
35
Legend
Substation Location
Populated Place
Berlin - Ross (69kV)
Highway
Local Road
County Boundary
Transportation, Streetmap 9.3. Existing AEP Transmission Lines, AEP, 2015.
NAD 1983 State Plane Ohio South Feet
March 27, 2018
ROSS COUNTY
VINTON COUNTY
PIKE COUNTY
JACKSON COUNTY
SCIOTO COUNTY
Map 1
Project Area
Pine Ridge Switch to Heppner 138kV Transmission Line Project
0 1,000 2,000 3,000 4,000
Feet

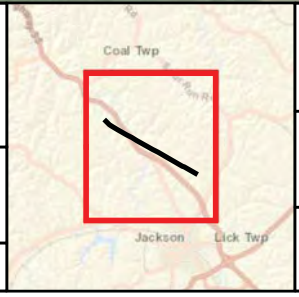
Legend

- Substation Location
- Populated Place
- Preferred Route
- Alternate Route
- Berlin - Ross (69kV) Transmission Line

ESRI World Imagery, Transportation, Esri ArcGIS Online, Accessed 03/2018. Existing AEP Transmission Lines, AEP, 2015.

NAD 1983 State Plane Ohio South Feet

March 27, 2018



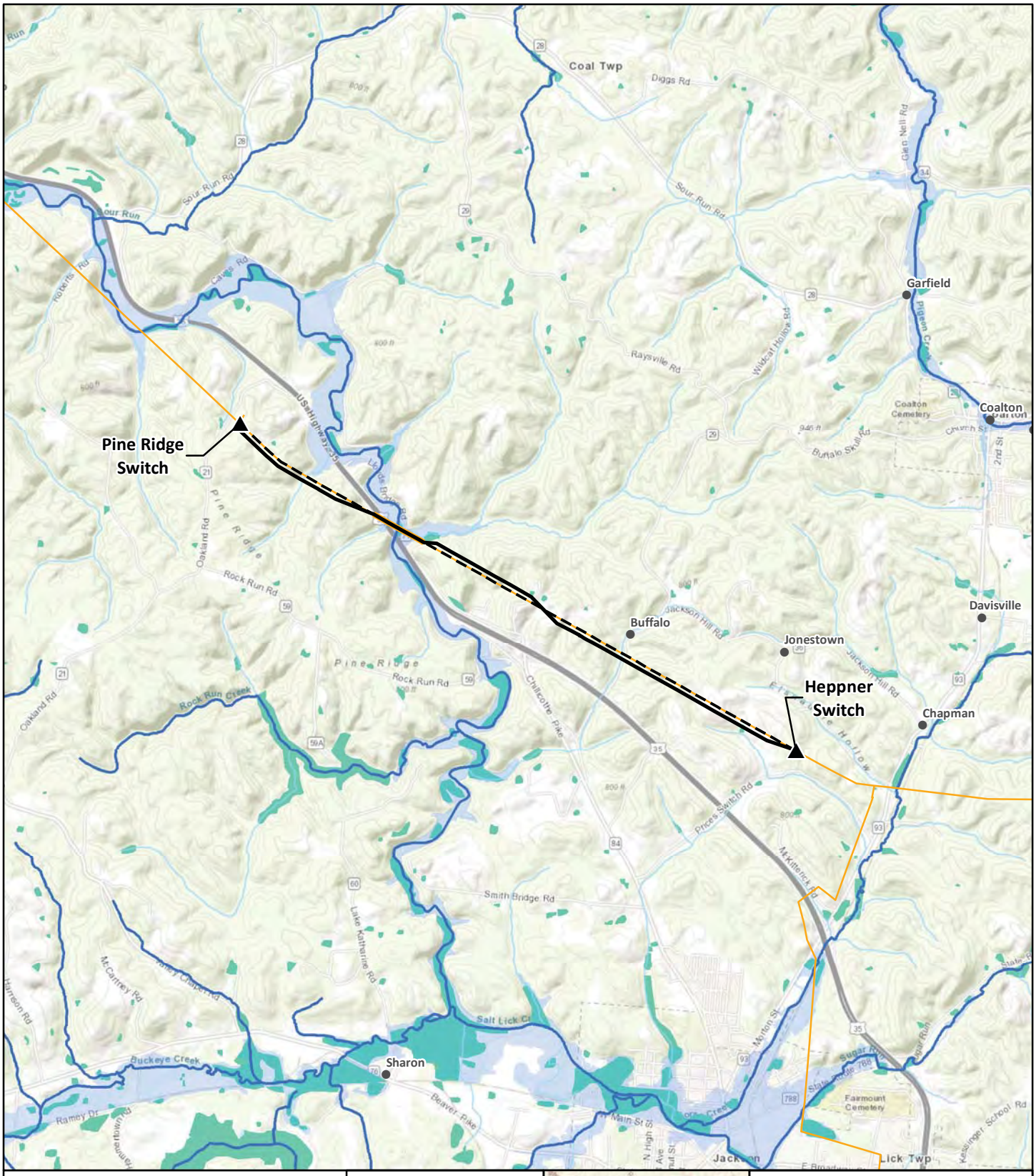
Map 2
Preferred and Alternate Route

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 750 1500 2250 3000

Feet



Legend

- Substation Location
- Populated Place
- Preferred Route
- Alternate Route
- Berlin - Ross (69kV) Transmission Line
- Ohio WQS Stream
- NHD Stream
- FEMA Floodplain
- NWI Wetland

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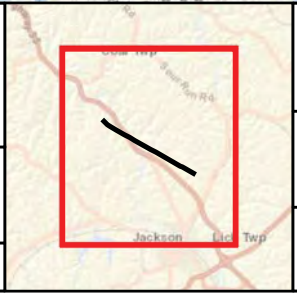
NAD 1983 State Plane Ohio South Feet

March 27, 2018



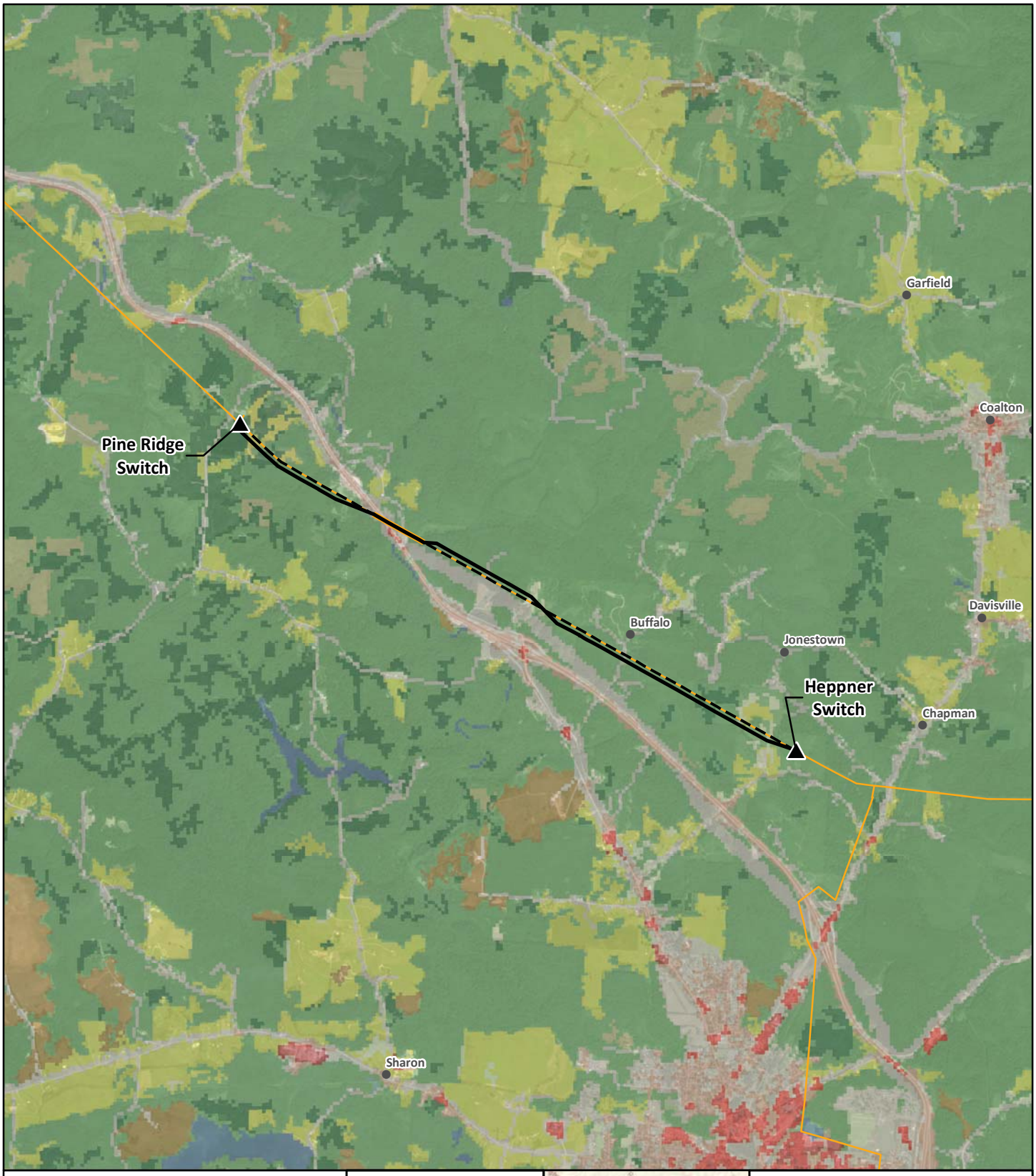
Map 3
Natural Resource Constraints

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 1000 2000 3000 4000

Feet



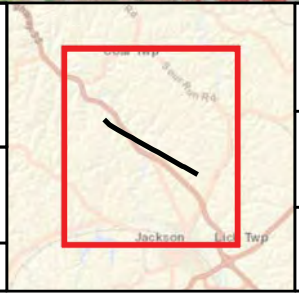
Legend

- Substation Location
- Populated Place
- Preferred Route
- Alternate Route
- Berlin - Ross (69kV) Transmission Line
- Woody Wetlands
- Shrub/Scrub
- Open Water
- Mixed Forest
- Herbaceuous
- Hay/Pasture
- Evergreen Forest
- Emergent Herbaceuous Wetlands
- Developed, Open Space
- Developed, Medium Intensity
- Developed, Low Intensity
- Developed, High Intensity
- Deciduous Forest
- Cultivated Crops
- Barren Land

World Imagery, Street Map, Transportation, Esri ArcGIS Online, Accessed 03/2018. Existing AEP Transmission Lines, AEP, 2015. NLCD Polygons:National Land Cover Database (NLCD), 2011.

NAD 1983 State Plane Ohio South Feet

March 27, 2018



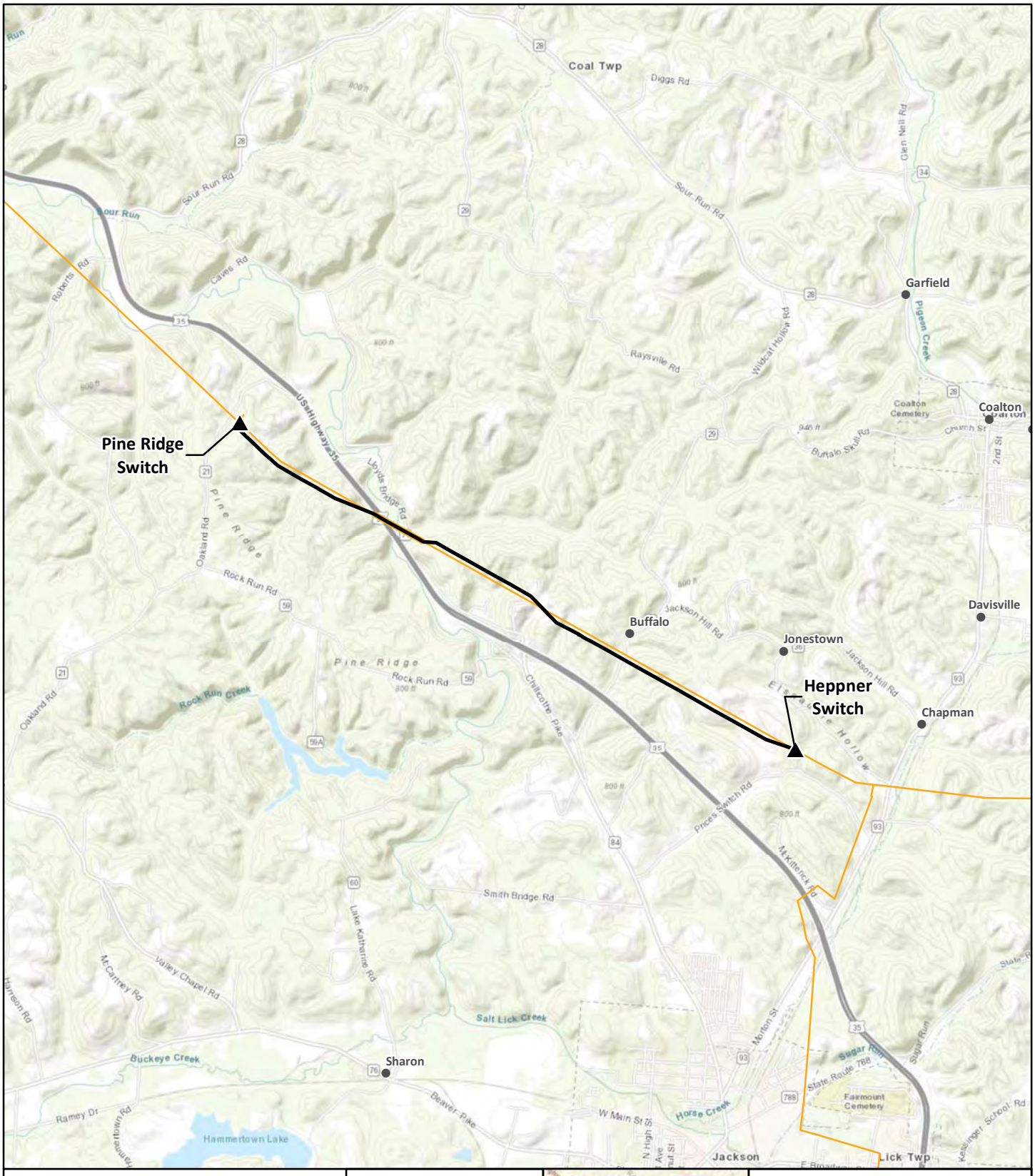
Map 4
Land Use

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 1000 2000 3000 4000

Feet



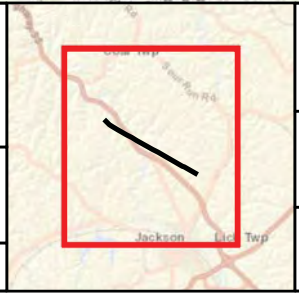
Legend

- Substation Location
- Populated Place
- Preferred Route
- Berlin - Ross (69kV) Transmission Line

World Topographic, Street Map, Transportation, Esri ArcGIS Online, Accessed 03/2018. Existing AEP Transmission Lines, AEP, 2015.

NAD 1983 State Plane Ohio South Feet

March 27, 2018



Map 5
Preferred Route

AEP OHIO TRANSMISSION COMPANY

Pine Ridge Switch to Heppner 138kV Transmission Line Project

0 1000 2000 3000 4000

Feet

Attachment B: GIS Data Sources

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Land Use		
Number of parcels crossed by the ROW	Jackson County, 2017	Count of the number of parcels crossed by the ROW
Number of residences within 1,000 feet of the route centerline	Digitized from Google Earth Imagery 2005-2015, Bing 2011, Google Streetview	Count of the number of residences within the ROW and within 1,000 feet of potential routes
Number of commercial buildings within 1,000 feet of the route centerline	Digitized from Google Earth Imagery 2005-2015, Bing 2011, Google Streetview	Count of the number of commercial buildings within the ROW and within 1,000 feet of potential routes
Crops and pasture	NLCD, 2011.	The NLCD 2011 (NLCD 2011) compiled by the Multi-Resolution Land Characteristics Consortium includes 15 classes of land cover from Landsat satellite imagery
Acres of conservation easements crossed	National Conservation Easement Database (NCED), Accessed January 2018	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 one (1)-mile	Ohio History Connection Online Mapping System, 2018	Previously identified archeological resources listed or eligible on the NRHP acquired through 2017
Number of historic architectural resources within the ROW, within 1 mile	Ohio History Connection Online Mapping System, 2018	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP acquired through 2017
Institutional uses (schools, places of worship and cemeteries) within 1,000 feet of the route centerline	ESRI ArcGIS Online, Google Earth Imagery, Google Streetview	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools.
Airfield and heliports within one (1)-mile of the route centerline	Federal Aviation Administration database, Sectional Charts, US Department of Transportation, ArcGIS Online, 2017	Distance from airfields and heliports

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Natural Environment		
Forest clearing within the ROW	Digitized based on Google Earth Imagery 2015	Acres of forest within the ROW
Number of NHD stream and waterbody crossings within the ROW	NHD, USGS, 2015	The NHD is a comprehensive set of digital spatial data prepared by the USGS that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells
Acres of NWI wetland crossings within the ROW	USFWS, National Wetland Inventory, 2017	The NWI produces information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats
Acres of 100-year floodplain crossing within the ROW	U.S. Federal Emergency and FEMA 2015	Acres of 100-year floodplain within the ROW
Special natural areas crossed by the route	ODNR Lands, ODNR, 2014, Jackson County (Parcel Data), 2017	Special natural areas in Ohio crossed by the ROW
Threatened, endangered, rare or sensitive species occurrence within the Project vicinity	Direct agency consultation with USFWS and ODNR.	Known occurrences; locations of potential habitat based on land use
Percent of prime farmland soils and soils of statewide importance within the ROW	USDA-NRCS, SSURGO Database 2017	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 of heavy angles, greater than 30 percent	Developed in GIS	Anticipated number of angled structures over 30 degrees based on preliminary design
Number of road crossings	TIGER Roads, US Census, 2017. Google Earth, 2017	Count of federal, state and local roadway crossings

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Number of pipeline crossings	U.S. Department of Transportation National Pipeline Mapping System 2017	Number of known pipelines crossed by the transmission ROW
Number of transmission line crossings	AEP Ohio Transco	Number of high voltage (100 kV or greater) transmission lines crossed by the ROW
Percentage of steep slopes crossed by the ROW	Derived from Digital Elevation Models obtained from the Ohio Geographically Referenced Information Program (OGRIP)	Miles of slope greater than 20 percent crossed by the routes
Length of transmission line parallel	AEP Ohio Transco	Miles of the route parallel to existing high voltage transmission lines
Length of pipeline parallel	U.S. Department of Transportation National Pipeline Mapping System 2017	Miles of the route parallel to existing pipelines
Length of road parallel	TIGER Roads, US Census, 2017. Google Earth, 2017	Miles of the route parallel to existing roadways

Attachment C: Agency Correspondence

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

August 22, 2017

Allison Wheaton
GAI Consultants
3720 Dressler Road NW
Canton, Ohio 44718

Re: 17-400; AEP - Heppner-Pine Ridge 138 kV Line Rebuild Project

Project: The proposed project involves the rebuild of approximately 3.6 miles of the existing Heppner – Pine Ridge transmission line, upgrading from a 69kV line to a 138kV line.

Location: The proposed project is located in Liberty and Coal Townships, Jackson 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 records at or within a one-mile radius of the project area:

Bartley's reed grass (*Calamagrostis porter* ssp. *insperata*), T, FSC
Flattened sedge (*Carex complanata*), T
Reznicek's sedge (*Carex reznicekii*), T
Spotted panic grass (*Dichanthelium yadkinense*), P
Cumberland grain o' wheat moss (*Diphyscium mucronifolium*), E
Short's hedge-hyssop (*Gratiola viscidula*), P
One-sided rush (*Juncus secundus*), P
Bigleaf magnolia (*Magnolia macrophylla*), E
Umbrella magnolia (*Magnolia tripetala*), P
Feather-bells (*Stenanthium gramineum*), P
Running buffalo clover (*Trifolium stoloniferum*), E, FE
Hemlock hardwood forest plant community
Mixed mesophytic forest plant community
Non-calcareous cliff plant community
Oak hickory forest plant community
Timber rattlesnake (*Crotalus horridus*), E, FSC
Natural bridge or arch (geologic feature)

Ophir Hollow Conservation Site
Weaver Hollow Conservation Site
Coalton Wildlife Area – ODNR Division of Wildlife
Lake Katharine State Nature Preserve – ODNR Division of Natural Areas & Preserves

The review was performed on the project area you specified in your 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

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; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

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 route crosses the southwestern corner of Coalton Wildlife Area, owned and managed by the Division of Wildlife. If access to the wildlife area outside of the existing easement is necessary, please contact John Sambuco, Federal Lands Coordinator at john.sambuco@dnr.state.oh.us or 614-265-6613. Please coordinate any access to the wildlife area with the Wildlife Area Manager, John Jenkins at 740-682-7524.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the little spectaclecase (*Villosa lienosa*), a state endangered mussel. 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 (2016), 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 10 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 (2016) can be found at:

http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf

The project is within the range of the Ohio lamprey (*Ichthyomyzon bdellium*), a state endangered fish, and the lake chubsucker (*Erimyzon sucetta*) a state threatened fish. The DOW recommends no in-water work in perennial streams from April 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 Natural Heritage Database has a record within one mile of the project route for the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. The DOW recommends that a habitat suitability survey be conducted by a DOW approved herpetologist along the project route to determine if suitable habitat exists for the timber rattlesnake. If suitable habitat is determined to be present, the DOW recommends a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet meadows and other wetlands. Due to the location, the type of habitat along the project route and within the vicinity of the project route, this project is not likely to impact this species.

The Natural Heritage Database has multiple records within one mile of the project route for the mud salamander (*Pseudotriton montanus*), a state threatened species. The DOW recommends that a habitat suitability survey be conducted by a DOW approved herpetologist along the project route to determine if suitable habitat exists for the mud salamander. If suitable habitat is determined to be present, the DOW recommends a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, 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 U.S. Fish & Wildlife Service.

Natural Areas: The Division of Natural Areas and Preserves has the following comment.

One rare plant species, Bartley's reed grass (*Calamagrostis porteri spp. Insperata),* has been documented in the Ohio Natural Heritage Database in and around the proposed project area. The Division of Natural Areas and Preserve's Chief Botanist, Rick Gardner, was previously contacted to do a rare plant survey on the property before receiving the project review and is scheduled to be on site within the next several weeks. Mr. Gardner will be able to provide AEP with a more complete plant list at that time and can work with AEP on avoidance measures if necessary. If AEP has any questions regarding the information above, including Mr. Gardner's survey, please contact him at rick.gardner@dnr.state.oh.us or (614) 265-6419.

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 John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

gai consultants

Canton Office
3720 Dressler Road Northwest
Canton, Ohio 44718

T 330.433.2680
F 330.433.2694

May 16, 2017

Project C170352.12

Environmental Review Staff
Ohio Department of Natural Resources
Division of Wildlife - Ohio Natural Heritage Program
2045 Morse Road, Building G-3
Columbus, Ohio 43229-6693

American Electric Power
Heppner – Pine Ridge 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened and Endangered Species and Critical Habitat
Jackson County, Ohio

Dear Staff:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Heppner – Pine Ridge 138kV Line Rebuild Project (Project) in Jackson County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately 3.6 miles of the existing Heppner – Pine Ridge transmission line, upgrading from a 69kV line to a 138kV line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way with bordering agricultural land, mixed deciduous forests, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

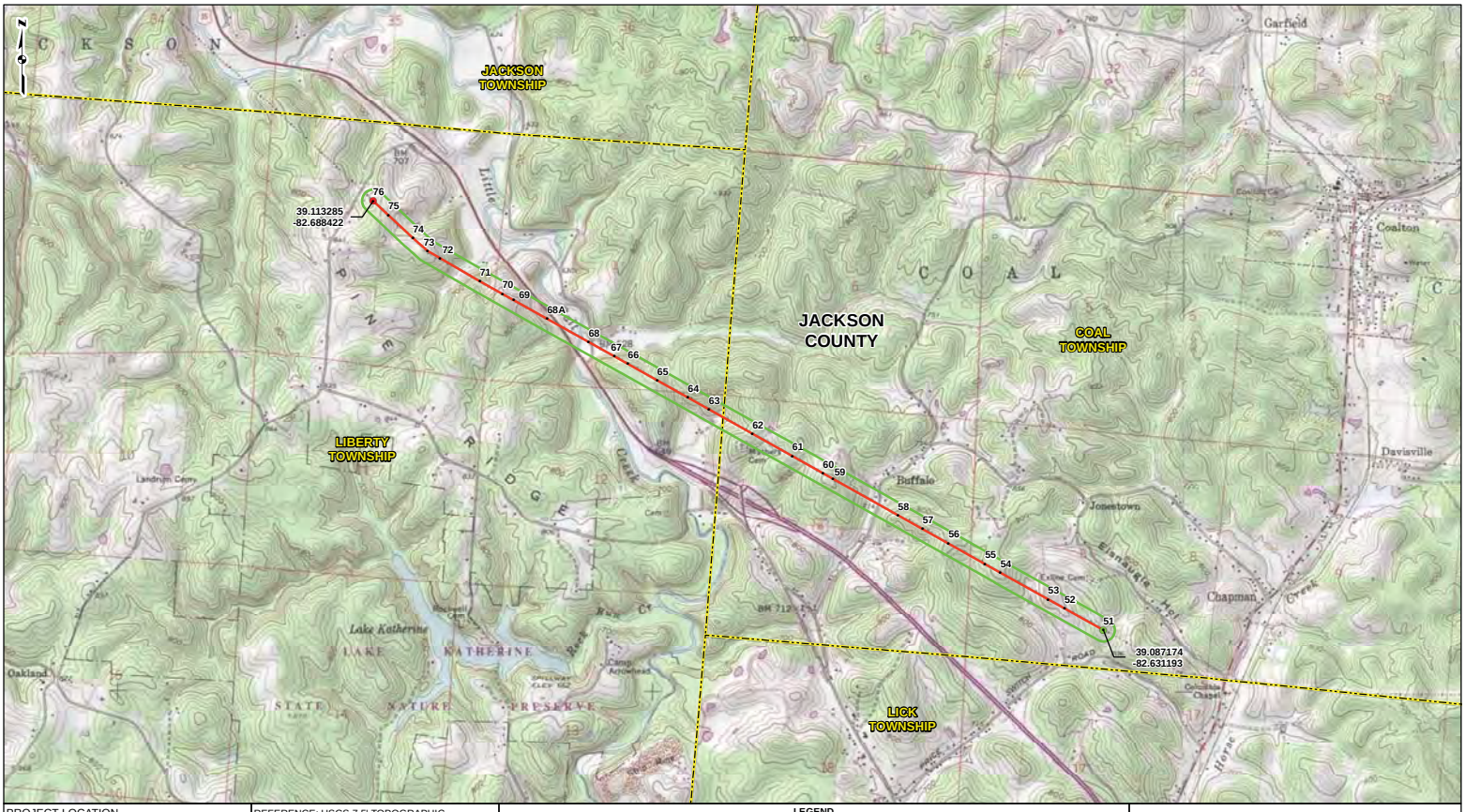
Allison R. Wheaton, WPIT
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)
Project Shapefiles

ATTACHMENT 1

PROJECT LOCATION MAP



PROJECT LOCATION

JACKSON COUNTY, OHIO

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 05/2017.

LEGEND

- EXISTING STRUCTURE
- HEPPNER SWITCH STATION
- PINE RIDGE SUBSTATION
- EXISTING TRANSMISSION LINE
- STUDY AREA
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet

PROJECT LOCATION MAP

HEPPNER - PINE RIDGE
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: AKW
CHECKED: JDP
DATE: 5/15/2017
APPROVED:

Z:\Energy\2017\C170352.12 - AEP - Pine Ridge-Heppner\GIS\MXD\Agency_Consultation\Project_Location_2017_05_10.mxd

From:	Korfel, Lindsey
To:	Allison Wheaton
Cc:	nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject:	03E15000-2017-TA-1311 GAI AEP Heppner-Pine Ridge 138kV Line Rebuild Project, Jackson County, OH
Date:	Wednesday, May 31, 2017 10:03:10 AM

TAILS # 03E15000-2017-TA-1311

Dear Ms. Wheaton,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the 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. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed 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 travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags =3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) 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 and abandoned mines.

Should the proposed site contain trees =3 inches dbh, we recommend that trees be saved 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 that removal of any trees =3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being 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, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), 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 that 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.

The proposed project lies within the range of **running buffalo clover** (*Trifolium stoloniferum*), a federally listed endangered species. From the information provided it appears that the site does receive filtered sunlight and limited disturbance occurs

due to the presence of the utility right of way. The disturbance of the existing right-of-ways may damage or destroy any existing plants. Since the existing utility easements provides suitable sunlight as well as some limited disturbance indicating suitable habitat the Service recommends completing the work between August 1 and March 30 after the perennial plant has died back for the season and foliage will not be damaged or destroyed. If work is to be completed outside if that time window, the service requests a survey for running buffalo clover be completed in the section of line running through Liberty Township, Jackson County. Based on the results of the survey the Service will evaluate potential impacts to running buffalo clover from the proposed project. The survey must be coordinated with this office, and may only be completed between May and June when the plant is in flower.

The project lies within the range of the **timber rattlesnake** (*Crotalus horridus horridus*), a federal species of concern and Ohio endangered species. Your proactive efforts to conserve this species now may help avoid the need to list the species under the Endangered Species Act in the future. Due to their rarity and reclusive nature, we encourage early project coordination to avoid potential impacts to timber rattlesnakes and their habitat.

In Ohio, the timber rattlesnake is restricted to the un-glaciated Allegheny Plateau and utilizes the specific habitat types, depending upon season. Winters are spent in dens usually associated with high, dry ridges. These dens may face any direction, but southeast to southwest are most common. Such dens usually consist of narrow crevices in the bedrock. Rocks may or may not be present on the surface. From these dens, timber rattlesnakes radiate throughout the surrounding hills and move distances as great as 4.5 miles. In the fall, timber rattlesnakes return to the same den. Intensive efforts to transplant timber rattlesnakes have not been successful. Thus protection of the winter dens is critical to the survival of this species. Some project management ideas include the following:

1. At a minimum, project evaluations should contain delineations of timber rattlesnake habitat within project boundaries. Descriptions should indicate the quality and quantity of timber rattlesnake habitat (den sites, basking sites, and foraging area, etc.) that may be affected by the project.
2. In cases where timber rattlesnakes are known to occur or where potential habitat is rated moderate to high, timber rattlesnake surveys may be necessary. If surveys are to be conducted, it may be helpful to inquire about timber rattlesnake sightings with local resource agency personnel or reliable local residents. In addition, local herpetologists may have knowledge of historical populations as well as precise knowledge of the habits, and especially the specific, local types of habitats that may contain timber rattlesnakes. Surveys should be performed during the periods of spring emergence from dens (usually a narrow window in April or May) and throughout the active season until October. The species is often easiest to locate during the summer months when pregnant females seek open areas in early morning, especially after cool evenings.
3. In portions of projects where timber rattlesnakes will be affected, clearing and construction activities should occur at distances greater than 100 feet from known dens. Most importantly, tops of ridges and areas of exposed rock should be avoided.
4. In areas where timber rattlesnake dens are known or likely to exist, maintenance activities (mowing, cutting, burning, etc.) should be conducted from November 1 to March 1, when timber rattlesnakes are hibernating.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, 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, consultation with the Service should be initiated to assess any potential impacts.

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 ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@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,

Lindsey M. Korfel

Wildlife Biologist
U.S. Fish and Wildlife Service
Ohio Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230
614.416.8993 x. 29

gai consultants

Canton Office
3720 Dressler Road Northwest
Canton, Ohio 44718

T 330.433.2680
F 330.433.2694

May 16, 2017

Project C170352.12

Mr. Dan Everson
United States Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230

American Electric Power
Heppner – Pine Ridge 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened and Endangered Species and Critical Habitat
Jackson County, Ohio

Dear Mr. Everson:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Heppner – Pine Ridge 138kV Line Rebuild Project (Project) in Jackson County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately 3.6 miles of the existing Heppner – Pine Ridge transmission line, upgrading from a 69kV line to a 138kV line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way with bordering agricultural land, mixed deciduous forests, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

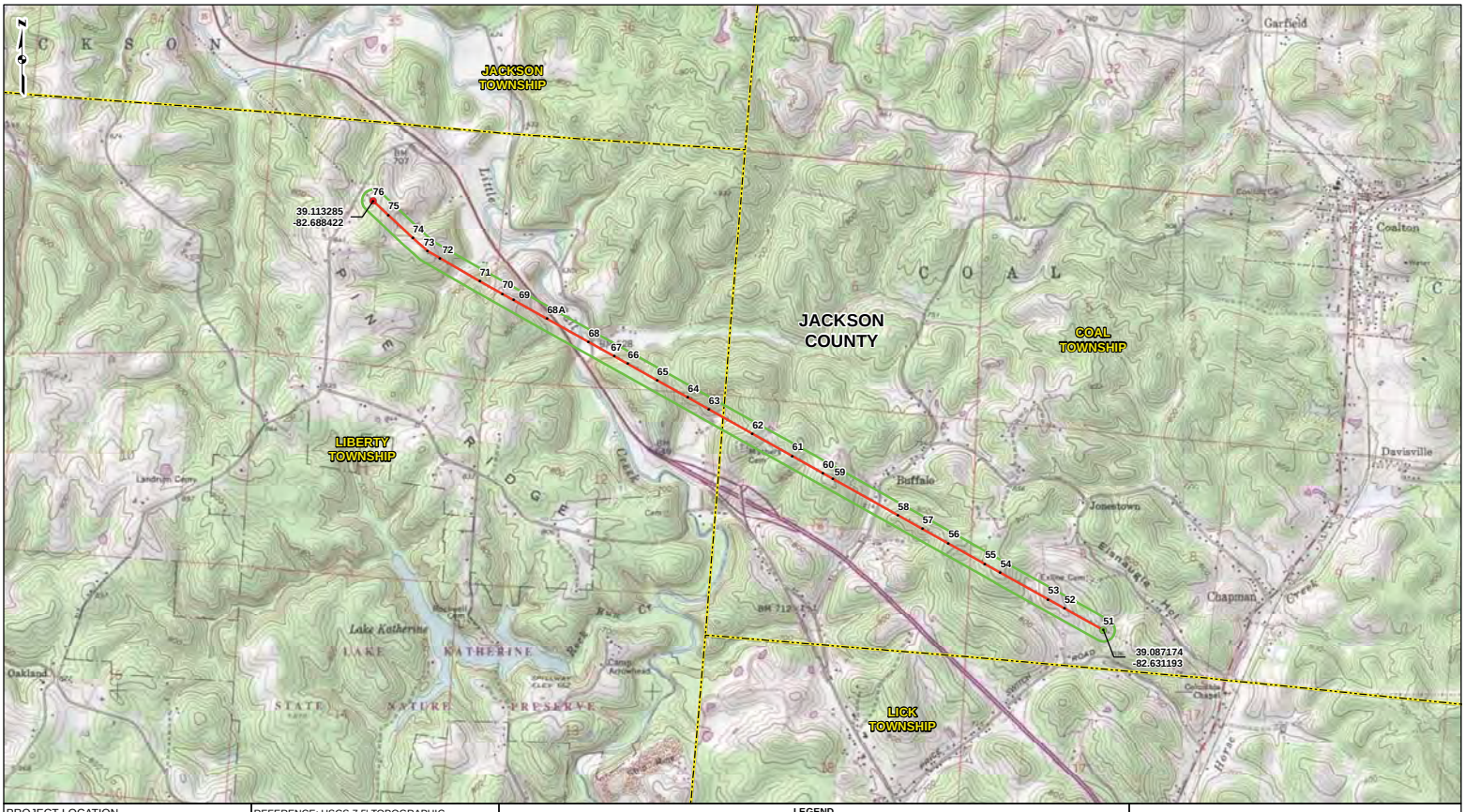
Allison R. Wheaton, WPIT
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)
Project Shapefiles

ATTACHMENT 1

PROJECT LOCATION MAP



PROJECT LOCATION

JACKSON COUNTY, OHIO

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: JACKSON (1978) AND WELLSTON (1977), OHIO, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 05/2017.

LEGEND

- EXISTING STRUCTURE
- HEPPNER SWITCH STATION
- PINE RIDGE SUBSTATION
- EXISTING TRANSMISSION LINE
- STUDY AREA
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY

0 1,000 2,000 4,000 Feet

PROJECT LOCATION MAP

HEPPNER - PINE RIDGE
138kV LINE REBUILD PROJECT
AMERICAN ELECTRIC POWER

DRAWN BY: AKW
CHECKED: JDP
DATE: 5/15/2017
APPROVED:

Z:\Energy\2017\C170352.12 - AEP - Pine Ridge-Heppner\GIS\MXD\Agency_Consultation\Project_Location_2017_05_10.mxd

APPENDIX 5-1

AEP
AMERICAN® ELECTRIC POWER
Legal Department

American Electric Power
1 Riverside Plaza
Columbus, OH 43215
aep.com

April 17, 2017

Barcy F. McNeal
Docketing Division Chief
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, Ohio 43215-3793

Steven T. Nourse
Senior Counsel –
Regulatory Services
(614) 716-1608 (P)
(614) 716-2014 (F)
stnourse@aep.com

RE: *In the Matter of the Long-Term Forecast Report of AEP Ohio Transmission Company, Inc. and Related Matters,* Case No. 17-1501-EL-FOR.

Dear Ms. McNeal:

I am submitting the enclosed 2017 Long-Term Forecast Report (LTFR) on behalf of AEP Ohio Transmission Company, Inc., pursuant to Section 4935.04, Ohio Revised Code. I have sent a copy of AEP Ohio Transmission Company, Inc.'s 2017 LTFR to the Office of the Ohio Consumers' Counsel in accordance with Rule 4901:5-1-03(F), Ohio Administrative Code.

Thank you for your attention to this matter.

Respectfully Submitted,

/s/ Steven T. Nourse
Steven T. Nourse

AEP OHIO TRANSMISSION COMPANY, INC.

LONG-TERM FORECAST REPORT

TO THE

PUBLIC UTILITIES COMMISSION OF OHIO

Case No. 17-1501-EL-FOR

2017

ELECTRIC

Case No. 17-1501-EL-FOR

LONG-TERM FORECAST REPORT

TO THE

PUBLIC UTILITIES COMMISSION OF OHIO

Submitted by

AEP Ohio Transmission Company, Inc.
700 Morrison Road
Gahanna, Ohio 43230
Telephone: (614) 716-1000

April 17, 2017

CERTIFICATE OF SERVICE

I hereby certify that:

1. Pursuant to Section 4901:5-1-03(F), Ohio Administrative Code, copies of AEP Ohio Transmission Company, Inc.'s 2017 Long-Term Forecast Report have been delivered or mailed to the Office of Consumers' Counsel on the day of the filing;

2. Pursuant to Section 4901:5-1-03(G), Ohio Administrative Code, a letter of notification stating where copies of AEP Ohio Transmission Company, Inc.'s 2017 Long-Term Forecast Report to the Public Utilities Commission of Ohio may be obtained, will be sent by first class mail to the appropriate county libraries within three days of filing;

3. Pursuant to Section 4901:5-1-03(H), Ohio Administrative Code, AEP Ohio Transmission Company, Inc. will keep at least one copy of their 2017 Long-Term Forecast Report at their principal business office for public inspection during business hours; and

4. Pursuant to Section 4901:5-1-03(I), Ohio Administrative Code, AEP Ohio Transmission Company, Inc. will provide a copy of their 2017 Long-Term Forecast Report to any person upon request at a cost to cover the expenses incurred.

Steve T. Nourse
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43215
(614) 716-1608
Attorney for AEP Ohio Transmission Company, Inc.

April 17, 2017
Dated this day in Columbus, Ohio

STATEMENT PURSUANT TO SECTION 4901:5-1-03(D),

OHIO ADMINISTRATIVE CODE

AEP Ohio Transmission Company, Inc.'s 2017 Long-Term Forecast Report is true and correct to the best of my knowledge and belief.

Robert W. Bradish
Vice President, Transmission Grid Development
AEP Ohio Transmission Company, Inc.

April 17, 2017
Dated this day in Columbus, Ohio

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LTFR TRANSMISSION FORMS

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PUCO FORM FE-T7
AEP OHIO TRANSMISSION COMPANY
CHARACTERISTICS OF EXISTING TRANSMISSION LINES

Transmission Name & Line No.[a]	Point of (Origin - Terminus)	Summer Capability		Winter Capability		Indicate Design Voltage and Operating Voltage For Each Line		Right-of-Way		Type of Supporting Structure	Number of Circuits		Substations on the Line
List Each Transmission Line of 125 kV or More	Indicate Location of Line's Beginning and Terminus	Normal Rating	Emergency Rating	Normal Rating	Emergency Rating	Operating Voltage (KV)	Design Voltage (kV)	Length (Miles)	Width Max./Min. (feet)	Steel Towers, Wood Poles or Underground, etc. and Number of Miles of the Line of Each Structure	Design	Installed	Substation Name
20237	Amlin - Hyatt	564	755	712	858	138	345	10.02	150/150	Steel - Lattice	1	1	
19838	Azalea - Dennison - Desert Road Sw	73	73	91	91	69	138	17.99	100/100	Steel - 1 pole	1	1	
24231	Azalea - Yager	296	413	375	464	138	138	4.2	100/100	Steel - H-frame	1	1	
2804	Bexley - Groves	427	498	541	572	138	138	4.34	100/100	Steel - 1 pole	1	1	
21617	Biers Run - Bixby	1409	1655	1781	1967	345	345	40.89	150/150	Steel - Lattice	1	1	
22597	Biers Run - Delano	383	449	485	534	138	138	10	100/100	Steel - 1 pole	1	1	
21618	Biers Run - Don Marquis	1409	1409	1781	1781	345	345	30.79	150/150	Wood - H-frame	1	1	
658	Bixby - Groves Road No. 1	145	145	183	183	138	138	4.52	100/100	Steel - 1 pole	1	1	THREE CREEKS SWITCH
2331	Bixby - Groves Road No. 2	427	601	541	675	138	138	4.32	100/100	Steel - 1 pole	1	1	
20738	Bixby - Ohio Central	1409	1887	1781	2144	345	345	57.43	150/150	Wood - 1 pole	1	1	
593	Bixby - West Lancaster	296	413	375	464	138	138	19.04	100/100	Wood - 3 pole	1	1	PICKERINGTON RD
16797	Blue Creek - Maddox Creek	2365	2826	3016	3363	345	345	0.03	150/150	Steel - Lattice	1	1	
24899	Britton-Davidson #2	296	398	375	452	138	138	0.9	100/100	Steel - 1 pole	1	1	
637	Circleville - Scippo	150	219	189	243	138	138	2.62	100/100	Wood - 1 pole	1	1	EAST SCIPPO SWITCH
20737	Conesville - Ohio Central	1409	1887	1781	2144	345	345	12.84	150/150	Steel - 2 pole	1	1	
677	Corridor - Gahanna 138kV	338	456	427	517	138	345	6.87	150/150	Wood - 1 pole	1	1	
18637	Corridor - Vassell No. 1	1409	1472	1781	1826	345	345	2.77	150/150	Steel - 2 pole	1	1	
18638	Corridor - Vassell No. 2	1409	1887	1781	2144	345	345	8.45	150/150	Steel - Lattice	1	1	
22417	Corwin - Elk	219	223	277	281	138	765	8.52	200/200	Steel - Lattice	1	1	
21641	Delano - Delano Rd (SCP)	200	254	253	293	138	138	0.05	100/100	Wood - 1 pole	1	1	
19358	Delaware - Vassell	338	456	427	517	138	138	16.33	100/100	Steel - 1 pole	1	1	
596	Dexter Sw. - Elliott - Poston	98	98	123	123	138	138	20.88	100/100	Wood - H-frame	1	1	MEIGS NO. 2
17718	East Leipsic - Yellow Creek	296	361	375	453	138	138	0.41	100/100	Steel - 1 pole	1	1	
17717	East Lima - Yellow Creek	145	145	183	183	138	138	25.79	100/100	Wood - 1 pole	1	1	PAULDING, CAMPBELL ROAD, RILEY CREEK SWITCH
22418	Elk - Poston	164	180	191	191	138	138	21.79	100/100	Wood - H-frame	1	1	
22219	Firebrick - Gavin	185	185	234	234	138	138	29.48	100/100	Steel - Lattice	1	1	GAVIN 138KV
22220	Firebrick - Millbrook	185	185	234	234	138	138	18.77	100/100	Steel - 1 pole	1	1	MILLBROOK PARK
709	Fremont Center - Tiffin Center #1	283	396	357	444	138	138	12.59	100/100	Wood - 1 pole	1	1	
21397	Fremont Center - Tiffin Center #2	283	396	357	444	138	138	12.59	100/100	Steel - 1 pole	1	1	
18657	Gahanna - West Millersport	359	520	455	581	138	345	21.57	150/150	Wood - 1 pole	1	1	
4942	Globe Metal - Muskingum River	167	167	210	210	138	138	0.35	100/100	Steel - Lattice	1	1	
22942	Greenlawn - Melmore	257	360	325	404	138	138	6.01	100/100	Wood - 1 pole	1	1	
710	Greenlawn - Tiffin Center	257	360	325	404	138	138	3.3	100/100	Wood - 1 pole	1	1	
21117	Highland (CSP) - Hillsboro	296	413	375	464	138	138	7.36	100/100	Wood - 1 pole	1	1	
21678	Highland (CSP) - Seaman	195	220	216	239	138	138	17.56	100/100	Steel - 1 pole	1	1	NEW MARKET SWITCH
19359	Hyatt - Vassell	1409	1472	1781	1826	345	345	16.29	150/150	Steel - Lattice	1	1	
584	Hyatt (OP) - Marysville	1166	1166	1481	1481	345	345	23.59	150/150	Steel - Lattice	1	1	
20758	Jug Street - Kirk 138kV	564	747	712	880	138	345	12.48	150/150	Steel - 2 pole	1	1	
15238	Jug Street - Kirk 345kV	1239	1566	1564	1809	345	345	12.26	150/150	Steel - Lattice	1	1	
21340	Jug Street - Smiths Mill	257	360	325	404	138	138	0.16	100/100	Steel - 1 pole	1	1	
19899	Kammer - Vassell	4047	4571	4484	4961	765	765	116.09	200/200	Steel - 1 pole	1	1	
621	Kenny - Roberts	213	282	221	328	138	138	1.17	100/100	Steel - 1 pole	1	1	
19357	Maliszewski - Vassell	4142	4142	5133	5133	765	765	10.31	200/200	Steel - 1 pole	1	1	
21398	Melmore - Tiffin Center	299	423	379	474	138	138	7.14	100/100	Steel - 1 pole	1	1	
19397	Muskingum River - Steamtown	123	123	123	123	138	138	35.42	100/100	Wood - 1 pole	1	1	SOUTH CUMBERLAND, SOUTH CALDWELL
21357	Muskingum River - Wolf Creek	205	278	258	320	138	138	4.69	100/100	Steel - H-frame	1	1	LAYMAN, CORNER
22397	North Bellville - Ohio Central	133	133	143	143	138	138	45.53	100/100	Wood - 1 pole	1	1	MILLWOOD
24229	Nottingham - Freebyrd	296	413	375	464	138	138	4.87	100/100	Steel - Lattice	1	1	

PUCO FORM FE-T7
AEP OHIO TRANSMISSION COMPANY
CHARACTERISTICS OF EXISTING TRANSMISSION LINES

Transmission Name & Line No.[a]	Point of (Origin - Terminus)	Summer Capability		Winter Capability		Indicate Design Voltage and Operating Voltage For Each Line		Right-of-Way		Type of Supporting Structure	Number of Circuits		Substations on the Line
List Each Transmission Line of 125 kV or More	Indicate Location of Line's Beginning and Terminus	Normal Rating	Emergency Rating	Normal Rating	Emergency Rating	Operating Voltage (KV)	Design Voltage (kV)	Length (Miles)	Width Max./Min. (feet)	Steel Towers, Wood Poles or Underground, etc. and Number of Miles of the Line of Each Structure	Design	Installed	Substation Name
22537	Ohio Central - Philo #2	136	173	179	206	138	138	18.87	100/100	Steel - 3 pole	1	1	
2256	Poston - Ross	195	220	216	239	138	138	42.44	100/100	Wood - H-frame	1	1	SOUTH BLOOMINGVILLE SWITCH
670	Scioto Trail - Scippo	150	180	189	227	138	138	2.2	100/100	Wood - 1 pole	1	1	DUPONT (CSP)
19398	Steamtown - Summerfield	187	205	247	258	138	138	2.41	100/100	Steel - Lattice	1	1	

a. Indicate with * if transmission line is an interconnection with another electric transmission owner and list the other transmission owner's name.

PUCO FORM FE-T8
AEP OHIO TRANSMISSION COMPANY
SUMMARY OF EXISTING SUBSTATIONS ON TRANSMISSION LINES

Substation Name	Type Distribution (D) Transmission (T)	Voltage(s) (kV)	Line Association (FE3-T7 or FE3-T9 Notation)	Notation	Line Existing or Proposed
AZALEA SWITCH	T	69 / 138	Azalea - Dennison - Desert Road Sw 69kV (Azalea - Leesville 138kV, future)	19838 (TBD)	E / P
AZALEA SWITCH	T	138	Azalea - Yager	24231	E
BIERS RUN	T	345	Biers Run - Bixby	21617	E
BIERS RUN	T	138	Biers Run - Delano	22597	E
BIERS RUN	T	345	Biers Run - Don Marquis	21618	E
BLUE RACER	T	138	Blue Racer - Summerfield	20577	E
BLUE RACER	T	138	Blue Racer - Texas Eastern	20578	E
Britton	T	138	Britton-Davidson #1	24898	E
Britton	T	138	Britton-Davidson #2	24899	E
Britton	T	138	Britton-Dublin	24897	E
EBERSOLE	T	138	Ebersole - Findlay Center	20859	E
EBERSOLE	T	138	Ebersole - Flag City	24718	E
EBERSOLE	T	138	Ebersole - Fostoria Central #1	20860	E
EBERSOLE	T	138	Ebersole - Fostoria Central #2	20858	E
EBERSOLE	T	138	Ebersole - North Findlay	20917	E
EMERALD SWITCH	T	138	*Kenton (LGE-KU) - Wildcat	18078	E
FIREBRICK	T	138	Firebrick - Gavin	22219	E
FIREBRICK	T	138	Firebrick - Millbrook	22220	E
FREEBYRD	T	138	Freebyrd - Nottingham	24229	E
FREEBYRD	T	138	Freebyrd-South Cadiz	18697	P
GOOD HOPE SWITCH	T	138	Harrison (Csp) - Poston	634	E
HOLLOWAY	T	345	Beverly - Holloway	22497	E
HOLLOWAY	T	345	Holloway - Tidd	22498	E
LOGTOWN	T	138	Lincoln - Logtown	24278	E
LOGTOWN	T	138	Logtown - North Delphos	24385	E
MADDOX CREEK	T	345	Blue Creek - Maddox Creek	16797	E
MADDOX CREEK	T	345	East Lima - Maddox Creek	16757	E
MADDOX CREEK	T	345	Maddox Creek - RP Mone	16758	E
MELMORE	T	138	Fostoria Central - Melmore	22938	E
MELMORE	T	138	Greenlawn - Melmore	22942	E
MELMORE	T	138	Howard - Melmore #1	22939	E
MELMORE	T	138	Howard - Melmore #2	22941	E
MELMORE	T	138	Melmore - Tiffin Center	21398	E
MELMORE	T	138	Melmore - West End Fostoria	22940	E
NEW MARKET SWITCH	T	138	Highland (CSP) - Seaman	21678	E
NOTTINGHAM SWITCH	T	138	Freebyrd - Nottingham	24229	E
ROBERT P. MONE	T	345	Allen - RP Mone	20482	E
ROBERT P. MONE	T	345	Maddox Creek - RP Mone	16758	E

PUCO FORM FE-T8
AEP OHIO TRANSMISSION COMPANY
SUMMARY OF EXISTING SUBSTATIONS ON TRANSMISSION LINES

Substation Name	Type Distribution (D) Transmission (T)	Voltage(s) (kV)	Line Association (FE3-T7 or FE3-T9 Notation)	Notation	Line Existing or Proposed
SOUTH BLOOMINGVILLE SWITCH	T	138	Poston - Ross	2256	E
STEAMTOWN	T	138	Muskingum River - Steamtown	19397	E
STEAMTOWN	T	138	Steamtown - Summerfield	19398	E
STEMPLE SWITCH	T	345	Canton Central - Stemple Sw.	23297	E
STEMPLE SWITCH	T	345	Stemple Switch - Tidd	22977	E
TIMBER SWITCH	T	138	Haviland - Timber Switch	16677	E
TIMBER SWITCH	T	138	Milan - Timber Switch	16678	E
TIMBER SWITCH	T	138	Timber Road No. 2 - Timber Switch	16817	E
VASSELL	T	345	Corridor - Vassell No. 1	18637	E
VASSELL	T	345	Corridor - Vassell No. 2	18638	E
VASSELL	T	138	Delaware - Vassell	19358	E
VASSELL	T	345	Hyatt - Vassell	19359	E
VASSELL	T	765	Kammer - Vassell	19899	E
VASSELL	T	765	Maliszewski - Vassell	19357	E
WARE ROAD	T	138	Adams - Ware Road	22118	E
WARE ROAD	T	138	Ware Road - Waverly	18299	E
YAGER	T	138	Azalea - Yager	24231	E
YAGER	T	138 (operated at 69)	Dennison - Yager 138kV (operated at 69kV)	24238	P
YAGER	T	138 (operated at 69)	Yager - Desert Rd 138kV (operated at 69kV)	24237	P
YAGER	T	138	Yager - Leesville	24232	P
YELLOW CREEK	T	138	East Leipsic - Yellow Creek	17718	E
YELLOW CREEK	T	138	East Lima - Yellow Creek	17717	E

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Adams-Seaman 138kV, 22117
2.	**Points of Origin and Termination:**	Adams - Seaman
3.	**Right-Of-Way:**	7.94 mi, 100 ft, single
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	TBD
6.	**Construction:**	To be completed approx. 2019
7.	**Capital Investment:**	Approx. $8 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	overhead, some wood, some steel
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	Line Rebuild

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Adams-Ware Road 138kV, 22118
2.	**Points of Origin and Termination:**	Adams - Ware Road
3.	**Right-Of-Way:**	20.24 mi, 100 feet, single
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	TBD
6.	**Construction:**	To be completed approx. 2019
7.	**Capital Investment:**	Approx. $24 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	overhead, wood
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	Line Rebuild

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Berlin-Lick-Ross 69kV
2.	**Points of Origin and Termination:**	Lick - Ross
3.	**Right-Of-Way:**	32.5 miles, 100 feet, single
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	LON filed Fall 2017, Application by end of year 2017
6.	**Construction:**	Station contruction to start in 2017. Lin coinstruction to start in 2018.
7.	**Capital Investment:**	Approx. $62 million
8.	**Planned Substations:**	Name-Ironman, Heppner, Rhodes; Voltage-138kV (operated at 69kV); Acreage-Approx. 3 acres;
9.	**Supporting Structures:**	Single & H-Frame steel poles
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	To serve city of Jackson with second deliver point. Rebuild existing line for rehab needs.
12.	**Consequences of Line Construction Deferment or Termination:**	Continued deterioration and reduced reliability, and cannot serve customer as requested.
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Biers Run-Circleville
2.	**Points of Origin and Termination:**	Proposed Biers Run station / Circleville
3.	**Right-Of-Way:**	23.5 miles / 100 ft / Biers Run-Circleville
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	Submitted
6.	**Construction:**	To be completed approx. 2017
7.	**Capital Investment:**	Approx. $24 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Biers Run-Hopetown
2.	**Points of Origin and Termination:**	Proposed Biers Run station / Proposed Hopetown Station
3.	**Right-Of-Way:**	5.5 miles / 100 ft / Biers Run-Hopetown
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	Submitted
6.	**Construction:**	To be completed approx. 2018
7.	**Capital Investment:**	Approx. $5.5 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Blue Racer-Texas Eastern 138kV
2.	**Points of Origin and Termination:**	Blue Racer & Texas Eastern Berne
3.	**Right-Of-Way:**	0.15 miles / 100 ft / 1 circuit
4.	**Voltage:**	138kV / 138kV
5.	**Application For Certificate:**	Estimated filing in 2017-18
6.	**Construction:**	Estimated completion 2020
7.	**Capital Investment:**	Approx. $0.4 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Single Pole, single circuit
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Provide 138kV service to customer; line must be re-routed to facilitate Blue Racer station upgrades
12.	**Consequences of Line Construction Deferment or Termination:**	Lack of 138kV service for Texas Eastern; delay of Herlan-Blue Racer PJM project
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Buckley Road-East End Fostoria-Fremont Center, 4782
2.	**Points of Origin and Termination:**	Buckley Road-East End Fostoria-Fremont Center
3.	**Right-Of-Way:**	15.25 mi / 100 / single ckt, some double ckt
4.	**Voltage:**	138 kV/69 kV
5.	**Application For Certificate:**	Application, 2017
6.	**Construction:**	To be completed approx. 5/31/19
7.	**Capital Investment:**	$26.8M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead, Steel, Pole
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Rebuild of existing line for rehabilitation.
12.	**Consequences of Line Construction Deferment or Termination:**	Continued deterioration and reduced reliability.
13.	**Miscellaneous**	Allendale-Fremont Center line rebuild

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Carrollton-Sunnyside 138kV
2.	**Points of Origin and Termination:**	Carrollton / Sunnyside
3.	**Right-Of-Way:**	20 miles / 100 ft/ 1 circuit
4.	**Voltage:**	138kV / 138kV
5.	**Application For Certificate:**	LON filing in 2017-18
6.	**Construction:**	Est. completion in 2020-21
7.	**Capital Investment:**	Approx.$30 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Steel poles, 6-wired single circuit
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Rebuild of 100-year old line which has deteriorated
12.	**Consequences of Line Construction Deferment or Termination:**	Potential reliability issues with nearly 100-yr old T-Line (Tidd-Carrollton)
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Corridor - Jug Street 345kV, 15237
2.	**Points of Origin and Termination:**	Corridor - Jug Street
3.	**Right-Of-Way:**	6.4 miles / 150 ft / Corridor-Jug Street 345 & 138kV (Double Circuit)
4.	**Voltage:**	345,345 kV Design / 345,138 kV Operation
5.	**Application For Certificate:**	LON, 2017-2018
6.	**Construction:**	To be completed approx. 2019
7.	**Capital Investment:**	Approx. $28.4 million (total project)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead, Steel
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	Line rebuild & upgrade

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Corridor-Jug Street 138kV Ckt
2.	**Points of Origin and Termination:**	Corridor Station / Jug Street Station
3.	**Right-Of-Way:**	6.4 miles / 150 ft / Corridor-Jug Street 345 & 138kV (Double Circuit)
4.	**Voltage:**	345,345 kV Design / 345,138 kV Operation
5.	**Application For Certificate:**	LON, 2017-2018
6.	**Construction:**	To be completed approx. 2019
7.	**Capital Investment:**	Approx. $28.4 million (total project)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead, Steel
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	Line rebuild & upgrade

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Delano-Ross #1
2.	**Points of Origin and Termination:**	Delano / Ross
3.	**Right-Of-Way:**	4.7 miles / 100 ft / Delano-Ross
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	To be filed in 2014-2015
6.	**Construction:**	To be completed approx. 2015
7.	**Capital Investment:**	Approx. $5 million (both circuits)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Delano-Ross #2
2.	**Points of Origin and Termination:**	Delano / Ross
3.	**Right-Of-Way:**	4.7 miles / 100 ft / Delano-Ross
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	To be filed in 2014-2015
6.	**Construction:**	To be completed approx. 2015
7.	**Capital Investment:**	Approx. $5 million (both circuits)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Dennison-Yager 69kV (138kV design)
2.	**Points of Origin and Termination:**	Dennison / Yager (proposed)
3.	**Right-Of-Way:**	7.3 miles / 100 ft / 1 circuit 6-wired
4.	**Voltage:**	138 kV / 69 kV
5.	**Application For Certificate:**	Application filed July 2016
6.	**Construction:**	To be completed approx. Dec. 2017
7.	**Capital Investment:**	Approx. $15 million
8.	**Planned Substations:**	Name-Irish Run Switch (existing); Voltage-69kV; Acreage-0; Location-Ulrichsville, Ohio (Tuscarawas County)
9.	**Supporting Structures:**	Single steel poles with single circuit 6-wired
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased customer loads
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability, load curtailed at industrial customers
13.	**Miscellaneous**	69kV line rebuild (but to 138kV specs)

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Devola - Highland Ridge Switch 138 kV
2.	**Points of Origin and Termination:**	Devola / Highland Ridge Switch
3.	**Right-Of-Way:**	4 miles / 100 ft / 1 circuit
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	To be sumbitted 2017 or 2018
6.	**Construction:**	To be completed approx. December 2019.
7.	**Capital Investment:**	Approx $ 8.5 M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Single steel poles with single circuit
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Increased area reliability
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Devola - Mill Creek 138 kV
2.	**Points of Origin and Termination:**	Devola / Mill Creek
3.	**Right-Of-Way:**	0.25 miles / 100 ft / 1 circuit
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	To be sumbitted in 2017 or 2018
6.	**Construction:**	To be completed approx. June 2020
7.	**Capital Investment:**	Approx $ 0.6 M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Single steel poles with single circuit
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Connect new Devola station to existing Mill Creek; serve AEP Ohio loads
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability; part of overall plan to improve Marietta area system
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Dexter Sw. - Elliott - Lemaster 138 kV (Existing circuit Dexter Sw. - Elliott - Poston 138 kV circuit renamed due to Poston station being replaced by Lemaster station.)
2.	**Points of Origin and Termination:**	Lemaster/ Dexter Sw. Elliott
3.	**Right-Of-Way:**	20.88 miles/100ft, 1 circuit
4.	**Voltage:**	138 kV/ 138 kV
5.	**Application For Certificate:**	LON to be filed in Spring 2017.
6.	**Construction:**	Station construction to start in 2017. Line construction to start in 2018.
7.	**Capital Investment:**	Approx: $1.10 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	TBD
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	To terminate in the new Lemaster station.
12.	**Consequences of Line Construction Deferment or Termination:**	Will not connect to new Lemaster station.
13.	**Miscellaneous**	Line relocation to connect to the new Lemaster station that will replace Posotn station.

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Dilles Bottom-George Washington 138kV
2.	**Points of Origin and Termination:**	Dilles Bottom & George Washington
3.	**Right-Of-Way:**	1.5 miles / 100 ft / 2 circuits
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	Filing in late 2017 or early 2018
6.	**Construction:**	Completion est. 2019
7.	**Capital Investment:**	Approx. $2.5M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Single Pole double circuit construction
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Service to IPP customer and potential cracker plant.
12.	**Consequences of Line Construction Deferment or Termination:**	Customer generation curtailment (Moundsville Power); PJM reliability issues
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Dilles Bottom-Holloway 138kV
2.	**Points of Origin and Termination:**	Dilles Bottom & Holloway
3.	**Right-Of-Way:**	1.3 miles / 100 ft / 2 circuits
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	Filing in late 2017 or early 2018
6.	**Construction:**	Completion est. 2019
7.	**Capital Investment:**	Approx. $3.5M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Single Pole double circuit construction
10.	**Participation with Other Utilities:**	Partially feed through existing First Energy owned 138kV lines (Burger-Holloway)
11.	**Purpose of the Planned Transmission Line**	Service to IPP customer and potential cracker plant.
12.	**Consequences of Line Construction Deferment or Termination:**	Customer generation curtailment (Moundsville Power); PJM reliability issues
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Dublin-Amlin
2.	**Points of Origin and Termination:**	Dublin-Amlin
3.	**Right-Of-Way:**	3.6 mi / 100 / double ckt
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	Application, 2017-2018
6.	**Construction:**	To be completed approx. 6/1/2019
7.	**Capital Investment:**	Est. Approx. $12M (for both circuits)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	TBD
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Facilities overload driven by customer
13.	**Miscellaneous**	May be overhead or underground. Pending negotiations with local authorities.

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Dublin-Sumac
2.	**Points of Origin and Termination:**	Dublin-Sumac
3.	**Right-Of-Way:**	3.6 mi / 100 / double ckt
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	Application, 2017-2018
6.	**Construction:**	To be completed approx. 6/1/2019
7.	**Capital Investment:**	Est. Approx. $12M (for both circuits)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	TBD
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Facilities overload driven by customer
13.	**Miscellaneous**	May be overhead or underground. Pending negotiations with local authorities.

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	East Lima - Haviland, 2062
2.	**Points of Origin and Termination:**	East Lima-Haviland
3.	**Right-Of-Way:**	29.4 mi / 100 / double ckt
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	LON, 2017
6.	**Construction:**	To be completed approx. 12/18/20
7.	**Capital Investment:**	$51.5M for both circuits
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead, Steel, Pole
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Rebuild of existing line for rehabilitation.
12.	**Consequences of Line Construction Deferment or Termination:**	Continued deterioration and reduced reliability.
13.	**Miscellaneous**	Haviland-North Delphos line rebuild

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	East Lima - South Kenton 138kV, 700
2.	**Points of Origin and Termination:**	East Lima & South Kenton
3.	**Right-Of-Way:**	30.8 miles / 100ft / 1 circuit
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	LON or Construction Notice in 2022
6.	**Construction:**	est completion in 2024
7.	**Capital Investment:**	approx. $46.2 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Steel Poles
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Rebuild of existing line for rehabilitation.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced reliability as line continues to deteriorate
13.	**Miscellaneous**	Line Rebuild largely in existing ROW

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	East Lima-Maddox Creek 345kV, 16757
2.	**Points of Origin and Termination:**	East Lima-Maddox Creek
3.	**Right-Of-Way:**	30.34 mi / 150 / single ckt
4.	**Voltage:**	345 kV / 345 kV
5.	**Application For Certificate:**	LON, 2018
6.	**Construction:**	To be completed approx. 6/1/2021
7.	**Capital Investment:**	Approx $18.2M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Existing Steel Lattice
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Connect and serve new generation customer
12.	**Consequences of Line Construction Deferment or Termination:**	Generation deliverability limitation
13.	**Miscellaneous**	Line reconductor on existing structures

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Elk - Lemaster 138 kV (Existing circuit Elk - Poston 138 kV circuit renamed due to Poston station being replaced by Lemaster station.)
2.	**Points of Origin and Termination:**	Lemaster /Elk
3.	**Right-Of-Way:**	20.88 miles/100ft, 1 circuit
4.	**Voltage:**	138 kV/ 138 kV
5.	**Application For Certificate:**	LON to be filed in Spring 2017.
6.	**Construction:**	Station construction to start in 2017. Line construction to start in 2018.
7.	**Capital Investment:**	Approx: $1 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	TBD
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	To terminate in the new Lemaster station.
12.	**Consequences of Line Construction Deferment or Termination:**	Will not connect to new Lemaster station.
13.	**Miscellaneous**	Line relocation to connect to the new Lemaster station that will replace Posotn station.

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Freebyrd - South Cadiz 138 kV
2.	**Points of Origin and Termination:**	South Cadiz / Freebyrd Station
3.	**Right-Of-Way:**	2 miles / 100 ft.
4.	**Voltage:**	138 / 138 kV
5.	**Application For Certificate:**	LON Submitted
6.	**Construction:**	Started in 2016; in progress
7.	**Capital Investment:**	Approx $7M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Steel Poles, double circuit construction
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Serve customer load increase that otherwise would overload existing 69 kV facilities.
12.	**Consequences of Line Construction Deferment or Termination:**	Customer served from South Cadiz-Freebyrd could not increase to full desired load.
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Gable-Carrollton 138kV
2.	**Points of Origin and Termination:**	Gable / Carrollton
3.	**Right-Of-Way:**	29 miles / 100 ft/ 1 circuit
4.	**Voltage:**	138 / 138 kV
5.	**Application For Certificate:**	LON filing in 2017-18
6.	**Construction:**	Est. completion in 2020-21
7.	**Capital Investment:**	Approx. $40 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Steel poles, 6-wired single circuit
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Rebuild of 100-year old line which has deteriorated
12.	**Consequences of Line Construction Deferment or Termination:**	Potential reliability issues with nearly 100-yr old T-Line (Tidd-Carrollton)
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Glencoe - Speidel 138 kV
2.	**Points of Origin and Termination:**	Glencoe Switch / Speidel Switch
3.	**Right-Of-Way:**	13.5 miles / 100 ft.
4.	**Voltage:**	138 / 69 kV
5.	**Application For Certificate:**	To be Submitted in 2017-18
6.	**Construction:**	To start in 2018 or 2019
7.	**Capital Investment:**	Approx. $20 Million
8.	**Planned Substations:**	Name-South Belmont Switch; Watertower Switch; Lamira Switch; Voltage-138; Acreage-; Location-
9.	**Supporting Structures:**	Steel Poles, single circuit on double circuit construction
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Support area shale load growth and other system upgrades. Replace deteriorated 69 kV facilities.
12.	**Consequences of Line Construction Deferment or Termination:**	Continuing to serve area shale growth and obtaining outages for other required upgrades both become increasingly difficult.
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Harrison-Circleville #1
2.	**Points of Origin and Termination:**	Harrison / Circleville
3.	**Right-Of-Way:**	15.2 miles / 100 ft / Harrison-Circleville
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	If required, to be filed in 2014-2015
6.	**Construction:**	To be completed approx. 2017
7.	**Capital Investment:**	Approx. $16 million (both circuits)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Harrison-Circleville #2
2.	**Points of Origin and Termination:**	Harrison / Circleville
3.	**Right-Of-Way:**	15.2 miles / 100 ft / Harrison-Circleville
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	If required, to be filed in 2014-2015
6.	**Construction:**	To be completed approx. 2017
7.	**Capital Investment:**	Approx. $16 million (both circuits)
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Harrison (Csp) - Lemaster (Existing circuitHarrison (Csp) - Poston 138 kV circuit renamed due to Poston station being replaced by Lemaster station.)
2.	**Points of Origin and Termination:**	Lemaster /Harrison
3.	**Right-Of-Way:**	54.36/100ft, 1 circuit
4.	**Voltage:**	138 kV/ 138 kV
5.	**Application For Certificate:**	LON to be filed in Spring 2017.
6.	**Construction:**	Station construction to start in 2017. Line construction to start in 2018.
7.	**Capital Investment:**	Approx: $0.803 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	TBD
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	To terminate in the new Lemaster station.
12.	**Consequences of Line Construction Deferment or Termination:**	Will not connect to new Lemaster station.
13.	**Miscellaneous**	Line relocation to connect to the new Lemaster station that will replace Posotn station.

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Herlan-Blue Racer 138kV
2.	**Points of Origin and Termination:**	Herlan Switch & Blue Racer
3.	**Right-Of-Way:**	3.2 miles / 100 ft / 1 circuit
4.	**Voltage:**	138kV / 138kV
5.	**Application For Certificate:**	Application filed Jan. 2017
6.	**Construction:**	Estimated completion 2019
7.	**Capital Investment:**	Approx. $7M
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Single Pole, single circuit
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased customer loads; resolves PJM baseline reliability concerns
12.	**Consequences of Line Construction Deferment or Termination:**	PJM RTEP planning critera violations, reduced reliability to major industrial customers
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Hocking - Lemaster (Existing circuit Hocking - Poston 138 kV circuit renamed due to Poston station being replaced by Lemaster station.)
2.	**Points of Origin and Termination:**	Lemaster /Hocking
3.	**Right-Of-Way:**	15.65/100ft, 1 circuit
4.	**Voltage:**	138 kV/ 138 kV
5.	**Application For Certificate:**	LON to be filed in Spring 2017.
6.	**Construction:**	Station construction to start in 2017. Line construction to start in 2018.
7.	**Capital Investment:**	Approx: $0.957 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	TBD
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	To terminate in the new Lemaster station.
12.	**Consequences of Line Construction Deferment or Termination:**	Will not connect to new Lemaster station.
13.	**Miscellaneous**	Line relocation to connect to the new Lemaster station that will replace Posotn station.

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Hopetown-Delano
2.	**Points of Origin and Termination:**	Proposed Hopetown Station / Delano
3.	**Right-Of-Way:**	5.5 miles / 100 ft / Hopetown-Delano
4.	**Voltage:**	138 kV / 138 kV
5.	**Application For Certificate:**	Submitted
6.	**Construction:**	To be completed approx. 2018
7.	**Capital Investment:**	Approx. $5.5 million
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Overhead
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Area reliability/serve increased area capacity.
12.	**Consequences of Line Construction Deferment or Termination:**	Reduced area reliability
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	June Road Extension (connect to Tidd-Wagenhals 138kV)
2.	**Points of Origin and Termination:**	June Road Station, in-and-out loop (Malvern)
3.	**Right-Of-Way:**	600-700 feet / 100 ft / 2 circuits
4.	**Voltage:**	138 kV/138 kV
5.	**Application For Certificate:**	LON or Construction Notice in 2017
6.	**Construction:**	Est. to start in 2nd half of 2017
7.	**Capital Investment:**	$400,000
8.	**Planned Substations:**	Name-N/A; Voltage-N/A; Acreage-N/A; Location-N/A
9.	**Supporting Structures:**	Steel Poles
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Connect to future upgraded 138/69/12kV T & D station
12.	**Consequences of Line Construction Deferment or Termination:**	Inability to connect to new greenfield transmission & distribution station
13.	**Miscellaneous**	N/A

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

1.	**Line Name and Number:**	Lamping-Devola 138kV
2.	**Points of Origin and Termination:**	Lamping (proposed) / Devola (proposed)
3.	**Right-Of-Way:**	24 miles / 100 ft. / 1 circuit
4.	**Voltage:**	138kV / 138kV
5.	**Application For Certificate:**	Initial leg (Lamping-Rouse) submitted Dec 2016; other segments will be submitted in 2017-18
6.	**Construction:**	To be completed approx. June 2021
7.	**Capital Investment:**	Approx. $25 million
8.	**Planned Substations:**	Name-Rouse Switch, Bell Ridge Switch; Voltage-138kV; Acreage-0.0 (switch pole); Location-Washington County
9.	**Supporting Structures:**	Steel H-frames with single circuit
10.	**Participation with Other Utilities:**	N/A
11.	**Purpose of the Planned Transmission Line**	Improved area reliability, replacing failing 23kV system; serve Washington Electric Co-op substations
12.	**Consequences of Line Construction Deferment or Termination:**	Continued poor reliability in the Marietta area
13.	**Miscellaneous**	N/A

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Case No(s). 18-0031-EL-BTX

Summary: Application (5 Parts) electronically filed by Ms. Christen M. Blend on behalf of AEP Ohio Transmission Power Company, Inc.