

Staff Report of Investigation

AEP Ohio Transmission Company
Seaman-Sardinia 138 kV Transmission Line Project

Case No. 18-0033-EL-BTX

September 26, 2018



John R. Kasich, Governor | Asim Z. Haque, Chairman

In the Matter of the Application of AEP Ohio)
Transmission Company, Inc. for a Certificate of)
Environmental Compatibility and Public Need for the) Case No. 18-0033-EL-BTX
Seaman-Sardinia 138 kV Transmission)
Line Project.)

Staff Report of Investigation

Submitted to the
OHIO POWER SITING BOARD

BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

In the Matter of the Application of AEP Ohio)
Transmission Company, Inc. for a Certificate of)
Environmental Compatibility and Public Need for the) **Case No. 18-0033-EL-BTX**
Seaman-Sardinia 138 kV Transmission)
Line Project.)

Chairman, Public Utilities Commission	Director, Department of Natural Resources
Director, Department of Agriculture	Public Member
Director, Development Services Agency	Ohio House of Representatives
Director, Environmental Protection Agency	Ohio Senate
Director, Department of Health	

To the Honorable Power Siting Board:

In accordance with the Ohio Revised Code (R.C.) 4906.07(C) and rules of the Ohio Power Siting Board (Board), the staff of the Public Utilities Commission of Ohio (Staff) has completed its investigation in the above matter and submits its findings and recommendations in this Staff Report for consideration by the Board.

The findings and recommendations contained in this report are the result of Staff coordination with the following agencies that are members of the Board: Ohio Environmental Protection Agency, the Ohio Department of Health, the Ohio Development Services Agency, the Ohio Department of Natural Resources, and the Ohio Department of Agriculture. In addition, Staff coordinated with the Ohio Department of Transportation, the Ohio Historic Preservation Office, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the Federal Aviation Administration.

In accordance with R.C. 4906.07(C) and 4906.12, copies of this Staff Report have been filed with the Docketing Division of the Public Utilities Commission of Ohio and served upon the Applicant or its authorized representative, the parties of record, and pursuant to Ohio Administrative Code 4906-3-06, the main public libraries of the political subdivisions in the project area.

The Staff Report presents the results of Staff's investigation conducted in accordance with R.C. Chapter 4906 and the rules of the Board, and does not purport to reflect the views of the Board nor should any party to the instant proceeding consider the Board in any manner constrained by the findings and recommendations set forth herein.

Respectfully submitted,



Tamara S. Turkenton
Director, Rates and Analysis
Public Utilities Commission of Ohio

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I. POWERS AND DUTIES

OHIO POWER SITING BOARD

The authority of the Ohio Power Siting Board (Board) is prescribed by Ohio Revised Code (R.C.) Chapter 4906. R.C. 4906.03 authorizes the Board to issue certificates of environmental compatibility and public need for the construction, operation, and maintenance of major utility facilities defined in R.C. 4906.01. Included within this definition of major utility facilities are: electric generating plants and associated facilities designed for, or capable of, operation at 50 megawatts (MW) or more; electric transmission lines and associated facilities of a design capacity of 100 kilovolts (kV) or more; and gas pipelines greater than 500 feet in length and more than nine inches in outside diameter, and associated facilities, designed for transporting gas at a maximum allowable operating pressure in excess of 125 pounds per square inch. In addition, pursuant to R.C. 4906.20, the Board authority applies to economically significant wind farms, defined in R.C. 4906.13(A) as wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of 5 MW or greater but less than 50 MW.

Membership of the Board is specified in R.C. 4906.02(A). The voting members include: the Chairman of the Public Utilities Commission of Ohio (PUCO or Commission) who serves as Chairman of the Board; the directors of the Ohio Environmental Protection Agency (Ohio EPA), the Ohio Department of Health, the Ohio Development Services Agency (ODSA), the Ohio Department of Agriculture, and the Ohio Department of Natural Resources (ODNR); and a member of the public, specified as an engineer, appointed by the Governor from a list of three nominees provided by the Ohio Consumers' Counsel. Ex-officio Board members include two members (with alternates) from each house of the Ohio General Assembly.

NATURE OF INVESTIGATION

The Board has promulgated rules and regulations, found in Ohio Administrative Code (Ohio Adm.Code) 4906:1-01 et seq., which establish application procedures for major utility facilities and economically significant wind farms.

Application Procedures

Any person that wishes to construct a major utility facility or economically significant wind farm in this state must first submit to the Board an application for a certificate of environmental compatibility and public need.¹ The application must include a description of the facility and its location, a summary of environmental studies, a statement explaining the need for the facility and how it fits into the Applicant's energy forecasts (for transmission projects), and any other information the Applicant or Board may consider relevant.²

Within 60 days of receiving an application, the Chairman must determine whether the application is sufficiently complete to begin an investigation.³ If an application is considered complete, the Board or an administrative law judge will cause a public hearing to be held 60 to 90 days after the

1. R.C. 4906.04 and 4906.20.

2. R.C. 4906.06(A) and 4906.20(B)(1).

3. Ohio Adm.Code 4906-3-06(A).

official filing date of the completed application.⁴ At the public hearing, any person may provide written or oral testimony and may be examined by the parties.⁵

Staff Investigation and Report

The Chairman will also cause each application to be investigated and a report published by the Board's Staff not less than 15 days prior to the public hearing.⁶ The report sets forth the nature of the investigation and contains the findings and conditions recommended by Staff.⁷ The Board's Staff, which consists of career professionals drawn from the staff of the PUCO and other member agencies of the Board, coordinates its investigation among the agencies represented on the Board and with other interested agencies such as the Ohio Department of Transportation (ODOT), the Ohio History Connection, and the U.S. Fish and Wildlife Service (USFWS).

The technical investigations and evaluations are conducted pursuant to Ohio Adm.Code 4906-1-01 et seq. The recommended findings resulting from Staff's investigation are described in the Staff Report pursuant to R.C. 4906.07(C). The report does not represent the views or opinions of the Board and is only one piece of evidence that the Board may consider when making its decision. Once published, the report becomes a part of the record, is served upon all parties to the proceeding and is made available to any person upon request.⁸ A record of the public hearings and all evidence, including the Staff Report, may be examined by the public at anytime.⁹

Board Decision

The Board may approve, modify and approve, or deny an application for a certificate of environmental compatibility and public need.¹⁰ If the Board approves, or modifies and approves an application, it will issue a certificate subject to conditions. The certificate is also conditioned upon the facility being in compliance with applicable standards and rules adopted under the Ohio Revised Code.¹¹

Upon rendering its decision, the Board must issue an opinion stating its reasons for approving, modifying and approving, or denying an application for a certificate of environmental compatibility and public need.¹² A copy of the Board's decision and its opinion is memorialized upon the record and must be served upon all parties to the proceeding.¹³ Any party to the proceeding that believes its issues were not adequately addressed by the Board may submit within 30 days an application for rehearing.¹⁴ An entry on rehearing will be issued by the Board within 30 days and may be appealed within 60 days to the Supreme Court of Ohio.¹⁵

4. R.C. 4906.07(A) and Ohio Adm.Code 4906-3-08.

5. R.C. 4906.08(C).

6. R.C. 4906.07.

7. Ohio Adm.Code 4906-3-06(C).

8. R.C. 4906.07(C) and 4906.10.

9. R.C. 4906.09 and 4906.12.

10. R.C. 4906.10(A).

11. R.C. 4906.10.

12. R.C. 4906.11.

13. R.C. 4906.10(C).

14. R.C. 4903.10 and 4906.12.

15. R.C. 4903.11, 4903.12, and 4906.12.

CRITERIA

Staff developed the recommendations and conditions in this *Staff Report of Investigation* pursuant to the criteria set forth in R.C. 4906.10(A), which reads, in part:

The board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the board, unless it finds and determines all of the following:

- (1) The basis of the need for the facility if the facility is an electric transmission line or gas pipeline;
- (2) The nature of the probable environmental impact;
- (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations;
- (4) In the case of an electric transmission line or generating facility, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability;
- (5) That the facility will comply with Chapters 3704, 3734, and 6111 of the Revised Code and all rules and standards adopted under those chapters and under sections 1501.33, 1501.34, and 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under section 4561.32 of the Revised Code, the board shall consult with the office of aviation of the division of multi-modal planning and programs of the department of transportation under section 4561.341 of the Revised Code;
- (6) That the facility will serve the public interest, convenience, and necessity;
- (7) In addition to the provisions contained in divisions (A)(1) to (6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929 of the Revised Code that is located within the site and alternative site of the proposed major utility facility. Rules adopted to evaluate impact under division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternative site; and
- (8) That the facility incorporates maximum feasible water conservation practices as determined by the board, considering available technology and the nature and economics of the various alternatives.

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II. APPLICATION

APPLICANT

AEP Ohio Transmission Company, Inc. (AEP Ohio Transco or Applicant) is a transmission-only company approved as a public utility in Ohio in 2010 (Case No. 10-245-EL-UNC). AEP Ohio Transco is an affiliate of AEP Ohio/Ohio Power Company, based in Gahanna, Ohio, and is one of many utility units of AEP.

HISTORY OF THE APPLICATION

Prior to formally submitting its application, the Applicant consulted with the Staff regarding application procedures.

On February 1, 2018, the Applicant held a public informational meeting regarding the proposed electric transmission line rebuild project in Sardinia, Ohio.

On April 30, 2018, the Applicant filed the Seaman-Sardinia 138 kV Transmission Line Rebuild application.

On June 29, 2018, the Director of Rates and Analysis, Public Utilities Commission of Ohio (PUCO), issued a letter of compliance regarding the application to the Applicant.

A local public hearing has been scheduled for October 11, 2018 at 6:00 p.m., at the Community Room of the Sardinia Branch of the Brown County Public Library, 13309 Purdy Road, Sardinia, Ohio 45171. The evidentiary hearing will commence on November 5, 2018, at 10:00 a.m., in Hearing Room 11-C, at the offices of the PUCO, 180 East Broad Street, Columbus, Ohio, 43215.

This summary of the history of the application does not include every filing in case number 18-0033-EL-BTX. The docketing record for this case, which lists all documents filed to date, can be found online at <http://dis.puc.state.oh.us>.

PROJECT DESCRIPTION

The Applicant proposes to construct the Seaman-Sardinia 138 kV Transmission Line Project in Brown County, Ohio.¹⁶ The Applicant would own, operate, and maintain the transmission line.

The proposed project involves the installation of a new 138 kV overhead electric transmission line between the existing Sardinia Substation and the existing Hillsboro-Maysville 138 kV electric transmission line that runs north to south through Brown County, Ohio. To meet 138 kV standards, a 100-foot right-of-way is proposed by the Applicant for the new transmission line, which would incorporate steel poles for support. The new transmission line would interconnect to the existing Hillsboro-Maysville 138 kV transmission line via a new 2-pole dead-end structure. The New structure would be located on exiting right-of-way owned by the Applicant.

Once completed, the new transmission line would replace the function of approximately 11.9 miles of the existing Seaman-Sardinia 69 kV Transmission Line which serves Brown County. The

¹⁶. "Application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need" (Application), American Electric Power Ohio Transmission Company, Inc., April 30, 2018.

existing Seaman-Sardinia 69 kV line begins in the existing Sardinia Substation and runs almost straight east for 11.9 miles. With installation of the new 138 kV transmission line, the 69 kV transmission line would then be taken out of service and removed. The new 138 kV transmission line would operate at 138 kV.

Preferred Transmission Line Route

The Applicant's Preferred Route is approximately 3.7 miles long. The route runs approximately 0.4 mile southeast along Katterman Road from the Sardinia Substation, turns northeast for approximately 2.1 miles through mostly agricultural land, continues northeast along the eastern edge of Shitepoke Road for approximately 0.5 mile, turns southeast along the southern edge of Stivers Road for 0.7 mile, and finally interconnects to the existing Hillsboro-Maysville 138 kV transmission line slightly east of State Route 62.

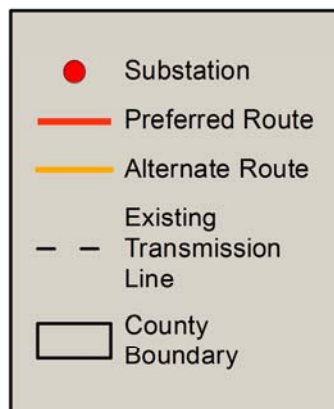
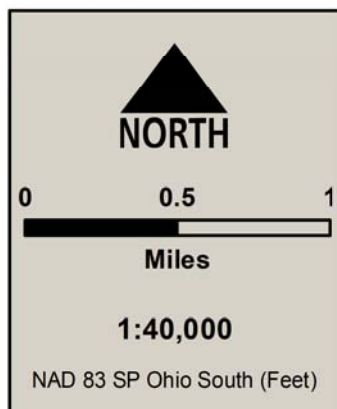
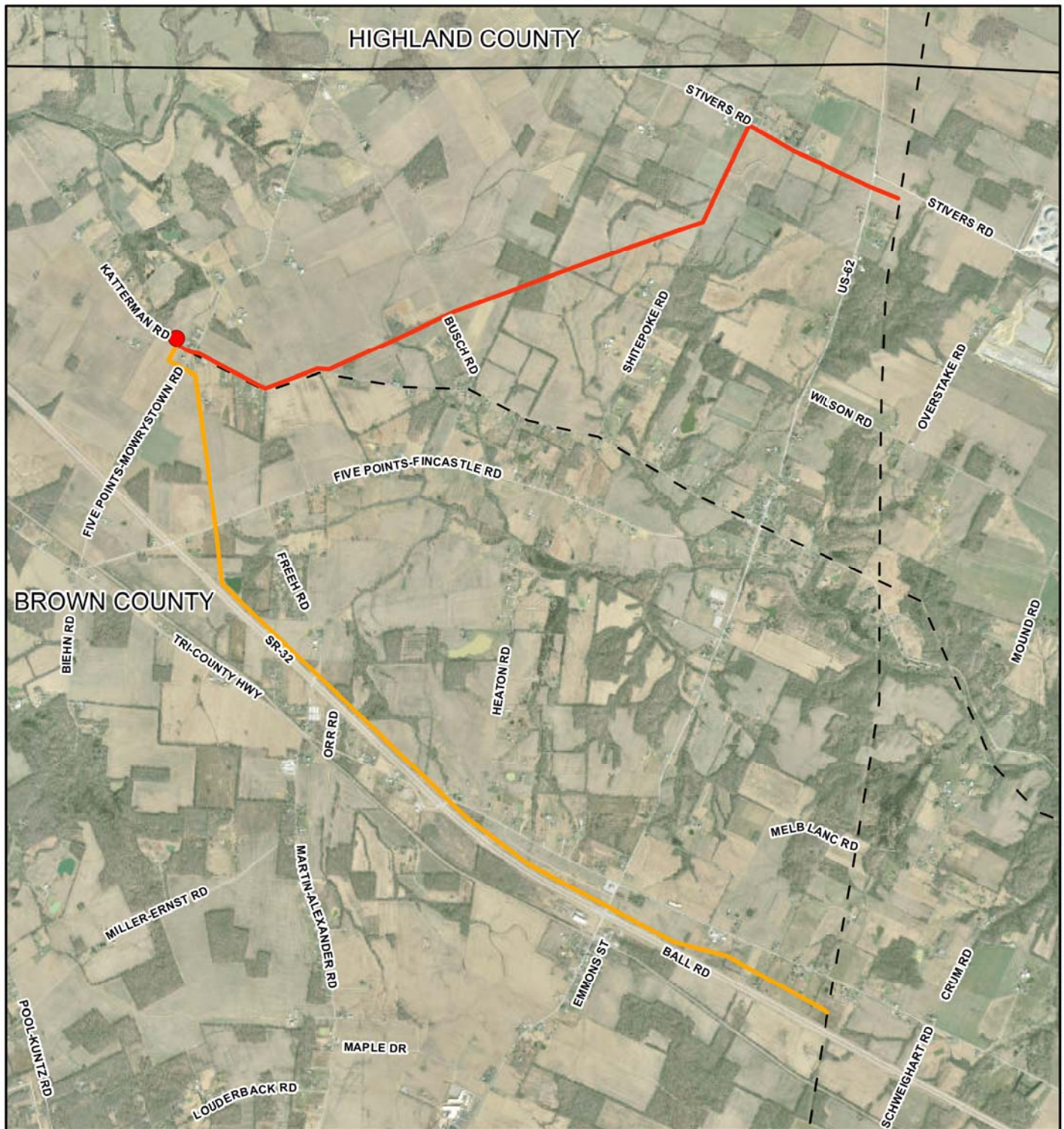
Alternate Transmission Line Route

The Applicant's Alternate Route is also approximately 4.5 miles long. The route exits the Sardinia Substation heading southeast for 0.3 mile until it reaches Kratz Road where it runs along the western edge of the road for approximately 0.9 mile. The route then turns southeast and follows the northern edge of State Route 32 for approximately 3.3 miles and terminates at the existing Hillsboro-Maysville 138 kV transmission line slightly west of Schweighart Road.

The Preferred and Alternate routes are shown on the maps in this report.

Project Schedule

The Applicant states it intends to begin construction of the project in late 2019 and complete construction by June 2021.



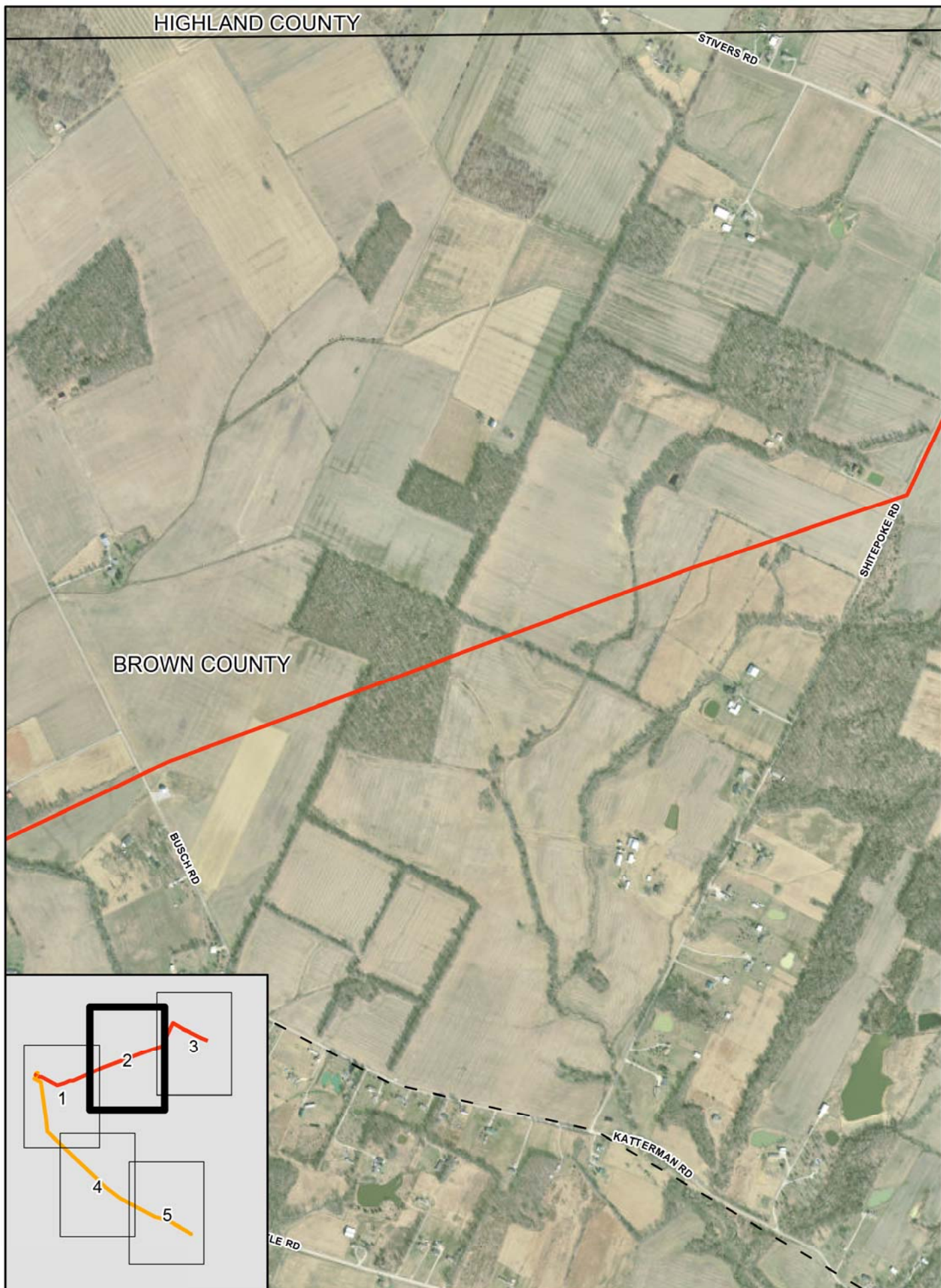
Overview Map

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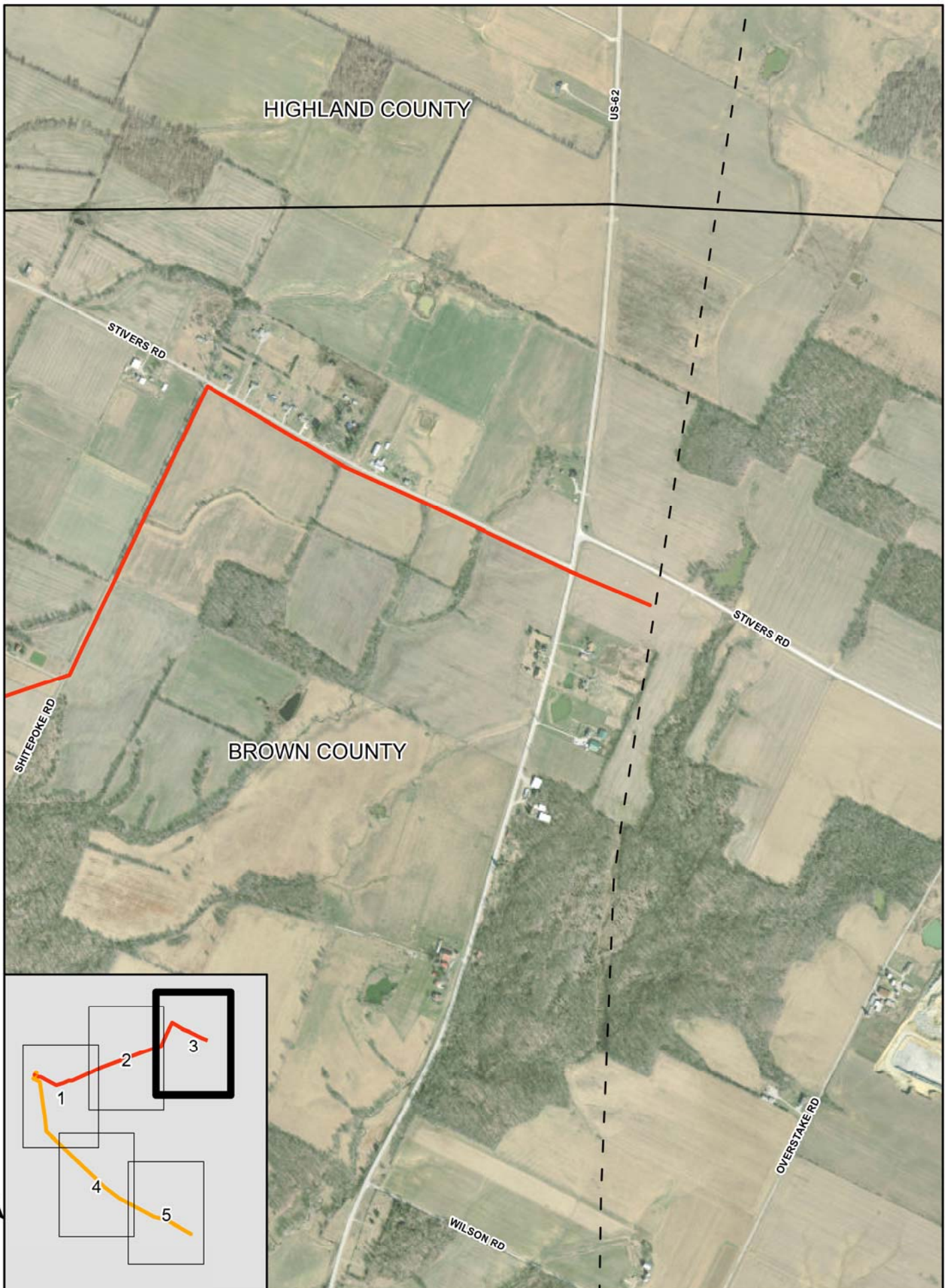
Seaman-Sardinia 138kV Transmission Line

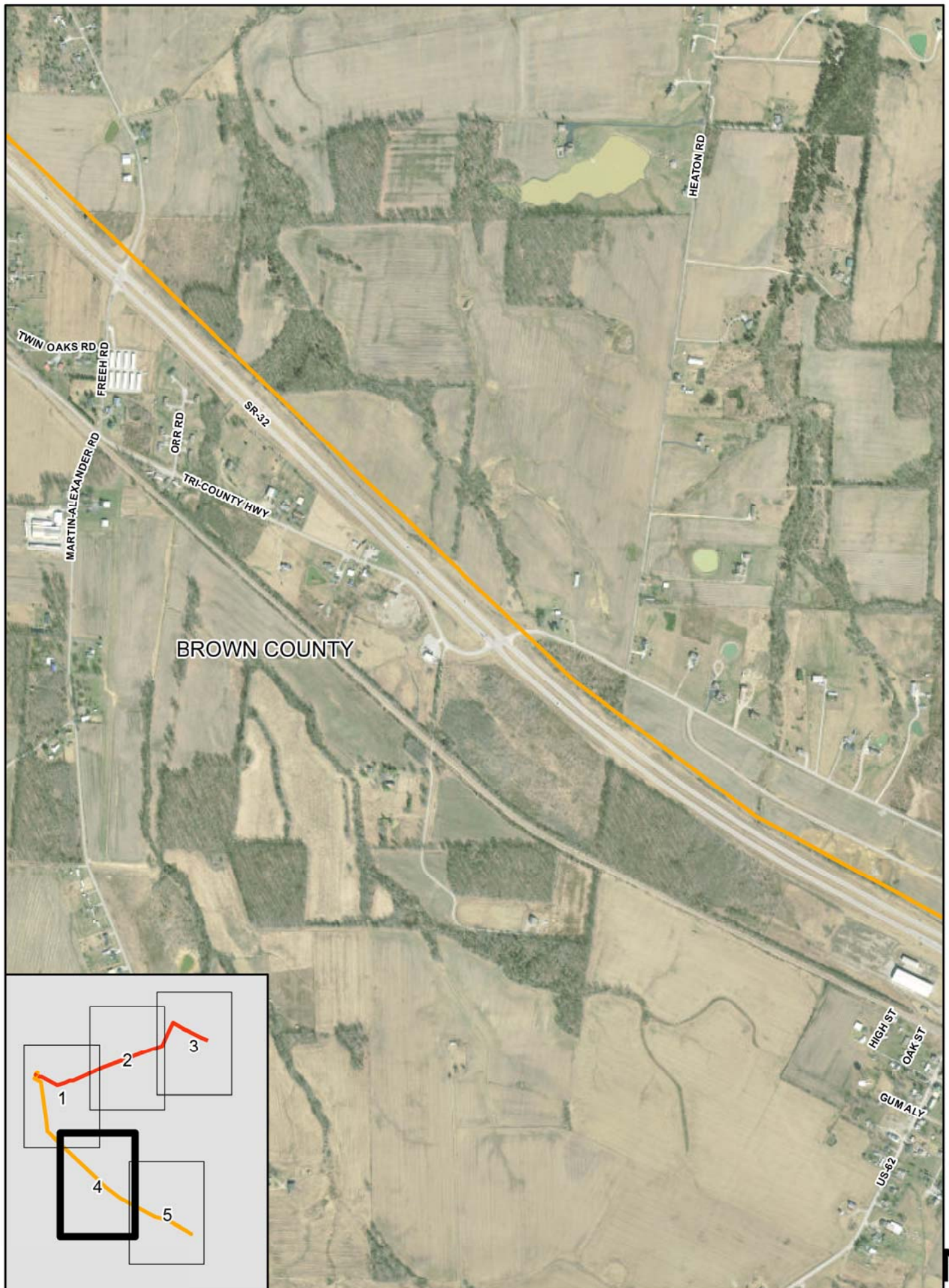
Maps are presented solely for the purpose of providing a visual representation of the project in the staff report, and are not intended to modify the project as presented by the Applicant in its certified application and supplemental materials.





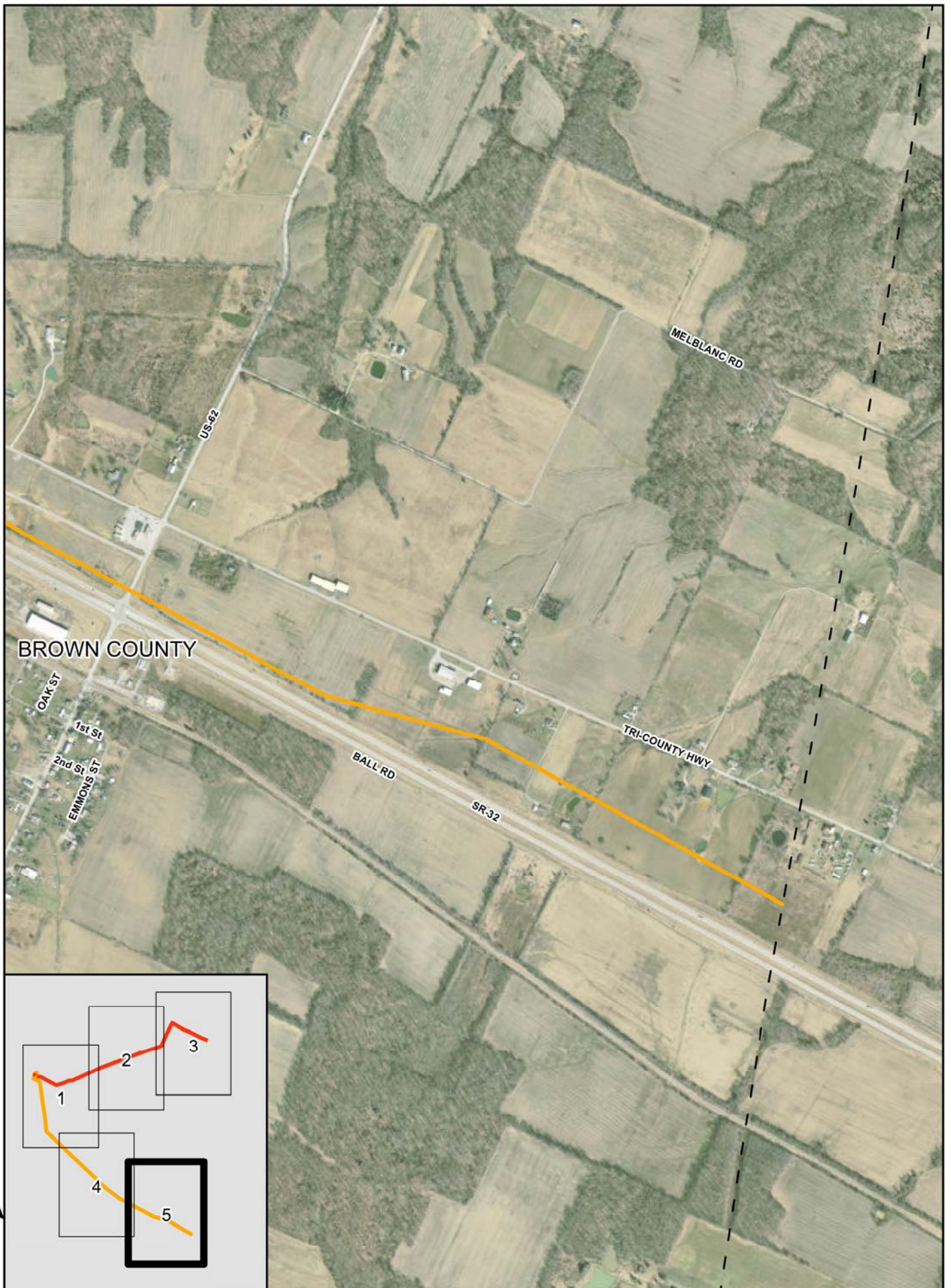
1 inch = 1,000 feet





1 inch = 1,000 feet

Map Page 4



III. CONSIDERATIONS AND RECOMMENDED FINDINGS

In the matter of the application of AEP Ohio Transmission Company, Inc, Staff submits the following considerations and recommended findings pursuant to R.C. 4906.07(C) and 4906.10(A).

Considerations for R.C. 4906.10(A)(1)

BASIS OF NEED

Purpose of Proposed Facility

The proposed facility is part of the Applicant's improvement plan to modernize and improve the reliability of the Applicant's transmission system Brown County. The village of Sardinia is currently served by 11.9 mile 69 kV radial feed. The proposed facility would be a 4.5 mile double circuit 138 kV transmission line. The reduced transmission line length should help to reduce exposure to outages.

The existing 69 kV transmission line was constructed in 1938. The 80 year old line has a poor performance history. The proposed project would be constructed at 138 kV and would be intended to improve reliability with fewer service interruptions, improved service to customers, and faster recovery time during outages.

Long Term Forecast

AEP Ohio Transco identified the need for the proposed transmission line project in the 2018 AEP Ohio Transmission Company Long-Term Forecast Report to the Public Utilities Commission of Ohio (LTFR).^{17, 18}

System Economy and Reliability

The proposed project is not expected to adversely impact the existing transmission grid. The Applicant identified reliability problems associated with the existing 69 kV transmission line. These problems are discussed in more detail in the Electric Grid section of this report. Replacing the existing 69 kV line with the proposed facility should address these problems and thus improve system reliability.

Conclusion

Staff concludes that the Applicant has demonstrated the basis of need due to the reliability issues caused by the age of the 1938 transmission line. The proposed facility should allow the transmission system to provide safe, reliable electric service.

Recommended Findings

Staff recommends that the Board find that the basis of need for the project has been demonstrated and therefore complies with the requirements specified in R.C. 4906.10(A)(1), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

17. "AEP Ohio Transmission Company LTFR," Public Utilities Commission of Ohio Case No. 18-1501-EL-FOR, <http://dis.puc.state.oh.us>.

18. R.C. 4935.04(C) and Ohio Adm.Code. 4901:5-5.

Considerations for R.C. 4906.10(A)(2)

NATURE OF PROBABLE ENVIRONMENTAL IMPACT

Pursuant to R.C. 4906.10(A)(2), the Board must determine the nature of the probable environmental impact of the proposed facility.

Socioeconomic Impacts

Land Use Planning

The Applicant states that there are no formally adopted regional land use development plans identified for the areas of this project in Brown County. The proposed facility should not limit future development or population growth in the region.

Land Use

The proposed right-of-way width for this project is 100 feet. There are 40 residences within 1,000 feet of the Preferred Route centerline. Sixteen residences are located within 200 feet of the Preferred Route right-of-way, with the nearest being located approximately 30 feet from the edge of proposed right-of-way. There are 78 residences within 1,000 feet of the Alternate Route centerline, 8 of which are located within 200 feet of the Alternate Route right-of-way. The nearest residential structure is located approximately 37 feet from the edge of proposed Alternate Route right-of-way. There are no structures located within the 100-right-of-way planned disturbance area for either route. Residents near to either route would experience temporary ambient noise increases during facility construction.

The Preferred Route crosses 50 properties and includes 45 acres of proposed right-of-way area. The Alternate Route crosses 38 properties and includes 55 acres of proposed right-of-way area. Approximately 44 percent of the Preferred Route and 21 percent of the Alternate Route crosses agricultural land and open land/pasture. Approximately 27 percent of the Preferred Route crosses developed land, while 48 percent of the Alternate Route crosses developed land.

There are no commercial facilities or industrial buildings within 1,000 feet of the Preferred Route, and 10 commercial facilities and three industrial buildings within 1,000 feet of the Alternate Route. None of these commercial or industrial facilities are located within the planned disturbance areas (defined as being within 100 feet) for either route. No negative impacts to commercial or industrial land uses are anticipated as a result of the project.

No schools, hospitals, nor state or federal recreational areas were identified as being within 1,000 feet of the Preferred or Alternate routes. One place of worship is located within 1,000 feet of both routes. This facility is not located within the 100-foot planned disturbance area. No negative impacts to institutional and recreational land uses are expected from the construction, operation, or maintenance of either the Preferred or the Alternate routes for the project.

Cultural, Archaeological, and Architectural Resources

The Applicant conducted a cultural resources literature review, Phase I fieldwork, and a history/architectural study of the project. The research for the project resulted in identifying no historic structures, National Register of Historic Places (NRHP) nor previously identified archaeological sites within 1,000 feet of the Preferred Route. There were two historic structures,

no NRHP properties, and three previously identified archaeological sites located within 1,000 feet of the Alternate Route.

Phase I fieldwork for the Preferred Route identified three archaeological sites. These sites were determined not to be eligible for NRHP listing. No further archaeological work was recommended by the Applicant's cultural resources consultant for this project.

Eighteen individual properties 50 years of age or older were identified within the project 1,000 foot project Area of Potential Effect (APE). Only one of these properties was determined eligible for listing in the NRHP. However, the project was not considered to have an adverse effect on this resource.

The findings were submitted to the Ohio Historic Preservation Office (OHPO). The OHPO responded to the consultant in concurrence that this project would not likely affect historic properties.

Aesthetics

Permanent visual impacts would result from the introduction of a new manmade element to the landscape. Aesthetic impacts would vary with the viewer and setting, depending on the degree of contrast between the proposed transmission line and the existing landscape. Because portions of the new transmission line would be constructed in the vicinity of where an existing aboveground 69 kV transmission line is located, the aesthetic impact would be lessened. Some of the Preferred Route is sited on the other side of the street from where the existing 69 kV line is located along the front of residential properties. This would allow some existing residential screening trees to remain.

Economics

The Applicant estimates the applicable intangible and capital costs for the Preferred Route are \$11,067,585 and the Alternate Route are \$11,015,235. The following table summarizes these costs.

INTANGIBLE AND CAPITAL COSTS		
Category	Preferred Route	Alternate Route
Land and Land Rights	\$0	\$0
Structures and Improvements	\$2,800,000	\$2,800,000
Substation Equipment	\$2,000,000	\$2,000,000
Towers and Fixtures	\$0	\$0
Poles and Fixtures	\$3,921,023	\$3,594,253
Overhead Conductors and Devices	\$895,562	\$1,039,982
Underground Conductors and Insulation	\$0	\$0
Underground-to-Overhead Conversion Equipment	\$0	\$0
Right-of-way Clearing and Roads, Trails, or Other Access	\$1,451,000	\$1,581,000
Total	\$11,067,585	\$11,015,235

Both routes are located within Brown County, Ohio. The projected tax revenue generated from the project would benefit the local school districts, parks, and fire departments. Based on 2018 tax rates, the Preferred Route would generate approximate annual property taxes of \$391,000 over the first year of operation, while the Alternate Route would generate \$388,530.

By upgrading service reliability and providing greater capacity in the region, the proposed transmission line would facilitate future economic growth.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the **Socioeconomic Conditions** heading of the Recommended Conditions of Certificate section.

Ecological Impacts

Site Geology

The bedrock which underlies Brown County is hard fossiliferous limestone and soft, gray, shale deposited well over 400 million years ago. After deposition, the ocean floor was lifted high above the water level, and then covered several times by glaciation which entered the county from the north. The Illinoian glacier, the next to last glacier that entered Ohio roughly 200,000 years ago, left deposits of glacial till over most of the county. This till material is made up of a very compact mix of sand, gravel, and boulders that has a very high content of lime.

Natural water erosion formed the many stream valleys throughout the county after the rising of the ocean floor. Later during the period when the glaciers retreated, meltwater deposited sandy to gravelly material along the larger stream valleys, many of which stand today as benches below the stream valley walls and above the flood plains. The proposed transmission line routes are located in the northeastern part of the county that is in an area that is broad and flat lying with very little relief.

The Applicant notes that the northeastern part of Brown County includes areas of Karst terrain. Karst features such as sinkholes, caves, kettle or rolling type landscapes, underground springs, and disappearing springs are site conditions commonly formed in carbonate bedrock in Ohio. Although the karst survey revealed one suspected area displaying karst like features at the intersection of Busch Road and Katterman Road approximately 0.4 miles southeast of the Preferred Route, no other Karst like features were found within the project area that would adversely effect the construction of either route.

Brown County does have a very limited history of seismic activity. In 1957 an earthquake with a magnitude 2.9 occurred at southeast part of Brown County. The epicenter was marked just off the banks to the Ohio River. The other recorded seismic events occurred 15 miles or more from the project site to the east in Highland County or to the west in Clermont County in the late 1800s. These seismic events all registered below 3.0 in magnitude. The Applicant does not anticipate that future seismic activity would pose a hazard to the design and construction of this transmission line.

There is one (1) active surface mine just east of the Preferred Route interconnection with the existing Hillsboro-Maysville 138 kV Transmission Line. The Hanson Aggregates Davon, LLC operates the Eagle Crushed Stone (IM-1195) industrial minerals mine extracting limestone aggregate as a surface mining operation approximately 0.6 miles east of the interconnection point to the Preferred Route. No other past or present mining operations or oil and gas wells exist within

the project area. Staff finds that the geology of Brown County does not present conditions that would limit or negatively impact the design and construction of either proposed routes.

Slopes and Foundation Soil Suitability

The soils in the project area, as characterized in the *Soil Survey of Brown County, Ohio* generally consist of silt loam and silty clay loam. The Clermont-Avonburg Association is the major soil association in the northern part of Brown County including the project area. This association is generally found on broad flats, slight rises, and knolls on the Illinoian till plain. The Clermont silt loam, 0 to 1 percent slopes, Jonesboro-Rossmoyne silt loam, 2 to 6 percent slopes, and the Westboro-Schaffer silt loam, 0 to 2 percent slopes, are the dominant soil units mapped in the project area. These deep, nearly level, poorly drained soils are situated on broad flats on the Illinoian till plain. The depth to bedrock ranges from 40 to 90 feet.

The Applicant has stated that their geotechnical engineer will conduct additional test drilling to obtain further site-specific details for engineering design and construction purposes. The borings would extend to the proposed depth within the soil subsurface or to competent bedrock, whichever is encountered first. The Applicant would provide Staff a detailed geotechnical report of the borings and laboratory testing, along with recommendations on construction methods and foundation design.

Ponding, frost action, seasonal wetness, low strength, and moderately slow permeability are conditions that can be limiting factors for these particular soil. However, these limitations should not adversely affect the design or restrict the construction of the proposed transmission line. Additionally, the Applicant would implement best management practices as necessary to control surface water runoff and erosion to ensure during and after construction for the long-term stability of the transmission line.

Surface Waters

The Preferred Route right-of-way contains 4 stream crossings, all of which are intermittent streams, totaling 384 linear feet of streams within the Preferred Route right-of-way. The Alternate Route right-of-way contains 5 stream crossings, all of which are intermittent streams, totaling 713 linear feet of streams within the right-of-way.

The proposed transmission line would aerially span all streams, and no in-water work is expected. The Applicant has committed not to conduct mechanized clearing within 25 feet of any stream, and would only clear trees in this area that are tall enough to have the potential to interfere with safe construction and operation of the line. Construction vehicles may cross some streams. The Applicant has proposed temporary culvert stream crossings, and temporary access bridge crossing methods to minimize impacts.

The Preferred Route right-of-way contains six wetlands with 0.26 acre of wetlands within the right-of-way. The Alternate Route right-of-way contains 15 wetlands, with 3.41 acres of wetlands within the right-of-way. All delineated wetlands are category 1 and category 2 wetlands. A total of 2.16 acres of forested wetlands would be converted to emergent wetlands during construction, through the clearing of trees and shrubs along the Alternate Route. Fill within wetlands is not anticipated.

The Applicant stated that it would use timber matting at any areas where construction access through wetlands is necessary and that it would use selective non-mechanized clearing to remove woody vegetation that would otherwise interfere with the operation of the transmission line in wetlands. In the event that fill within any of the other wetlands becomes necessary, impacts would be covered under the Army Corps of Engineers Nationwide 12 Permit.

No lakes, reservoirs, or ponds were observed within the right-of-way of the Preferred Route. The Alternate Route right-of-way contains three ponds, totaling 0.05 acre within the right-of-way. None of the ponds would be crossed by the proposed transmission line or by construction equipment.

The Applicant would obtain coverage under the Ohio EPA General National Pollutant Discharge Elimination System (NPDES) Permit for impacts from stormwater runoff. Sedimentation that may occur as a result of construction activities would be minimized through best management practices (BMP), such as silt fences. BMP would be outlined in the Applicant's Stormwater Pollution Prevention Plan (SWPPP) required as part of the NPDES Permit. Both the Preferred Route and Alternate Route would cross within small portions of 100-year floodplain areas. Staff recommends the Applicant coordinate with the Brown County floodplain administrator to attain any necessary floodplain development permit.

Threatened and Endangered Species

The Applicant requested information from the ODNR and the USFWS regarding state and federal listed threatened and endangered plant and animal species. Staff gathered additional information through field assessments and review of published ecological information. The following table reflects the results of the information requests, field assessments, and document review.

BIRDS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Loggerhead shrike	<i>Lanius ludovicianus</i>	N/A	Endangered	Potential habitat within project area.
FISH				
goldeye	<i>Hiodon alosoides</i>	N/A	Endangered	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.
shovelnose sturgeon	<i>Scaphirhynchus platyrhynchus</i>	N/A	Endangered	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.
Mountain madtom	<i>Noturus eleutherus</i>	N/A	Endangered	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.
paddlefish	<i>Polyodon spathula</i>	N/A	Threatened	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.
Bigeye shiner	<i>Notropis boops</i>	N/A	Threatened	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.

FISH				
northern madtom	<i>Noturus stigmosus</i>	N/A	Endangered	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.
channel darter	<i>Percina copelandi</i>	N/A	Threatened	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.
river darter	<i>Percina shumardi</i>	N/A	Threatened	Due to no in-water work in a perennial stream, no impacts to this species are anticipated.
MUSSELS				
snuffbox	<i>Epioblasma triquetra</i>	Endangered	Endangered	Due to no in-water work, no impacts to this species are anticipated.
sheepnose	<i>Plethobasus cyphus</i>	Endangered	Endangered	Due to no in-water work, no impacts to this species are anticipated.
Pink mucket	<i>Lampsilis orbiculate</i>	Endangered	Endangered	Due to no in-water work, no impacts to this species are anticipated.
washboard	<i>Megaloniaia nervosa</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
ebonyshell	<i>Fusconaia ebena</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
butterfly	<i>Ellipsaria lineolata</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
Elephant-ear	<i>Elliptio crassidens crassidens</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
Yellow sandshell	<i>Lampsilis teres</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
fanshell	<i>Cyprogenia stegaria</i>	Endangered	Endangered	Due to no in-water work, no impacts to this species are anticipated.
Ohio pigtoe	<i>Pleurobema cordatum</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
rayed bean	<i>Villosa fabalis</i>	Endangered	Endangered	Due to no in-water work, no impacts to this species are anticipated.
Little spectaclecase	<i>Villosa lienosa</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
Monkey face	<i>Quadrula metanevra</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
wartyback	<i>Quadrula nodulata</i>	N/A	Endangered	Due to no in-water work, no impacts to this species are anticipated.
fawnsfoot	<i>Truncilla donaciformis</i>	N/A	Threatened	Due to no in-water work, no impacts to this species are anticipated.

MUSSELS				
threehorn wartyback	<i>Obliquaria reflexa</i>	N/A	Threatened	Due to no in-water work, no impacts to this species are anticipated.
MAMMALS				
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	Historical range includes the project area.
northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	N/A	Historical range includes the project area.

The Applicant did not identify any listed plant or animal species during field surveys. Further, the ODNR and the USFWS did not identify any concerns regarding impacts to listed plant species. In the unexpected event that the Applicant encounters listed plant or animal species during construction, Staff recommends that the Applicant contact Staff, the ODNR, and the USFWS, as applicable. Staff also recommends that if the Applicant encounters any listed plant or animal species prior to construction, the Applicant include the location and how impacts would be avoided in the final access plan to be provided to Staff.

The project area is within the range of state and federal endangered Indiana bat (*Myotis sodalis*) and the federal threatened northern long-eared bat (*Myotis septentrionalis*). As tree roosting species in the summer months, the habitat of these species may be impacted by the project. In order to avoid impacts to the Indiana bat and northern long-eared bat, Staff recommends the Applicant adhere to seasonal tree cutting dates of October 1 through March 31 for all trees over 3 inches in diameter, unless coordination efforts with the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) allows a different course of action. The project would not disturb any hibernacula, including caves or abandoned mines.

Potentially suitable habitat for the loggerhead shrike may be located within the project area. In order to minimize impacts to this species, the (ODNR) Division of Wildlife (DOW) recommends avoiding construction in areas of dense shrubbery during the species' nesting period between April 1 and August 1. If suitable habitat cannot be avoided during this period, then a presence/absence survey shall be conducted, or an avoidance/ minimization plan be shall developed in accordance with the DOW.

Due to a lack of suitable habitat and no proposed in-water work, impacts to other federal and state listed species are not anticipated.

Vegetation

The Preferred and Alternate routes cross through several vegetative communities. The following table reflects the major vegetative communities present in the construction corridor and associated acres of impact for each route.

LAND USE		
Community Type	Preferred Route Impacts (Including Common Route) (Acres)	Alternate Route Impacts (Including Common Route) (Acres)
Open Land / Agricultural	19.66	10.22
Forest	3.88	4.75
Utility right-of-way	1.53	0.11

Impacts to vegetation along both the routes include the initial clearing for the proposed 100-foot right-of-way and along access roads, and operational maintenance. The Preferred Route would require 3.7 acres of tree clearing while the Alternate Route would require 3.9 acres of tree clearing. Trees adjacent to the proposed transmission line right-of-way, which are significantly encroaching the proposed right-of-way or prone to failure into it, may require clearing to allow for safe operation of the transmission line. Vegetative wastes generated during construction would be windrowed or chipped and disposed of appropriately depending on landowner requests. The Applicant does not anticipate the use of herbicides during construction or operation.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the **Ecological Conditions** heading of the Recommended Conditions of Certificate section.

Public Services, Facilities, and Safety

Public Services and Traffic

The principal impact on public services would be increases in traffic on routes leading to the project area due to delivery of equipment and materials. Traffic management during the construction phase may be necessary in the immediate vicinity of the project area to ensure safe and efficient maintenance of existing traffic patterns and usages. The Applicant has committed to coordinating with local officials to ensure that the increase in traffic will be minimal.

Once the proposed facility is operational, related traffic would be minimal and would not be expected to significantly impact local roadways. Potential emergency service requirements would be coordinated with local officials during construction.

Roads and Bridges

Due to the location of the project, the Applicant anticipates that all project components would be delivered via truck. Public road access to the project area for most construction traffic would be from U.S. Highway 62 and State Route 32. Access to the proposed right-of-way would be located off of Katterman Road, Stivers Road and Kratz Road. Installation and use of access roads through private property would require the landowners input and approval.

Staff recommends a requirement for the Applicant to develop a final traffic management plan that would include a road use agreement or necessary permits. As part of the plan, any damaged public roads and bridges would be repaired promptly to their previous condition by the Applicant under the guidance of the appropriate regulatory agency. Any temporary improvements would be removed unless the appropriate regulatory agency request that they remain in place.

Noise

Most noise impacts associated with this project would be confined to the 19 to 20 month construction period. The Applicant stated that it will mitigate noise impacts by properly maintaining construction equipment with installed mufflers and limiting construction activities to daylight hours, to the extent feasible.

The Applicant does not address restrictions to construction working hours with reference to noise impacts. Staff recommends that the following restrictions be placed on construction work activities:

- The Applicant shall use the generally accepted construction working hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m.
- Impact pile driving, and hoe ram operations, if required, shall be limited to the hours between 10:00 a.m. and 5:00 p.m., Monday through Friday.
- The Applicant may conduct construction activities that do not involve noise increases above ambient levels at sensitive receptors outside of daylight hours when necessary.
- The Applicant shall notify property owners or affected tenants of upcoming construction activities, including any potential for nighttime construction activities.

Safety

The Applicant stated that it will comply with all applicable safety standards set by the Occupational Safety and Health Administration, safety standards of the PUCO, and the North American Electric Reliability Corporation (NERC) Reliability Standards. Additionally, the Applicant stated it will administer a contractor safety program where contractors are required to maintain internal safety programs and to provide safety training. The Applicant stated the facility is designed to meet the requirements of the National Electric Safety Code (NESC).

Communications

The Applicant does not expect radio or television interference to occur from the operation of the proposed transmission line along the Preferred or Alternate routes. Any likely source of radio or television interference would be a localized effect primarily from defective transmission hardware that can be easily detected and corrected.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the **Public Services, Facilities, and Safety Conditions** heading of the Recommended Conditions of Certificate section.

Recommended Findings

Staff recommends that the Board find that the Applicant has determined the nature of the probable environmental impact for the proposed facility, and therefore complies with the requirements specified in R.C. 4906.10(A)(2), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(3)

MINIMUM ADVERSE ENVIRONMENTAL IMPACT

Pursuant to R.C. 4906.10(A)(3), the proposed facility must represent the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, along with other pertinent considerations.

Route Selection

The Applicant conducted a route selection study to identify potential electric transmission line routes that avoid or limit impacts to sensitive land uses, ecological resources, and cultural features, while taking into consideration the engineering and construction needs of the project. The Applicant's study area focused on the existing Seaman-Sardinia 69 kV Transmission Line right-of-way, the proposed Preferred and Alternate Route right-of-ways, and the surrounding area between the existing Sardinia Substation and the existing Hillsboro-Maysville 138 kV transmission line.

The Applicant received thirteen comments regarding the proposed route alternatives at the public informational meeting. The commenters expressed concerns about reducing disturbance to farmland, property resale values, and rating the importance of specific routing factors. Attendees indicated that the most important factors were maximizing distance from homes, minimizing the number of agricultural fields and the number of parcels crossed, and utilizing existing easements and roads for the proposed routes. The Applicant made minor adjustments to both routes to maximize paralleling of property boundaries to minimize impacts to agricultural fields as a result of this feedback.

The Applicant chose the Preferred Route because it has the potential for fewer residential impacts, less surface water impact, follows more existing right-of-way, and would require less tree clearing.

Minimizing Impacts

While both routes are viable, they each have issues unique to one another, and no route is without impact. Staff has analyzed each route and concluded that overall potential impact is expected to be less for the Preferred Route.

The Preferred Route follows more existing right-of-way than the Alternate Route and the Preferred Route is 0.8 mile shorter than the Alternate Route. The number of residences within 1,000 feet of the Preferred Route is significantly lower than the number within 1,000 of the Alternate Route. Potential wetland and stream impacts are greater along the Alternate Route compared to the Preferred Route as well.

Therefore, Staff concludes that the Preferred Route represents the minimum adverse environmental impact when compared to the Alternate Route.

Recommended Findings

Staff recommends that the Board find that the Preferred Route represents the minimum adverse environmental impact, and therefore complies with the requirements specified in R.C. 4906.10(A)(3), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(4)

ELECTRIC GRID

Pursuant to R.C. 4906.10(A)(4), the Board must determine that the proposed electric facilities are consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facilities will serve the interests of electric system economy and reliability. The purpose of this section is to evaluate the impact of integrating the proposed facility into the existing regional transmission grid.

The Applicant proposes that the existing radial 69 kV transmission line, which was constructed in 1938, would be replaced with a double-circuit 138 kV transmission line. The project would begin at the existing Sardinia Substation and terminate at the existing Hillsboro-Maysville 138-kV transmission line.

The Applicant states the proposed line should increase reliability by removing the existing 69 kV radial transmission line and replacing it with a double circuit 138 kV transmission line. In addition, the proposed 138 kV transmission line length of 4.5 miles would be significantly shorter than the existing 11.9 mile 69 kV line. The shorter length should help reduce the exposure to outages.

NERC Planning Criteria

NERC is responsible for the development and enforcement of the federal government's approved Reliability Standards, which are applicable to all owners, operators, and users of the bulk power system. As an owner, operator, and/or user of the bulk power system, the Applicant is subject to compliance with various NERC Reliability Standards, including but not limited to those related to transmission planning for contingency events.

AEP Ohio Transco Planning Criteria

AEP Ohio Transco follows internal transmission planning reliability criteria to plan their system. These criteria are required by the Federal Energy Regulatory Commission (FERC) and are filed as part of the annual FERC Form No. 715 filing. The criteria must comply with NERC Reliability Standards and PJM planning and operating manuals for the bulk electric system. The proposed project is designed to meet AEP Ohio Transco's planning criteria. The figure below highlights a portion of AEP Ohio Transco's planning criteria.^{19, 20}

AEP TRANSMISSION PLANNING RELIABILITY CRITERIA		
System Condition	Voltage Performance	Thermal Performance
Normal	95% - 105% of nominal voltage	No facility may exceed its normal rating
Contingency (single & multiple)	92% - 105% of nominal voltage Voltage deviation from system normal of 8% or greater is not acceptable	No facility may exceed its emergency rating

19. "Transmission Planning Reliability Criteria - AEP PJM," American Electric Power, accessed September 13, 2018, <https://www.aep.com/about/codeofconduct/OASIS/TransmissionStudies>.

20. "Form No. 715 - Annual Transmission Planning and Evaluation Report," Federal Regulatory Energy Commission, accessed September 13, 2018, <https://www.ferc.gov/docs-filing/forms/form-715/overview.asp>.

PJM Interconnection

The proposed project was submitted to PJM Interconnection, LLC (PJM) as a supplemental project and reviewed at the PJM Subregional RTEP Committee - Western meeting on March 27, 2018 and again on April 17, 2018. PJM assigned the project upgrade ID S1609.1. The construction status of the transmission project can be tracked on PJM's website.^{21, 22}

Customer Outages

AEP Ohio Transco reported that during the years 2007 through 2017 the existing line was responsible for 217 open conditions. Open conditions are problems on a circuit that have not caused an outage, but need to be addressed in the future. Examples of open conditions are, split poles, rotten crossarms, and broken braces. During the same timeframe, there have been 64 momentary and 9 sustained outages. The Applicant states the proposed transmission line should decrease outages and open conditions.

Conclusion

The Applicant provided information demonstrating the proposed project would improve reliability by eliminating the existing 80 year-old radial 69 kV transmission line and replacing it with a double-circuit 138 kV transmission line. This should decrease open conditions and customer interruptions. The proposed facility is consistent with plans for expansion of the regional

Recommended Findings

Staff recommends that the Board find that the proposed facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facility would serve the interests of electric system economy and reliability. Therefore, Staff recommends that the Board find that the facility complies with the requirements specified in R.C. 4906.10(A)(4), provided that any certificate issued by the Board for the proposed facilities include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

21. PJM Interconnection, "11.2.2017 - Subregional RTEP Committee – Western," accessed September 13, 2018, <http://pjm.com/committees-and-groups/committees/srrtep-w.aspx>.

22. PJM Interconnection, "Transmission Construction Status," accessed September 13, 2018, <http://pjm.com/planning/rtep-upgrades-status/construct-status.aspx>.

Considerations for R.C. 4906.10(A)(5)

AIR, WATER, SOLID WASTE, AND AVIATION

Pursuant to R.C. 4906.10(A)(5), the facility must comply with Ohio law regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

Air

Air quality permits are not required for construction of the proposed facility. However, fugitive dust rules adopted under R.C. Chapter 3704 may be applicable to the construction of the proposed facility. The Applicant would control fugitive dust through dust suppression techniques such as irrigation, mulching, or application of tackifier resins. These methods of dust control are sufficient to comply with fugitive dust rules.

Water

Neither construction nor operation of the proposed facility would require the use of significant amounts of water. Therefore, the requirements under R.C. 1501.33 and 1501.34 are not applicable to this project.

The Applicant would seek coverage, if needed, under the U.S. Army Corps of Engineers

Nationwide Permit 12 for Utility Line Activities for surface water impacts associated with the proposed transmission line. The Applicant also intends to submit a Notice of Intent for coverage under the Ohio EPA's NPDES general permit for stormwater discharges associated with construction activities. The Applicant would submit a SWPPP to the Ohio EPA as part of the NPDES permit. This SWPPP would include a detailed construction access plan and indicate BMP for construction activities that minimize erosion-related impacts to streams and wetlands. The Applicant has also stated that no construction or access would be permitted in these areas unless clearly specified in the construction plans and specifications, thus minimizing any clearing-related disturbance to surface water bodies. With these provisions, construction of this facility would comply with the requirements set forth under R.C. Chapter 6111.

Solid Waste

Debris generated during construction would consist of items such as conductor scrap, construction material packaging (cartons, boxes, insulator crates, conductor reels, wrapping), and used stormwater erosion control materials. Materials with salvage value would include clearance poles and conductor reels. Salvageable materials would be reused or repurposed. All construction-related debris would be disposed of in accordance with state and federal requirements.

Any contaminated soils discovered or generated during construction would be handled in accordance with applicable regulations. The Applicant intends to have a Spill Prevention Plan in place and would follow the Spill Prevention Plan for any spill cleanup. The Applicant's solid waste disposal plans comply with solid waste disposal requirements set forth in R.C. Chapter 3734.

Aviation

The height of the tallest above ground structure of the transmission line and construction equipment would be approximately 90 feet. According to the Federal Aviation Administration (FAA), the closest public-use airport is the Alexander Salamon Airport (AMT) which is 11 miles from the proposed transmission line. The Applicant stated that, upon completion of the final design, it would consult with the FAA and the ODOT Office of Aviation to determine if a Notice of Construction or Alteration or other permitting is required.

In accordance with R.C. 4906.10(A)(5), Staff contacted the ODOT Office of Aviation during the review of this application in order to coordinate review of potential impacts of the facility on local airports. As of the date of this filing, no such concerns have been identified.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the **Air, Water, Solid Waste, and Aviation Conditions** heading of the Recommended Conditions of Certificate section.

Recommended Findings

Staff recommends that the Board find that the proposed facility complies with the requirements specified in R.C. 4906.10(A)(5), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(6)

PUBLIC INTEREST, CONVENIENCE, AND NECESSITY

Pursuant to R.C. 4906.10(A)(6), the Board must determine that the facility will serve the public interest, convenience, and necessity.

Public Interaction

The Applicant hosted a public informational meeting for this project. Attendees were provided the opportunity to speak with representatives of the Applicant about the proposed project, view proposed route maps, and provide feedback regarding potential routes.

The Applicant served copies of the complete application on officials representing Brown County, Eagle Township, the Village of Sardinia, and the Brown County Soil and Water Conservation District. The Applicant also sent hard copies of the application to the Brown County Public Library Main and Sardinia branches. Copies of the complete application are available for public inspection at the offices of the PUCO and online at <http://opsb.ohio.gov>, and are available upon request from the Applicant.

The Applicant maintains a website at <http://aeptransmission.com/ohio/sardinia> that provides details about the project. Members of the public may contact the Applicant's project outreach specialist with questions or concerns during any phase of the project. The Applicant has committed to log all comments provided through its public interaction program and to share them with Staff. The Applicant has also committed to notify affected landowners or tenants by mail or telephone, or in person, at least seven days prior to the start of any construction activities. Staff recommends conditions requiring the Applicant to develop and provide to Staff a public information program that informs affected property owners and tenants of the nature of the project and a complaint resolution procedure to address potential public grievances resulting from project construction and operation.

The Board will conduct a local public hearing and an adjudicatory hearing for this proceeding. The local public hearing, at which the Board will accept written or oral testimony from any person, is scheduled for October 11, 2018, at 6:00 p.m., at the Brown County Public Library Sardinia Branch, located at 1309 Purdy Rd., Sardinia, OH 45171. The adjudicatory hearing is scheduled for November 5, 2018, at 10:00 a.m., in Hearing Room 11-C at the offices of the Public Utilities Commission of Ohio, 180 E. Broad St., Columbus, OH 43215-3793.

As of the filing of this Staff Report, the Board has not received any public comments or motions to intervene in this case.

Electromagnetic Fields

Electric transmission lines, when energized, generate electromagnetic fields (EMF). Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. There have been concerns, however, that EMF may have impacts on human health.

Because these concerns exist, the Applicant has computed the EMF associated with the new circuits.²³ The fields were computed based on the maximum loadings of the lines, which would

²³ *Application* at Table 7-1.

lead to the highest EMF values that might exist along the proposed transmission line. Daily current load levels normally operate below the maximum load conditions, thereby further reducing nominal EMF values.

The electric field is a function of the voltage, the line configuration, and the distance from the transmission lines. Electric fields are produced by voltage or electric charge. For example, a plugged in lamp cord produces an electric field, even if the lamp is turned off. The electric field for this transmission line would be 0.72 kV/meter or less. Electric fields are easily shielded by physical structures such as the walls of a house, foliage, etc.

Magnetic fields are a function of the electric current, the configuration of the conductors, and the distance from the transmission lines. The magnetic fields for this project are estimated at the right-of-way edge to be 9.96 milligauss. The magnetic field output is comparable to that of common household appliances. A list of typical magnetic fields from household items, as well as the maximum magnetic field scenarios for this facility, is in the application.²⁴ The Applicant states that the transmission facilities will be designed according to the requirements of the NESC.

Recommended Findings

Staff recommends that the Board find that the proposed facility would serve the public interest, convenience, and necessity, and therefore complies with the requirements specified in R.C. 4906.10(A)(6), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

24. Ibid., Table 7-2.

Considerations for R.C. 4906.10(A)(7)

AGRICULTURAL DISTRICTS

Pursuant to R.C. 4906.10(A)(7), the Board must determine the facility's impact on the agricultural viability of any land in an existing agricultural district within the Preferred and Alternate routes of the proposed utility facility. The agricultural district program was established under R.C. Chapter 929. Agricultural district land is exempt from sewer, water, and electrical service tax assessments.

Agricultural land can be classified as an agricultural district through an application and approval process that is administered through local county auditors' offices. Eligible land must be devoted exclusively to agricultural production or be qualified for compensation under a land conservation program for the preceding three calendar years. Furthermore, eligible land must be at least 10 acres or produce a minimum average gross annual income of \$2,500.

The Preferred and Alternate routes would include 19.7 acres and 12 acres, respectively, of agricultural land. The preferred route crosses no land with the agricultural district designation, and the alternate crosses one 6.3-acre parcel with the agricultural district designation.

The Applicant would take measures to minimize impacts to field operations, irrigation, and field drainage systems of all agricultural land that would occur as a result of construction, operation, and maintenance of the proposed project.

Construction would interrupt field operations for a portion of the growing season or dormant season. The Applicant stated that it would coordinate with the landowners to mitigate any impact to irrigation systems. Damage to field drainage systems is not anticipated by the Applicant, but the Applicant stated it will resolve any disturbances. The Applicant has stated that mitigation procedures and compensation for damage to crops and the compaction of soils are outlined in the individual easement agreements. Structures would be located, where feasible, at or beyond the edge of fields, and permanent impacts would be limited to the footprint of the pole structures. Excavated top soil would be segregated and stockpiled, and would be restored to original conditions unless otherwise specified by the affected landowners.

Recommended Findings

Staff recommends that the Board find that the impact of the proposed facility on the viability of existing agricultural land in an agricultural district has been determined, and therefore complies with the requirements specified in R.C. 4906.10(A)(7), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(8)

WATER CONSERVATION PRACTICE

Pursuant to R.C. 4906.10(A)(8), the proposed facility must incorporate maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives.

The facility may require the use of minimal amounts of water for dust control and for concrete foundations during construction. However, the transmission line would not require the use of any water during operation. Therefore, the facility would comply with water conservation practice as specified under R.C. 4906.10(A)(8).

Recommended Findings

Staff recommends that the Board find that the proposed facility would incorporate maximum feasible water conservation practices, and therefore complies with the requirements specified in R.C. 4906.10(A)(8).

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IV. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by AEP Ohio Transco, and the record compiled to date in this proceeding, Staff recommends that a number of conditions become part of any certificate issued for the proposed facility. These recommended conditions may be modified as a result of public or other input received subsequent to the issuance of this report. At this time, Staff recommends the following conditions:

GENERAL CONDITIONS

Staff recommends the following conditions to ensure conformance with the proposed plans and procedures as outlined in the case record to date, and to ensure compliance with all conditions listed in this Staff Report:

- (1) The facility shall be installed on the Applicant's Preferred Route, utilizing the equipment, construction practices, and mitigation measures as presented in the application filed on April 30, 2018, and further clarified by recommendations in this *Staff Report of Investigation*.
- (2) The Applicant shall conduct a preconstruction conference prior to the start of any construction activities. Staff, the Applicant, and representatives of the prime contractor and/or subcontractors for the project shall attend the preconstruction conference. The conference shall include a presentation of the measures to be taken by the Applicant and contractors to ensure compliance with all conditions of the certificate, and discussion of the procedures for on-site investigations by Staff during construction. Prior to the conference, the Applicant shall provide a proposed conference agenda for Staff review to ensure compliance with this condition. The Applicant may conduct separate preconstruction conferences for each stage of construction.
- (3) At least 30 days before the preconstruction conference, the Applicant shall submit to Staff one set of detailed engineering drawings of the final project design, including the facility, temporary and permanent access roads, construction staging areas, and any other associated facilities and access points, so that Staff can determine that the final project design is in compliance with the terms of the Certificate. The final project design shall be provided in hard copy and as geographically referenced electronic data. The final design shall include all conditions of the Certificate and references at the locations where the Applicant and/or its contractors must adhere to a specific condition in order to comply with the Certificate.
- (4) Within 60 days after the commencement of commercial operation, the Applicant shall submit to Staff a copy of the as-built specifications for the entire facility. The Applicant shall provide as-built drawings in both hard copy and as geographically referenced electronic data.
- (5) The certificate shall become invalid if the Applicant has not commenced a continuous course of construction of the proposed facility within five years of the date of journalization of the certificate.
- (6) As the information becomes known, the Applicant shall provide to Staff the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.

- (7) Prior to the commencement of construction activities in areas that require permits or authorizations by federal or state laws and regulations, the Applicant shall obtain and comply with such permits or authorizations, including any permits necessary for aviation clearance. The Applicant shall provide copies of permits and authorizations, including all supporting documentation, to Staff within seven days of issuance or receipt by the Applicant. The Applicant shall provide a schedule of construction activities and acquisition of corresponding permits for each activity at the preconstruction conference.

SOCIOECONOMIC CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Socioeconomic Impacts** section of the Nature of Probable Environmental Impact:

- (8) At least 30 days prior to the preconstruction conference, the Applicant shall provide to Staff a complaint resolution procedure to address potential public grievances resulting from project construction and operation. The resolution procedure must provide that the Applicant will work to mitigate or resolve any issues with those who submit either a formal or informal complaint and that the Applicant will immediately forward all complaints to Staff.
- (9) At least 30 days prior to the preconstruction conference, the Applicant shall provide to Staff a copy of its public information program that informs affected property owners and tenants of the nature of the project, specific contact information of Applicant personnel who are familiar with the project, the proposed timeframe for project construction, and a schedule for restoration activities. The Applicant shall give notification to property owners and tenants at least 7 days prior to work on the affected property.
- (10) If the Alternate Transmission Line Route is chosen by the Board, prior to commencement of any construction, the Applicant shall prepare a Phase I cultural resources survey program for archaeological work within the construction disturbance area, in consultation with Staff and the Ohio Historic Preservation Office. If the resulting survey work discloses a find of cultural or archaeological significance, or a site that could be eligible for inclusion in the National Register of Historic Places, then the Applicant shall submit an amendment, modification, or mitigation plan to the Board.
- (11) The Applicant shall repair or replace agricultural field tiles damaged from this project, and the Applicant shall segregate excavated topsoil in agricultural fields and restore in its proper position upon backfilling. All mitigation procedures to agricultural land shall restore affected systems to previous or better condition unless otherwise specified by the affected property owner.

ECOLOGICAL CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Ecological Impacts** section of the Nature of Probable Environmental Impact:

- (12) Prior to construction, the Applicant shall provide a copy of any floodplain permit required for construction of this project, or a copy of correspondence with the floodplain administrator showing that no permit is required.

- (13) The Applicant shall adhere to seasonal cutting dates of October 1 through March 31 for removal of any trees greater than or equal to three inches in diameter, unless coordination efforts with the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) allows a different course of action.
- (14) The Applicant shall contact Staff, the ODNR, and the USFWS within 24 hours if state or federal threatened or endangered species are encountered during construction activities. Construction activities that could adversely impact such plants or animals shall be halted until an appropriate course of action has been agreed upon by the Applicant, Staff, and the ODNR in coordination with the USFWS. Nothing in this condition shall preclude agencies having jurisdiction over the facility with respect to threatened or endangered species from exercising their legal authority over the facility consistent with law.
- (15) The Applicant shall not conduct mechanized clearing and shall not remove any stumps within 25 feet of any stream channel.
- (16) The Applicant shall provide a construction access plan for review prior to the preconstruction conference. The plan shall consider the location of streams, wetlands, wooded areas, and sensitive plant species, as identified by the ODNR Division of Wildlife (DOW), and explain how impacts to all sensitive resources will be avoided or minimized during construction, operation, and maintenance. The plan shall include the measures to be used for restoring the area around all temporary access locations, and a description of any long-term stabilization required along permanent access routes.
- (17) The Applicant shall avoid construction in suitable habitat for the loggerhead shrike (*Lanius ludovicianus*) during the species nesting period of April 1 through August 1 in order to minimize impacts to the species. If suitable habitat cannot be avoided during this period, then a presence/absence survey shall be conducted, or an avoidance/ minimization plan shall be developed in accordance with the DOW.

PUBLIC SERVICES, FACILITIES, AND SAFETY CONDITIONS

Staff recommends the following conditions to address the requirements discussed in the **Public Services, Facilities, and Safety** section of the Nature of Probable Environmental Impact:

- (18) Prior to commencement of construction activities that require transportation permits, the Applicant shall obtain all such permits. The Applicant shall coordinate with the appropriate authority regarding any temporary or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility.
- (19) General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving, hoe ram, and blasting operations, if required, shall be limited to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants within the meaning of Ohio Adm.Code 4906-5-08(C)(3), of upcoming construction activities including potential for nighttime construction activities.

AIR, WATER, SOLID WASTE, AND AVIATION CONDITIONS

Staff recommends the following conditions to address the requirements discussed in the **Air, Water, Solid Waste, and Aviation** section of the Nature of Probable Environmental Impact:

- (20) The Applicant shall remove all construction staging area and access road materials after completion of construction activities, as weather permits, unless otherwise directed by the landowner. Impacted areas shall be restored to preconstruction conditions in compliance with the Ohio Environmental Protection Agency (Ohio EPA) General National Pollutant Discharge Elimination System permit(s) obtained for the project and the approved Stormwater Pollution Prevention Plan created for this project.
- (21) The Applicant shall not dispose of gravel, or any other construction material, during or following construction of the facility by placing such material on agricultural land. All construction debris and all contaminated soil shall be promptly removed and properly disposed of in accordance with Ohio EPA regulations.



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Summary: Staff Report of Investigation electronically filed by Mr. Matt Butler on behalf of Staff of OPSB