BEFORE
THE OHIO POWER SITING BOARD

In the Matter of the Application of **NRG OHIO PIPELINE COMPANY LLC** for Approval of a Letter of Notification for the Avon Lake Gas Addition Project in Lorain County, Ohio	))))	Case No. 14-1717-GA-BLN

SUPPLEMENT TO LETTER OF NOTIFICATION APPLICATION

I. INTRODUCTION

On March 9, 2015, the Ohio Power Siting Board ("Board") issued an entry in the above-captioned case requiring NRG Ohio Pipeline Company LLC ("Applicant" or "NRG Pipeline") to file supplemental information to its Letter of Notification ("LON") Application.[1] Specifically, the Board instructed NRG Pipeline to:

> …provide a detailed explanation of the route selection process it used to determine the proposed route and the reasons why the proposed route is best suited for the pipeline, as well as descriptions of the major alternatives considered, addressing both of the corridors depicted in the application in the *Certification Case*[2] and any other alternatives that were evaluated.[3]

The Board limited this instruction by noting that it does "not expect NRG Pipeline to undertake any new analysis of the proposed route or alternatives…."[4]

[1] NRG Pipeline filed its Letter of Notification Application on December 19, 2014.

[2] NRG Pipeline filed an amended application to be certified as an intrastate pipeline company in Case No. 13-2315-PL-ACE ("*Certification Case*") on November 27, 2013 (amended February 12, 2014). The Board granted NRG Pipeline authority to operate as an intrastate pipeline company on February 26, 2014.

[3] Entry at ¶ 8.

[4] Id. (emphasis added).

II. OVERVIEW OF ROUTE SELECTION PROCESS

NRG underwent a comprehensive and iterative process to determine the route proposed in its LON Application. The sections below briefly discuss applicable route feasibility studies and the evaluation of alternative routes.

A) Route Feasibility Studies

NRG Pipeline's route selection process generally aimed to reduce proximity to existing buildings and other above and below-ground infrastructure or features, while also taking into consideration, and balancing, other routing criteria, such as environmental impacts, constructability, and cost. To this end, NRG Pipeline conducted two feasibility studies of potential routes.

The first feasibility study was conducted by AECOM between October 2013 and January 2014, attached hereto as ***Attachment A***. NRG Pipeline retained Environmental Resources Management ("ERM") in February 2014 to assist in the route selection process. In February and March 2014, ERM conducted a second feasibility study of potential routes, attached hereto as ***Attachment B***. In conjunction with this effort, ERM conducted a population study in February 2014, attached hereto as ***Attachment C***. ERM updated that analysis in December 2014, attached hereto as ***Attachment D.*** The Hanover Engineering Associates' route analysis, attached hereto as ***Attachment E*** describes the relationship between the two feasibility studies.

The ultimate objective of the feasibility studies was to identify a route to be carried forward for permitting, engineering, and design. In order to do so, each study evaluated a range of factors affecting potential routes of the pipeline, including, but not be limited to impacts associated with socioeconomic, natural environment, construction, or engineering factors.

B) Analysis of Alternative Routes

Both feasibility studies identified and evaluated alternative routes. Although not required under the Board's rules, both feasibility studies limited the overlap of routes to 40% or less overlap.

Both feasibility studies conclude that the route proposed by NRG Pipeline in its LON Application is superior to the alternatives considered. This route falls entirely within the "Route 2" corridor identified in the *Certification Case*, but for a one-mile stretch at the southern end where the tap location was changed from that initially proposed in November 2013. The change is reflected in ***Attachment F***.

C) Selection of Route

After the best route was identified through the site feasibility studies, the route was further refined through a process of identifying various "pinch points" along the route, as described further in *Attachment E*. The route was further adjusted during the right-of-way negotiations with affected landowners. Major reroutes based on the negotiations with landowners are identified and described in *Attachment E*. In addition to the route changes described in *Attachment E*, the project incorporated over 200 other adjustments to the pipeline route in order to accommodate requests by landowners.

III. CONCLUSION

The studies and analysis included with this filing provide a detailed explanation of NRG Pipeline's route selection process, including the evaluation of alternative routes, and the reasons why the proposed route is best suited for the pipeline.

Respectfully submitted on behalf of
NRG OHIO PIPELINE COMPANY LLC

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the Appearance of Counsel has been served upon the following parties listed below by electronic mail, this 19th day of March 2015.

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ATTACHMENT A

AECOM Environment

Prepared for:
NRG
Princeton, NJ

Prepared by:
AECOM
Trevose, PA
revised January 2014

Preliminary Routing and Supporting Desktop Feasibility Study
NRG Avon Lake Pipeline Project
Lorain County, Ohio

CONFIDENTIAL

AECOM Environment

Prepared for:
NRG
Princeton, NJ

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Trevose, PA
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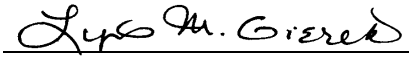
Preliminary Routing and Supporting Desktop Feasibility Study
NRG Avon Lake Pipeline Project
Lorain County, Ohio

CONFIDENTIAL

Prepared By: Mac Fuller
Environmental Scientist



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List of Acronyms

BMPs	Best Management Practices
CFR	Code of Federal Regulations
CWA	Clean Water Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
FHWA	Federal Highway Administration
GIS	Geographic Information System
GNIS	Geographic Names Information System
HDD	Horizontal Directional Drill
IPaC	Information, Planning, and Conservation System
MBTA	Migratory Bird Treaty Act
MP	Milepost
MRDS	Mineral Resources Data System
NEPA	National Environmental Policy Act
NGO	Non-Government Organization
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOR	Notice of Registration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NRI	National Rivers Inventory
NWI	National Wetland Inventory
OPSB	Ohio Power Siting Board
ORVs	Outstandingly Remarkable Values
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
Project	NRG Avon Lake Pipeline Project
PSS	Palustrine Scrub-Shrub Wetland
ROW	Right-of-way
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic
Study	Preliminary Routing and Supporting Desktop Feasibility Study

THPO	Tribal Historic Preservation Office
TMDL	Total Maximum Daily Loads
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	United State Department of Transportation
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
WRD	Wildlife Resources Division

Executive Summary

NRG Energy, Inc. (NRG) is proposing to add natural gas firing capability to Units 7 & 9 at their existing 732-MW coal-fired steam Avon Lake Generating Station located in Avon Lake, Lorain County, Ohio. The plan is to provide gas via a 24-inch diameter pipeline from Dominion East Ohio Gas Company's TPL12 pipeline with other tie-in options including Columbia Gas. The study scope consisted of completing an environmental feasibility that can be used to assist with future route engineering and design.

In addition to the route goals, for this project specific regulatory requirements must also be taken into consideration for the Ohio Power Siting Board (OPSB). NRG has filed for their Ohio Utility status and with that designation will be able to file under the Letter of Notification (LON) process with the OPSB, which will allow for an alternative route rather than two viable routes, with no more than 20% overlap. For the purposes of this study NRG requested that the two routes be presented that include no more than a 40% overlap. Based on these goals a routing study was completed to determine the location of two routes that met these requirements. While the two routes presented do contain a 40% overlap they are detailed as standalone routes within this report. AECOM completed a Preliminary Routing and Supporting Desktop Feasibility Study (Study) that took into consideration key components that drive cost and schedule. The following provides a matrix of the items considered and how they relate to the routes detailed within this report and referred to as Preferred Route 1 and Preferred Route 2.

Table ES-1 Key Components Considered and Summary Comparison

Key Component	Preferred Route 1	Preferred Route 2
Engineering		
Route Length	19.58	23.22
Tie-ins	Columbia, Dominion	Columbia, Dominion
Bores/Directional Drills: Major Roads Railroads	9 6	13 8
Collocating with Existing Utilities or Transportation Corridors	Collocates for 9.32 miles	Collocates for 8.18 miles
Avoids Populated Areas	Avoids densely populated areas of Avon, Sheffield, Elyria, Grafton	Avoids densely populated areas of Avon, Sheffield, Elyria, Grafton
Right-of-Way		
Number of Landowners/Parcels	178/270	226/354
Public Lands	Crosses no public lands	Crosses two county parks
Environmental		
Wetland Crossings	2 wetlands / 1.16 acres	4 wetlands / 3.23 acres
Waterbody Crossings	5 Perennial / 7 Intermittent	4 Perennial / 12 Intermittent
Tree Clearing	56.18 acres	79.86 acres
Regulatory		
Environmental Impacts	Wetlands, tree clearing, large river crossing	Wetlands, tree clearing, large river crossing
Coastal Zone	Unavoidable due to Plant location	Unavoidable due to Plant location

1.0 Introduction

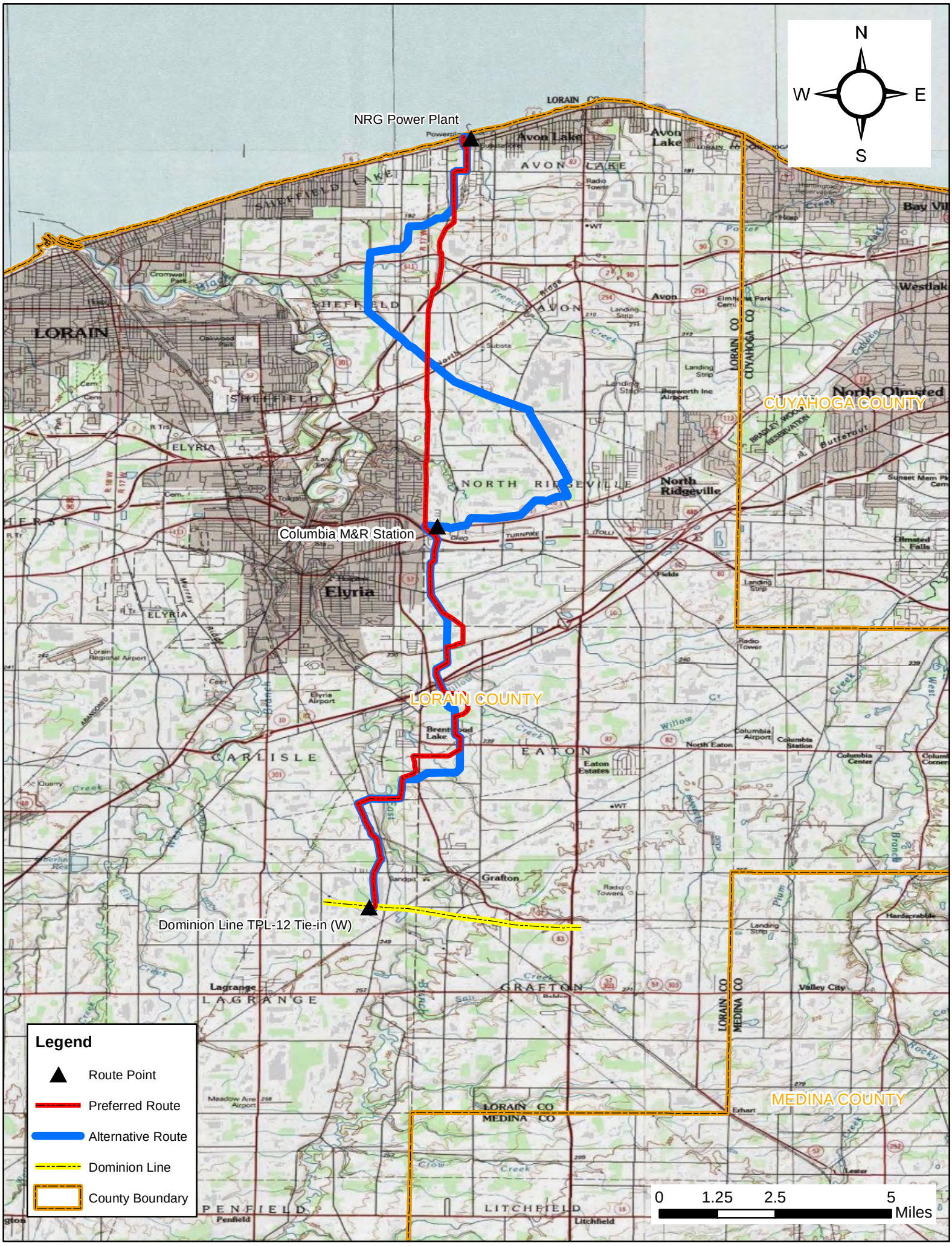
NRG Energy, Inc. (NRG) is currently in the initial routing phase of a proposed new 24-inch diameter natural gas pipeline, the Avon Lake Pipeline Project (Project), commencing at the Avon Lake Generating Station in Ohio, and traveling to two potential receipt points with Columbia Gas of Ohio (Columbia) and Dominion East Ohio (Dominion). The proposed pipeline will travel in a general south direction from Avon Lake to the City of Grafton, Ohio.

AECOM has conducted a Preliminary Routing and Supporting Desktop Feasibility Study (Study) for the Project as contracted by NRG. The purpose of the analysis was to identify two viable routes to the Dominion and Columbia system tie-ins that share a 40% route overlap, as well as to detail the constraints and issues considered in siting these routes. The Study also weighed potential cost and scheduling impacts on the siting, permitting, and construction of the Project

For the purpose of this Study, two potential routes with 40% overlap are presented for the Project:

- Preferred Route 1 – 19.58 miles of pipeline running south and east of Elyria and west of Grafton OH connecting NRG's existing power plant near Avon Lake, OH to Columbia's M&R Station and Dominion's Line TPL-12 and;
- Preferred Route 2 – 23.22 miles of pipeline running south and east of Elyria and west of Grafton OH connecting NRG's existing power plant near Avon Lake, OH to Columbia's M&R Station and Dominion's Line TPL-12.

The following Preliminary Routing and Supporting Feasibility Study represents AECOM's identified routes and the assessment of related issues for each potential route. While Preferred Route 1 and Preferred Route 2 share a portion of the same route within this Study, they are discussed and presented as standalone routes in order to be reviewed independently of each other. This report summarizes results obtained from relevant Geographic Information System (GIS) reviews and other publicly available information, including aerial photographs available on Google Earth. **Figure 1.0-1** provides the general location of the two preliminary routes identified as a result of the Study.


N
W
E
S
NRG Power Plant
Columbia M&R Station
Dominion Line TPL-12 Tie-in (W)
CUYAHOGA COUNTY
LORAIN COUNTY
MEDINA COUNTY
Legend
Route Point
Preferred Route
Alternative Route
Dominion Line
County Boundary
0
1.25
2.5
5
Miles

2.0 Methodology

The Project study area was defined by the Project's predetermined and static origination and termination points and the need to connect these points without deviating too far from straight line corridors in order to minimize route mileage. The study area was limited to the centerline of each alternative route. Both routes share a total of 9.10 miles of collocation, which based on the longer Preferred Route 2 represents a collocation of 39%.

2.1 GIS Resources

In an effort to select two routes that avoided and minimized critical issues or potential fatal flaws, a desktop review of potential environmental and scheduling constraints that could influence the Project was conducted. AECOM utilized GIS software from the Environmental Systems Research Institute (ESRI) to support data collection, processing, analyses, and visualization of environmental data along the length of the Project to identify two viable routes. AECOM collected GIS-compatible and existing publicly available agency data for the Project. The data were then plotted for an area 0.25-mile on either side of the preliminary route (corridor or study area) using the GIS software. For wetland and waterbody impacts the analysis corridor consisted of a 100-foot ROW. Environmental constraints were then reviewed within this corridor for various environmental concerns including major waterbodies, extensive forested wetlands, regulated or special-use lands, National Register of Historic Places- (NRHP) listed properties, and other issues that may be of concern. Upon completion of this review the routes were sited to avoid any fatal flaws and to minimize and or avoid environmental issues, where practicable. Data were primarily collected from the following sources:

- ESRI online data for NRHP;
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Soil Survey Geographic (SSURGO) Database;
- U.S. Geological Survey (USGS) Topographic Quadrangle Maps (24K, 100K, 250K);
- USGS, National Hydrography Dataset – 2010;
- U.S. Fish and Wildlife Service (USFWS),
    - National Wetland Inventory (NWI) Mapping;
    - Information, Planning, and Conservation System (IPaC); and
- Other GIS layers and text from various county, state, and federal government websites, and commercial background data provided by ESRI.

2.2 Constraints

Environmental constraints usually consist of those issues or areas having environmental or public sensitivities that could adversely impact a project from a scheduling or budget perspective. For example, placing pipeline facilities in proximity to or across environmentally sensitive areas may adversely impact a project through various means, and can result in associated schedule delays and additional costs.

No Project-specific agency consultations or field reconnaissance were conducted in support of this preliminary routing analysis. The data contained herein are subject to the limitations and accuracy of available public data sources and are only as complete and accurate as the available GIS data or other web-based sources from which they were derived.

The following issues were considered and assessed as part of the route selection process and subsequent feasibility assessment:

- Cost and scheduling implications;
- Opportunities for ROW sharing and paralleling;
- Pipeline cost and accessibility;
- Cultural and Historical Sites;
- Generalized land use/land cover (forest to be cleared);
- State and Federal lands;
- Natural areas;
- Rare, Threatened, and Endangered (RT&E) species and habitat data;
- National Wetlands Inventory (NWI) data;
- National Hydrography Dataset (NHD) streams and rivers;
- Aquifer Protection Areas;
- Steep slopes;
- Natural and Scenic Rivers and Stewardships;
- Federal Emergency Management Agency (FEMA) flood data;
- State, County, Township boundaries;
- Political and/or regulatory boundaries; and
- Land use data and populated areas.

The assessment of the above information allowed for identifying two viable routes that addressed the following concerns and as a result avoiding potential fatal flaws:

- Avoidance or minimization of impacts to environmentally sensitive areas where possible;
- Public safety, to include avoidance of public areas (schools, parks, recreation areas), heavily populated areas, and heavy traffic areas, where practical;
- Avoidance of areas with archeological, historical, and cultural significance;
- Ability to obtain permits from regulatory authorities;
- Avoidance, to the extent practical, of potable water sources (surface water and aquifers);
- Selection of a route that avoids areas that impede construction and/or increases operating costs. Examples include extreme terrain variations, rock, wetlands, geological hazards, high potential

for third party damage, wellhead protection areas, surface and subsurface mining areas, side slope construction, and lack of access;

- Predictable construction schedule;
- Minimize crossing of areas that pose a safety or security risk to construction personnel, pose a risk to the pipeline during operation, or pose a risk to operating personnel;
- Minimize the risks and construction difficulty associated with stream, river, road and railroad crossings; and
- Avoidance, to the extent practical, of land use areas that will increase the difficulty of ROW acquisition.

AECOM considered the following parameters related to environmental routing constraint data while developing prospective routes:

1. Route mileage – Two routes were developed with primary consideration given to selecting a route that minimized the overall length of the pipeline route.

2. Federal lands – Federal properties often present significant regulatory involvement as well as the potential to trigger a federal NEPA process. The potential for public opposition and/or construction and operation costs in these areas is also significantly increased. Due to the schedule and timing constraints of this Project, federal lands were avoided on both identified routes.

3. Existing pipeline corridors – From an environmental review perspective, proposed projects that follow existing corridors are most often preferable over proposing a new corridor along previously undisturbed and un-fragmented landscapes.

4. Sensitive streams, large wetland complexes and forested areas – Streams, wetlands and forested areas are all primary concerns when routing and permitting pipelines. While complete avoidance of these resources with a long-distance linear facility is not likely, routes can be chosen in order to minimize significant stream and forested area crossings and areas where wetlands will be expected to be prevalent. Desktop routing of wetlands is not always fully accurate. Wetlands will require field verification for the permitting purposes and further avoidance and minimization.

5. Other known resources – Data related to mines, known cultural and biological resources were also taken into consideration while developing prospective routes.

In addition to the items listed above and detailed herein, 11 x 17-inch aerial mapping of the proposed preliminary routes that includes all identified resources are located within **Appendix A.**

3.0 Water Use and Quality

3.1 Waterbodies

The Project was evaluated for the presence/absence of waterbodies within an estimated construction corridor. Based on available data, a total of 12 total waterbodies were identified along Preferred Route 1 and 16 along Preferred Route 2 within the evaluated corridors, none of which are major waterbodies (greater than 100 feet in width). See **Appendix B** for a detailed list of the waterbodies identified within each preliminary route corridor. The total number of waterbodies includes both intermittent and perennial waterbodies. Typically, ephemeral waterbodies, those that usually flow only in response to precipitation events, are not included on large scale GIS databases, but are identified during field surveys, therefore this report (which is limited to available GIS databases) does not include ephemeral waterbodies. Intermittent waterbodies typically flow for less than three months out of the year while a perennial waterbody has perceptible flow year-round. Additional waterbodies, particularly of the intermittent and/or ephemeral variety, may be identified during future field surveys.

The Project crosses both navigable and jurisdictional waters subject to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (33 Code of Federal Regulations [CFR] Part 329) which would require permits from the United States Army Corps of Engineers (USACE) in order to install the pipeline. Jurisdictional waters of the United States (U.S.) typically encompass all perennial and intermittent waterbodies. Ephemeral waterbodies may or may not be classified as jurisdictional (USGS 2010, USACE 2012).

3.1.1 Sensitive Waterbodies

Sensitive surface water resources are defined by the following criteria:

- Outstanding or exceptional quality waterbodies;
- Designated Wild or Scenic waterbodies; and
- Waters listed as impaired.

Discussion of waters that may be considered sensitive as potential habitat for federal- or state-listed threatened and endangered species is presented in Section 4.

Outstanding or Exceptional Quality Waterbodies

The National Park Service (NPS) lists the East Branch of the Black River on the National Rivers Inventory (NRI) from its source to the City of Grafton. In order to be listed on the NRI, a river must be free-flowing and possess one or more Outstandingly Remarkable Values (ORVs) (NPS 2013a). The East Branch of the Black River is listed for the following ORVs: Scenery, Recreation, and History and is designated from its source to the City of Grafton. Both routes cross this waterway at the same location north/downstream of Grafton and outside its NRI designated area. If a crossing was required in this NPS regulated area then additional consultation and permitting with the NPS would be required, which could potentially have schedule implications. This NRI designated portion of the East Branch of the Black River should also be avoided as a potential source for hydrostatic test waters.

Wild or Scenic Waterbodies

No designated Wild and Scenic Rivers were identified within the evaluated corridors (NPS 2013b).

Impaired Waterbodies

The federal CWA forms the basis for many of the water pollution control programs currently in effect in the United States. The CWA requires states to perform various water quality monitoring tasks, two of which are to report the status of water resources within their boundaries (§305(b)) and to provide a summary of identified non-point source problem areas (§319).

Section 303(d) of the CWA requires the states to identify water bodies that do not meet one or more applicable water quality standards and for which Total Maximum Daily Loads (TMDLs) need to be specified for water-quality protection. The Section 303(d) listing requirement applies to water bodies impaired by point and nonpoint sources. Section 303(d) of the CWA requires states to list all impaired waters not supporting uses even after appropriate and required water pollution control technologies have been applied.

According to the United States Environmental Protection Agency (USEPA) and Ohio 303(d) lists of impaired waterbodies, all of the waterways crossed by either the Preferred Route 1 or Preferred Route 2 are listed as impaired (USEPA 2013). All of these waterbodies are crossed by the proposed centerline. Impaired waterbodies are identified in **Appendix B**.

It is possible that implementation of additional protection measures may be required during construction within impaired waterbodies crossed by the open cut method. Future project-specific agency consultations may result in a heightened level of regulatory scrutiny for crossing methods and Best Management Practices (BMPs) at 303(d) listed impaired streams. AECOM does not anticipate measures beyond a possible agency requirement to utilize a dry-ditch crossing methodology and/or a commitment from NRG that extra measures will be taken to reduce the amount of down-stream sedimentation would be required. In accordance with the required National Pollutant Discharge Elimination System (NPDES) permit, NRG may be required to monitor turbidity at all waterbody crossings. Exceedances of permit limits/requirements may trigger reporting and/or review of management.

3.2 FEMA 100-Year Flood Zones

Review of Federal Emergency Management Administration (FEMA) mapping indicated the presence of 100-year flood zones along some of the larger perennial waterways crossed by both preliminary routes. The 100-year flood hazard area is defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.

Traversing 100-year flood zones is not a fatal flaw since an underground pipeline will not alter existing grade or flood capacity of these areas, since no impervious cover is introduced as a result of construction or operation. The only limiting factor is the placement of above-ground appurtenances, such as valves, which should be located outside these flood prone areas. Additional permitting may be required for these areas but typically agency assessment is completed concurrently with stream permitting.

3.3 Wetlands

As stated in the 1987 USACE Wetlands Delineation Manual (Environmental Laboratory 1987), the term wetland means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33CFR328.3(b); 1984).

The USFWS's NWI (USFWS 2004) database provides a general location of wetlands based on changes in vegetation patterns as observed from aerial photography and soil types. These data sets were obtained and overlaid in order to determine preliminary wetland boundaries within the Project area.

The USFWS's stated objective of mapping wetlands and deepwater habitats is to produce large scale, reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery and wetlands are identified based on soil type, vegetation, visible hydrology and geography. They are intended to provide a detailed overview of mapped wetlands that may be associated with the survey area, but not a site-specific determination of the presence/absence or extent of on-site wetlands. Wetlands or other mapped features may have changed since the date of the imagery and field verification is recommended as there may be differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Wetlands are typically classified according to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979). This hierarchical system aids resource managers and others by providing uniformity of concepts and terms used to define wetlands to hydrologic, geomorphic, chemical, and biological factors. Features are classified using a series of letters and number codes that best describes each habitat. Classification of main wetland types include palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine forested (PFO).

AECOM evaluated available NWI data for the preliminary routes to identify wetlands located within the designated 100-foot corridors of the Project. According to available NWI data 2 wetlands were identified within the Preferred Route 1 and 5 within the Preferred Route 2 evaluated corridors.

AECOM conducted an analysis of potential impacts that the Project would have on wetlands within the preliminary corridors as detailed within **Table 3.2-1**. Permanent impacts to wetlands would include conversion of forested wetlands to emergent wetlands within the pipeline easement that would be maintained in an emergent or scrub-shrub state for the life of the pipeline and not allowed to revert back to forested wetland. Temporary impacts would include disturbance of wetlands within the construction limits that would be allowed to naturally revert back to preconstruction conditions.

Table 3.2-1 Wetland Impacts within the Preliminary Route Corridors

Route	Number of Wetlands	Impact Acreage by Wetland Type					Total
		PEM	PSS	PFO	PFO/PSS	Open Water/Pond	
Preferred Route 1	2	0.00	0.00	0.00	0.42	0.74	1.16
Preferred Route 2	5	0.00	0.00	2.21	0.00	1.02	3.23

3.4 Groundwater

Ground water resources include all waters beneath the earth's surface and represent the largest single supply of fresh water available for human use. Ground water is contained in aquifers of various types that vary from high to low permeability. Ground water resources may lie shallow or deep. The Project crosses five main aquifer systems or locals, described below (ODNR 2013a):

- **Lake Maumee**: This area corresponds to the Lake Plain of ancestral Lake Erie. It is typically characterized by flat-lying topography and drift thickness varying from 25-100' to less than 25'. Areas of moderate drift thickness are usually adjacent to modern river valleys. Yields of 5-25 gallons per minute (gpm) are obtained in areas where sand and gravel lenses interbedded in the fine lacustrine deposits or underlying till occur.
- **Lorain**: Area just upland of the Lake Plain (Lake Maumee local) in central Lorain County. Includes ground moraine and thin upland settings depending upon the drift thickness. Drift thickness ranges from less than 5' to 25-100'. Yields of 5-25 gpm are obtained from thin sand and gravel lenses interbedded with till.
- **Galion**: Large area in north central Ohio which extends from Marion to the Lake Plain in Lorain County. This local contains end moraine, ground moraine, and thin upland settings. Drift thickness commonly ranges from less than 25' to 25-100'. Yields are commonly 5-25 gpm in areas with adequate thickness of drift.
- **Black River**: A tributary of Lake Erie that drains parts of Medina and Lorain Counties. This local includes the alluvial settings associated with the river and some immediately adjacent short buried valleys and thick drift complexes. In the headwaters, drift roughly averages 40' to 50'. Near the town of Oberlin, the stream roughly follows a buried valley and thick drift complex. Drift averages over 120' in this area. Farther north, the stream reaches the Lake Plain. In this area the floodplain narrows and the drift thins appreciably. Yields throughout the local average 5-25 gpm.
- **Medina**: This local includes end moraine, ground moraine, and thin uplands settings. Drift thickness ranges from less than 25' to 25-100'. Yields of 5-25 gpm are obtained where thin sand and gravel lenses interbedded with the clayey till are present.

Sole source aquifers, as defined by the USEPA, are principal source aquifers or those aquifers "which supply at least 50 percent of the drinking water consumed in the area overlying the aquifer." These areas characteristically have no alternative drinking water sources that could be "physically, legally, and/or economically supplied to all those who depend on the aquifer" for their potable water supply (USEPA 2011). No designated sole source aquifers are crossed by the Project (USEPA 2011).The entire Project lies within the Black-Rocky watershed (HUC 04110001) in north central Ohio (USGS 2010) and is part of the Southern Lake Erie Subregion.

3.5 Routing Considerations Based on Water Use and Quality

Waterbodies

Of the routes identified none are able to avoid stream crossings in their entirety due to length of the routes. In addition, the majority of the Lorain County watershed has been identified for impaired waters but as detailed further below construction within these waterways can be facilitated by adhering to the use of best management practices and is not considered a fatal flaw.

Agency consultation regarding impacts to waterbodies should be initiated as soon as possible as State and Federal agencies will be able to provide recent data on sensitivity of certain waterbodies

crossed by the Project. Additionally, each agency will be able to provide site-specific permitting concerns or conditions that may be applied to the construction of the Project.

AECOM assumes that the majority of impacts to waterbodies, such as indirect construction storm water runoff and direct in-stream sediment suspension during stream crossing activities, will result from Project construction, will be temporary in nature and will occur only during construction. Construction can also result in minor long-term impacts including the modification of vegetation in forested riparian areas where trees are removed during construction in order to establish the permanent right-of-way. Since the majority of the waterbody crossings contain wooded stream banks, care should be taken to preserve as many trees as possible. In order to minimize these impacts, AECOM recommends completing an evaluation of each waterbody crossing in order to determine which crossing method is most appropriate for each location and where impacts to riparian habitat can be minimized. Particular emphasis should be placed on crossing methods for highly vegetated and/or riparian areas and sensitive waterbodies, which include those waterbodies identified through state and/or local agency consultation to be significant or impaired, to ensure that all regulatory requirements are met or achieved. Additionally, final centerline placement across waterbodies should be at the narrowest (bank to bank) locations, where practical and should not parallel a waterbody.

Wetlands

Wetland identification used in this analysis was based on desktop review of NWI maps as obtained from the USFWS wetland mapping database. The use of this imagery provides a preliminary determination of the presence of wetlands within the vicinity of the Project. It does not confirm the actual presence of wetland indicators (hydrology, soils and vegetation) in the Project area. Therefore, it is recommended that this analysis be followed by ground surveys in order to verify the presence/absence of wetlands as well as determine accurate wetland boundaries based on field verification of hydrology, vegetation, and soil types. Field verification of wetland areas will assist in accurate routing of the Project such that it would further avoid or minimize impacts to wetlands where practical.

Of the routes identified none are able to avoid wetland crossings in their entirety due to length of the route. However based on the available USFWS NWI data the alignments have been routed to avoid large wetland areas and while it's expected that field surveys would identify additional wetlands, this would not be considered a fatal flaw.

It is recommended that a wetland survey be conducted at the beginning of the growing season and in sufficient time to obtain all necessary approvals and permits prior to the commencement of construction. The evaluations done in the field will be based on best professional judgment using field indicators observed at the time surveys are conducted. A detailed wetland survey will allow NRG to potentially route around major wetland complexes, not identified by NWI, and design construction crossing methods such that it will avoid or minimize impacts to jurisdictional wetlands and waters of the United States. Impacts to emergent wetlands from construction should be expected to be short-term and localized due to the nature of the Project (i.e., a linear underground utility). Construction of the Project may result in short-term disturbances to wetland hydrology, water quality, and could result in long-term disturbance in the form of wetland conversion by changing vegetation communities and converting it to a lower functional status (e.g., from forested to emergent wetland). Construction techniques that minimize workspace requirements, preserve the seed bank (topsoil segregation), preserve hydrologic integrity and ensure germination (restore grades as soon as possible and avoid compaction), thus enhancing wetland recovery, should be utilized. Secondary effects such as soil

erosion and runoff may be minimized by employing stormwater management and best management practices for runoff control and monitoring.

Consideration should be given that appropriate construction procedures and best management practices are implemented at each wetland crossing. Effort will be made to avoid or minimize impacts to forested wetlands further identified by field surveyed as those impacts occurring within the permanently cleared ROW will be considered to be a permanent wetland conversion by the USACE. Permanent wetland conversion may require mitigation and/or compensation and will result in a more complex and time and labor intensive permitting process. Limiting the amount of wetland disturbance and implementing best management practices can reduce costs associated with the post-construction monitoring. By avoiding wetland impacts where possible, further minimizing wetland impacts through BMPs, and completing appropriate mitigation, these wetland impacts will be permitted by the USACE and OHEPA and as a result are not considered to be a fatal flaw.

4.0 Fish, Wildlife, and Vegetation

4.1 State and Federal Protected Species

Under the Federal Endangered Species Act (ESA), coordination with the USFWS will be required to identify threatened and endangered species, suitable habitat, and designated critical habitat along the preliminary Project corridor. The presence of any species of concern or suitable habitat along the Project will require coordination with the USFWS to development a management plan in order to ensure the proposed activities will not cause impact, or that impacts are minimized or appropriately mitigated. Consultation should be initiated before field surveys begin to ensure that the proposed field methods would be acceptable to the USFWS.

A table of state and federally listed species potentially present within the Project area is provided in **Appendix C**. Federally listed species presented in the table represent species regulated by the USFWS which may occur or have potential habitat in Lorain County, OH (USFWS 2013a, b). Ohio protected species were also derived from county lists maintained by the Ohio National Heritage Database (ODNR 2013b). Consultation with the USFWS and Ohio DNR - Division of Wildlife will reveal species occurrence records that are currently unavailable without formal consultation.

Indiana bats are migratory bats that hibernate colonially and may occur in the Project area. Indiana bats hibernate colonially in caves or mines in the winter; but in the spring, reproductive females migrate and form maternity colonies where they bear and raise their young in wooded areas. Impacts to Indiana bats could be caused by any impacts to cave or mine entrances or surrounding foraging habitat. AECOM's experience is that earth disturbing activities may be restricted within one mile of known hibernacula. Consultation with the USFWS may identify if any such habitat is located in the vicinity of the Project area and may identify survey requirements or other additional mitigation measures that will be required. Surveys may only be required if tree clearing is to occur when bats could be roosting or foraging in the area. Field surveys would identify if summer roosting habitat (shagbark, shellbark or other tree species that provide exfoliating bark) for the Indiana bat is located in the Project area. If roost trees are located in the vicinity of the Project, impacts to Indiana bat can be avoided by clearing trees during the winter months (October through March) while the bats are hibernating in caves.

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA). The Project may be subject to review by the USFWS under the MBTA. Field surveys could identify nests and nesting habitat along the Project route; however, many nests in the tops of trees are not readily apparent from the ground. In general, impacts to bird species can be avoided by clearing the route of trees before the nesting season, which for most species is March 1 through July 15. Consultation with the USFWS may identify survey requirements or other mitigation measures that would be required.

The Bald Eagle is protected under the MBTA and Bald and Golden Eagle Protection Act. AECOM's research did not reveal any Bald Eagle nests in the vicinity of the project; however there are several known Bald Eagle viewing locations in Northeast Ohio (ODNR 2013c). Bald Eagles are also known to frequent warm water discharge locations associated with power plants along the Lake Erie shoreline during the winter (ODNR 2013c). If a Bald Eagle nest is identified near the project corridor through available agency data or field survey, general USFWS guidelines require up to a

660-foot buffer during breeding season. The breeding season extends from October through May (USFWS 2007). Local USFWS requirements may vary slightly upon consultation.
An assessment of wildlife protected by the regulation in Ohio was conducted based on element of occurrence data available from ODNR at the county level. In addition to the federally listed species, the Project has the potential to traverse habitat for 50 state endangered, threatened or special concern species. Detailed information regarding the location of these listed species cannot be known until formal consultation is completed with the ODNR. Based on project specific consultation, field surveys may be required to identify if any areas of suitable habitat are located within the Project area. Because of the large number of state protected species listed in Lorain County, early consultation with appropriate state agencies will be critical. Consultation with appropriate state agencies may identify possible survey requirements or other mitigation measures.

4.2 Fisheries

Although the Project area is located within the jurisdiction of the National Marine Fisheries Service (NMFS) for activities affecting Lake Erie and its fishery resources, there would be no impact to this waterbody as a result of the preliminary pipeline routes. While construction activities would occur within waterways that drain to this lake, use of BMPs would minimize any short lived temporary impacts. Consultation with NMFS is recommended to address any potential concerns. ESRI data for Ohio fisheries classifications was not available from a public resource. The Project area is located within the Black River Watershed which includes the East Branch Black River and French Creek. These waterways are listed by the Ohio Administrative Code 3745-1-27 as warmwater habitat. Agency consultation will be required to identify any applicable timing restrictions as well as crossing methodology guidance and potential mitigation measures.

4.3 Vegetation

The Project is located in the Lake Plains and Glaciated Appalachian Plateau physiographic regions. Approximately 64 and 61 percent respectively of Preferred Route 1 and Preferred Route 2 are sited in areas that are currently agricultural and 27 and 31 percent undeveloped open land and forested areas. Further discussion of land use crossed by the project can be found in **Section 8.1**.

4.4 Routing Considerations Based on Fish, Wildlife, and Vegetation

GIS data available for the project area does not provide for specific species hits or areas of known habitat but rather a county list of species. Based on this fact routing to avoid species and/or habitat cannot be completed until agency consultation can be initiated. However, where practicable, effort was made to avoid areas such as undeveloped forest that can pose issues related to Indiana bat and migratory birds.

Concerns with potential impacts to protected federal and state species can be addressed by early consultation with the USFWS and ODNR to identify possible survey requirements or other mitigation measures that would be required. Field surveys would verify if any suitable habitat is located within the Project area.

Concerns with potential impacts to the Indiana bat can be addressed by avoiding hibernacula, and performing tree clearing during the winter months while the bats are hibernating. If seasonal tree-clearing avoidance measures cannot be accommodated by the Project schedule, surveys would likely be required. While tree clearing cannot be avoided in its entirety, the routes identified have been sited to minimize traversing large expanses of undeveloped forest and where practical have been located along the edge of forest habitat.

Concerns with potential impacts to migratory bird habitat can be addressed by consultation with the USFWS to identify possible survey requirements or mitigation measures that would be required (nest clearing in the winter before nesting season). Alternatives to seasonal tree-clearing avoidance measures may not be allowed by USFWS. It is important that consultation be initiated with the USFWS early in the Project planning process in order to identify potential schedule conflicts and minimize mitigation costs to the greatest extent possible.

5.0 Cultural Resources

The National Historic Preservation Act (NHPA) and its implementing regulations (Section 106 - 36 CFR 800) require federal agencies to take into account the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. The NHPA and the regulations also require federal agencies to consult with the appropriate State Historic Preservation Offices (SHPOs) or a Tribal Historic Preservation Office (THPO) for projects on tribal lands, federal land managing agencies, federally recognized Native American tribes, and other parties (as defined by 36 CFR 800.2(c)(5)) for undertakings with the potential to cause effects to historic properties. By definition, *historic properties* are any properties listed or eligible for listing on the NRHP. An undertaking as defined by 36 CFR 800.16 (y) of Section 106 is any activity using federal funds, requiring Federal permits, or involving Federal properties. In Ohio, the Ohio Historic Preservation Office (OHPO) of the Ohio Historical Society serves as SHPO. Therefore, consultations regarding cultural resources, whether they are NRHP listed or eligible or State-significant, will be with this agency.

The Ohio Power Siting Board (OPSB) requires consultation with the OHPO regarding the protection of National Register of Historic Places (NRHP) listed/eligible or State significant *historic properties*. State regulations protecting historic properties/cultural resources include the Ohio Revised Code, Sections 149:51 through 149:54. A review of available data indicates that the Project does not cross any Native American tribal lands; however, consultations with Native American Tribes are recommended to confirm this conclusion.

5.1 Known/Listed Properties and Landmarks

The NHPA requires that all historic properties be identified and considered prior to development and ensures that prehistoric and historic resources (“cultural resources”) important to our national heritage are not inadvertently damaged or destroyed by federally initiated or authorized actions. In addition, state initiated or authorized actions may also require compliance with the protection of these resources through consultation with the OHPO. This includes historic properties that have not yet been discovered.

In an effort to determine whether known historic properties exist within the Project area, publicly-available information pertaining to cultural resources was consulted. The NRHP listings for Lorain County, Ohio were reviewed for the Project routes and the results are presented in the following paragraphs. Only publicly-available, National Historic Trails, National Historic Landmarks, and listed NRHP properties were reviewed. This review did not include formal or field research to identify historic properties, listed, eligible or potentially eligible for listing on the NRHP. These properties can only be identified through formal research with the OHPO once route selection has taken place. AECOM also consulted the Geographic Names Information System (GNIS), a USGS geo-database that contains some (but not all) information on potential historic sites.

National and State Historic Trails

According to publicly-available NPS maps, no National Historic Trails (NHTs) are located in the vicinity of the Project routes, as no NHTs are located within the entirety of Lorain County or in this region of Ohio (NPS, 2013c). There are no State Historic Trails within Ohio (OHS 2013).

National and State Historic Landmarks

According to publicly-available NPS and NHL data, there are three National Historic Landmarks (NHLs) located within Lorain County; however, these three sites are located within or in the vicinity of the City of Oberlin, Ohio, which is located more than 5.0 miles west of the Preferred Route 1 and 2. Therefore, the Project will have no effect on these NHLs (NPS 2013d). There are no State Historic Landmarks or Stat Historic Sites or Museums located within Lorain County or in the vicinity of the Project routes (OHS 2013).

NRHP-Listed Properties

AECOM searched for NRHP-listed properties within the vicinity of the Project routes. There are eight NRHP-listed properties located within one mile of the Project routes (NRHP 2013, NPS 2013e). Six of these *historic properties* are located between 0.12 mile and 1.0 mile from a preliminary route or routes (specified below); however, these properties will not be affected by the Project based on these distances. The remaining two NRHP-listed properties are archaeological sites that are expected to be located potentially 0 to 1.0 mile from Preferred Route 1. Additional research is necessary to determine the sites' exact location. This research is recommended in order to ensure that the Project route does not cross within or immediately adjacent to these sites. The following table lists the NRHP sites that are located within approximately one mile of the Project routes:

Table 5.1-1 NRHP-Listed Properties Within One Mile of Preliminary Route Corridors

Property Name	Approximate Location (City/Town)	Project Route(s)	Approximate Distance From Route(s)
Miller, Peter House	Avon Lake	Preferred Route 1 and 2	0.20 mile
103rd Ohio Volunteer Infantry Association Barracks	Sheffield Lake	Preferred Route 1 and 2	0.70 mile
Burrell Fort Site	Location Restricted	Preferred Route 2	0 to 1.0 mile
Burrell Orchard Site	Location Restricted	Preferred Route 2	0 to 1.0 mile
Eiden Prehistoric District	Location Restricted	Preferred Route 2	0.50 to > 1.0 mile
Burrell, Jabez and Robbins, House and Cheese Factory	Sheffield	Preferred Route 2	1.0 mile
Cahoon, Samuel C., House	North Ridgeville	Preferred Route 2	0.12 mile
North Ridgeville City Hall	Ridgeville	Preferred Route 2	0.30 mile

Cemeteries

By definition in the NHPA, cemeteries are not considered to be historic properties unless they are specifically attached to persons or events that meet the criteria for eligibility for or inclusion in the NRHP. However, for Project planning purposes, AECOM conducted a search using USGS topographic quadrangle maps and USGS geo-databases to locate cemeteries within 0.25 mile from the Project route (ESRI 2013). Two potential cemeteries were identified within 0.25 mile of the Project routes. These cemeteries are listed in **Table 5.1-2**.

Table 5.1-2 Cemeteries Within 0.25 mile of the Preliminary Route Corridors

Cemetery Name	Project Route(s)	Approximate Distance From Route(s)
Saint Teresa Cemetery	Preferred Route 1 and 2	0.23 miles
Saint Mary's Cemetery	Preferred Route 1 and 2	0.23 miles
Ridgeview Cemetery	Preferred Route 2	0.15 miles
Source: ESRI, 2013 and USGS Topographic layer.		

Although cemeteries are located within the evaluated corridor, none are crossed directly by the proposed centerline. Any potential changes in the Project Route should be planned to avoid known cemeteries. As with any Project, there is potential for unrecorded cemeteries or burial sites to be present.

5.2 Native American Consultations

The NHPA, amended in 1992, is the basis for the tribal consultation provisions in ACHP regulations. The two amended sections of NHPA that have a direct bearing on the Section 106 review process are Section 101(d)(6)(A), which clarifies that historic properties of religious and cultural significance to Indian tribes may be eligible for listing in the NRHP, and Section 101(d)(6)(B), which requires Federal agencies, in carrying out their Section 106 responsibilities, to consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking. ACHP's regulations incorporate these provisions and reflect other directives about tribal consultation from Executive orders, Presidential memoranda, and other authorities. The Federal agency must make a reasonable and good faith effort to identify such Indian tribes and invite them to be consulting parties. If such Indian tribes have not been invited by the agency to consult, the tribes may request in writing to be consulting parties and must be considered as such by the agency (ACHP 2005).

NHPA defines "Indian tribe" as "an Indian tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation or Village Corporation, as those terms are defined in section 3 of the Alaska Native Claims Settlement Act (43 USC. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians" (16 USC. 470w) (ACHP 2005).

The area of the Project has the potential to be of interest to certain Native American tribes. Tribes that may have a potential interest in prehistoric and historic sites of religious and cultural significance in the vicinity of the Project routes include the Chippewa, Delaware, Ottawa, Potawatomi, Shawnee, and Wyandotte tribes (NPS 2013d; BIA 2013; Trigger 1978). These Federally- and State-recognized tribes should be included in initial consultations.

5.3 Routing Considerations Based on Cultural Resources

The current proposed routes presented in this study have been sited to avoid known cultural resources available through public review. In order to determine whether there are known state-significant or NRHP-eligible sites within or in the vicinity of the Project routes, formal site file searches with the OHPO will need to be conducted. Formal research will confirm the information provided in

this report and will indicate whether any portion of the Project routes have been surveyed for cultural resources. Unsurveyed portions of the Project will need to be surveyed in order to identify potentially eligible properties. Particular emphasis will be required to determine the potential Project impacts, if any, to the NRHP-listed Burrell Fort and Burrell Orchard archaeological sites.

The OPSB will require consultation with the OHPO. If federal involvement in the Project is anticipated through compliance with other federal agencies, compliance with Section 106 of the NHPA will be required, including consultation with the OHPO and Native American tribes. Recent AECOM project experience near the Project area has not encountered significant Tribal concerns during the project review process. However, past experience alone cannot predict future or project-specific Tribal interests.

6.0 Geological Resources

6.1 Geologic Setting

The Project is located in an area with Devonian and Mississippian-age geologic units consisting of sedimentary rocks. Rock types encountered within the Project area include predominantly shale, sandstone, and siltstone. **Table 6.1-1** provides a list of the geologic units underlying the Project.

Table 6.1-1 Geologic Units Underlying the Preliminary Route Corridors

Route	From MP	To MP	Unit Age	Unit Name
Preferred Route 1	0.00	5.39	Devonian	Ohio Shale
Preferred Route 1	5.39	17.33	Devonian	Berea Sandstone and Bedford Shale, Undivided
Preferred Route 1	17.33	19.58	Mississippian	Maxville Limestone; Rushville, Logan, and Cuyhoga Formations, Undivided
Preferred Route 2	0.00	6.56	Devonian	Ohio Shale
Preferred Route 2	6.56	20.97	Devonian	Berea Sandstone and Bedford Shale, Undivided
Preferred Route 2	20.97	23.22	Mississippian	Maxville Limestone; Rushville, Logan, and Cuyhoga Formations, Undivided

The Project is located within two physiographic regions, the Lake Plains and Glaciated Appalachian Plateau regions. The Lake Plains region was once the bottom of the ancient Lake Maumee and is extremely flat. Sandy beach ridges and dunes formed due to the rising and lowering of the lake water. The Glaciated Appalachian Plateau region was carved by glaciers and ancient streams and is characterized by evidence of its past including bogs, kettle lakes and small hills of sand and gravel called “kames” (ODNR 2013d).

6.2 Shallow Bedrock and Blasting Potential

The Lorain County electronic soil survey data was compiled and analyzed for this Project. It is estimated that 3% of the Preferred Route 1 and Preferred Route 2 will encounter lithic bedrock at a depth of less than 6.6 feet. The table provided in **Appendix D** identifies areas where “lithic” rock are expected to be present at depths of less than 6.6 feet. Lithic rock is typically defined as competent, essentially unweathered rock.

If bedrock is encountered during construction of the Project, the technique used for removal will depend on the degree and depth of weathering, as well as the competency (strength and hardness) of the rock. The competency of the rock is also a function of the rock type. The degree of induration can significantly impact the “rippability” of some sandstone. Certain sedimentary rocks (shale and other fissile rocks) are typically “softer” and easier to penetrate with a mechanical device. Due to the relatively shallow emplacement depth for the pipeline, the amount of blasting required should be relatively small in most areas. Major road crossings, potential horizontal directional drills, and other areas where rock is anticipated may require more significant blasting to reach the necessary depth.

6.3 Historic, Active, or Planned Mining Activities

Much of Ohio's mining is located in the southeastern portion of the state and includes coal, sand/gravel, limestone, dolomite and sandstone operations. Only two active mineral mining operations are located in Lorain County, the closest of which is approximately 5 miles west of the terminus of both routes (ODNR 2013e).

6.4 Geologic Hazards: Earthquakes, Faults, Landslides, and Karst Terrain

Earthquakes and Faults

Northeast Ohio has experienced over 100 earthquakes since 1836, most of them small and located beneath Lake Erie. Only one recorded earthquake with an epicenter in Lorain County was recorded in 1938 (ODNR Earthquakes). No active faults are located near the Project area (USGS 2013).

Landslides

Landslides, a form of ground failure, involve the down slope movement of earth materials under the force of gravity due to natural or artificial causes. Clay deposits and deeply fractured shallow or outcropping bedrock on steep slopes are generally the conditions that are most susceptible to landslide occurrence. The Project is located in some areas of moderate landslide incidence; **Table 6.4-1** details the landslide incidence rating for the Project. In general, the areas of moderate landslide incidence correlate to the Lake Erie shoreline that is characterized by unconsolidated glacial sediments susceptible to wave erosion (ODNR 1995).

Table 6.4-1 Landslide Incidence in the Project Area

Route	From MP	To MP	Landslide Incidence Rating
Preferred Route 1	0.00	2.67	mod
Preferred Route 1	2.67	19.58	low
Preferred Route 2	0.00	3.16	mod
Preferred Route 2	3.16	23.22	low

Notes:

Low - Less than 1.5% of the area is involved in landsliding

Moderate - 1.5 - 15% of the area is involved in landsliding

Source: ODNR Landslides GeoFacts #8, 1995.

Karst Terrain

Karst topography or terrain, typically called "karst" is a landscape that develops in regions underlain by limestone, dolomite, gypsum, or rarely bedded salt. Karst is characterized by closed depressions termed sinkholes, and by caves, cave systems, and underground drainage. The agent of erosion that creates these cavernous features is a solution of soluble minerals from one or all of the rock types mentioned above, in combination with slightly acidic ground water (EPA 2002).

The majority of the known karst terrain in Ohio is located in the western part of the state; the proposed Project is not located near any areas known to contain karst features (ODNR 1999).

6.5 Routing Considerations Based on Geological Resources

A very general estimate of 3% of the Project Preferred Route 1 and Preferred Route 2 have the potential to intersect shallow (depth of less than 6.6 feet) bedrock, which may require blasting. Of particular concern are areas with steep slopes, which will require specialized construction techniques and may be difficult to restore. On-the-ground surveys will be required to determine the specific locations of such areas and minor route variations can be completed to avoid to potential areas and is not considered a fatal flaw. Subsequent geotechnical investigation may be required in some areas to determine the depth to bedrock, rock competency and identify the most efficient construction method.

Portions of the Project located in areas of moderate landslide incidence near the Lake Erie shore area, which cannot be avoided by the preliminary routes, might require specialized construction techniques including shoring and benching to mitigate landslide risks during construction. Use of these common construction methods is not considered a fatal flaw to the siting of the two routes.

7.0 Soils

AECOM evaluated available USDA-NRCS data to identify soil types within 0.25-mile of the Project centerline. A list of soil types crossed by the Project centerlines is provided in **Appendix D**.

7.1 Prime Farmland Soils

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those characteristics needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent (Soil Survey Staff 2013).

Human influence of construction on prime farmland soils can increase soil compaction which can lead to diminished soil workability, quality and even loss of temporary plant productivity. A decrease in plant life or vegetation during construction activities can also lead to increased water runoff, erosion and sedimentation and lead to increased loss of prime farmland soils.

Agricultural production can be affected by the introduction of stones to surface soil layers. Introduction of stones to the surface layer may interfere with and cause damage to agricultural equipment. This interference with agricultural practices could result in a reduction of productivity. Rock fragments and stones at the surface and in the surface layer may be introduced during grading, trenching, and backfilling. The introduction of stones into topsoil can be minimized by segregating topsoil from subsoil and backfilling the trench with subsoil first, then topsoil.

64% of the Preferred Route 1 and 61% of the Preferred Route 2 traverse agricultural areas and according to the SURRGO soil database compiled by the USDA-NRCS approximately 17.44 miles of Preferred Route 1 and 21.38 miles of Preferred Route 2 cross soils classified as Prime Farmland or Prime Farmland if Drained (Soil Survey Staff 2013).

7.2 Shallow Bedrock

The depth to bedrock may be used to determine locations where construction may produce large rock fragments or where blasting may be necessary. Ripping and blasting of shallow bedrock during construction could introduce rock fragments and stones into the topsoil, which may decrease an area's productivity after construction. Refer to Section 6.2 for a detailed discussion of shallow bedrock.

7.3 Routing Considerations Based on Soils

Construction of the Project will result in short-term impacts to the soils along the Project route. Potential impacts may include, but are not limited to, soil erosion on steep slopes by wind and water, mixing of topsoil and subsoil, soil compaction and rutting from construction equipment, and blasting due to shallow bedrock. Deep soil compaction in agricultural areas, areas of Prime Farmland and Farmland of Statewide Importance can lead to decreases in productivity.

Adherence to an approved Erosion and Sediment Control Plan and implementation of BMPs in agricultural areas will serve to minimize and mitigate these potential issues. AECOM also recommends that NRG coordinate with the local NRCS offices to obtain recommendations for seed, fertilizer, and mulch application rates for use during restoration.

The Project area consists of a mix of industrial urban, residential, forested and agricultural land uses. Where practicable, the two routes were sited to avoid densely populated areas and forested areas that may have the potential for environmental sensitive habitat for rare, threatened or endangered species. As a result, the majority of the preliminary routes traverse agricultural land which makes up the vast majority of the Project area within Lorain County, OH. Where possible the routes have been sited to cross along edge of active farmland. Through the use of BMPs impacts to agricultural land should be short lived and restoration measures will ensure continued viability and this is not considered a fatal flaw.

8.0 Land Use

8.1 Setting

The Project is located completely within Lorain County, Ohio. Preferred Route 1 and Preferred Route 2 cross a large majority of wooded and undeveloped, agricultural, pasture, and/or open land, and generally avoids large population centers. However, the Project area is located 20 miles outside the limits of Cleveland and therefore does contain low, moderate and some pockets of high density residential areas. Due to the fixed points of origin (NRG Power Plant) and terminus (Dominion and Columbia tie-ins) these areas cannot be avoided and siting has been completed to best avoid and minimize traversing densely populated areas without adding undue mileage.

The preliminary routes will cross several major roadways within the Project area. Due to the linear nature and fix origination and terminus points of the routes, the majority of these roadways cannot be avoided. Both federal roads such as Interstate 80 and state roads including the Ohio Turnpike will crossed. Additional coordination with the United State Department of Transportation (USDOT) Federal Highway Administration (FHWA) and the Ohio Turnpike Commission will be required. **Table 8.1-1** lists the major road and highways crossed by the Project.

Table 8.1-1 Major Roads Crossed by the Preliminary Route Corridors

Route	MP	Road Name
Preferred Route 1	0.14	US Hwy 6
Preferred Route 1	2.89	State Rte 611
Preferred Route 1	3.80	Interstate 90
Preferred Route 1	5.50	State Rte 254
Preferred Route 1	8.95	US Hwy 20
Preferred Route 1	9.05	Interstate 80
Preferred Route 1	12.69	State Rte 10
Preferred Route 1	14.51	State Rte 82
Preferred Route 1	15.33	State Rte 57
Preferred Route 2	0.14	US Hwy 6
Preferred Route 2	3.20	State Rte 301
Preferred Route 2	3.90	State Rte 611
Preferred Route 2	5.72	Interstate 90
Preferred Route 2	5.81	State Rte 301
Preferred Route 2	6.65	State Rte 254
Preferred Route 2	12.36	US Hwy 20
Preferred Route 2	12.67	US Hwy 20
Preferred Route 2	13.27	US Hwy 20
Preferred Route 2	13.37	Interstate 80

Route	MP	Road Name
Preferred Route 2	16.71	State Rte 10
Preferred Route 2	18.17	State Rte 82
Preferred Route 2	19.44	State Rte 57

Table 8.1-2 details the land use types potentially impacted by the preliminary Preferred Route 1 and Preferred Route 2.

Table 8.1-2 Land Use Types Impacted by the Preliminary Route Corridors

Route	Landuse Types (acres)[1]							Grand Total
	Urban	Agricultural Open Land	Scrub/Shrub	Wooded	Open Water	Non-Forest Wetland [2]	Barren	
Preferred Route 1	19.22	150.61	1.94	56.18	2.02	7.40	0.00	237.37
Preferred Route 2	19.73	169.82	0.06	79.86	2.36	9.66	0.00	281.49

Source: ODNR Landuse GIS Data
[1] Acreages based on 100 foot ROW corridor.
[2] For consistency OHDNR land use data used for all land types, refer to Table 3.2-1 for refined NWI wetland data.

8.2 Public Lands

A portion of the Preferred Route 2 route crosses the French Creek Reservation at the French Creek Metro Park for approximately 1 mile (Lorain County Metro Parks 2013). The French Creek Reservation features mostly wooded landscape with cliffs, ravines and creeks. It has 4.5 miles of trails, picnic areas and lookout locations. The preliminary Preferred Route 2 crosses this park at the eastern edge located approximately 0.50 mile from the main portion of the park and has been sited in this area to collocate with an existing railroad ROW which allows for minimizing habitat fragmentation. In addition, the route cannot be sited east of the railroad and outside the park due to residential homes and businesses that back-up to this railroad eliminating any space to accommodate a proposed pipeline. In addition, a portion of the Preferred Route 2 crosses the North Ridgeville Metro Park for 0.14 miles (Lorain County Metro Parks 2013).

NRG should consider consultation with Lorain County with regard to the proposed construction activities as soon as appropriate at these locations. Not only can ROW acquisition and permitting become a more involved process in these locations, such areas can often become a focal point for public opposition. Early consultations will allow NRG to gauge the receptiveness of these agencies and will also allow early identification of any construction and permitting requirements or seasonal restrictions that may be placed upon the Project.

Preferred Route 1 does not cross any public lands and no additional Federal, State or County parks, wildlife refuges or public lands are located within the vicinity of the two identified routes.

Table 8.2-1 Public Land Crossed by the Preliminary Route Corridors

Route	MP	Road Name
Preferred Route 2	4.00	French Creek Metro Park
Preferred Route 2	12.00	North Ridgeville Metro Park/Sandy Ridge Reservation

8.3 Special Land Uses

Special land uses could include specialty crops such as orchards, vineyards and Christmas tree farms, natural areas, conservation lands, as well as recreation areas or schools. While a detailed analysis of special land uses within the study area is not a part of the scope of the Project, AECOM's research did not identify any conservation areas that would be crossed by the Project, however entities such as schools and nurseries were noted and identified within **Table 8.3.1** below.

Table 8.3-1 Special Land Uses Traversed by the Preliminary Route Corridors

Route	From MP	To MP	Length (Feet)	Adjacent (w/in 0.25 miles)	Special Land Use [a]
Preferred Route 1	3.33	3.59	0.26	Yes	Freight Stadium/YMCA Facility
Preferred Route 1	6.41	7.00	0.41	Yes	Lorain Co. Community College
Preferred Route 1	5.50	5.74	0.24	Yes	Nursery 1
Preferred Route 1	14.74	15.33	0.59	Yes	Brentwood Golf Club
Preferred Route 2	3.98	4.21	0.23	Yes	Ridgeville Wastewater Facility
Preferred Route 2	7.33	7.69	0.36	Yes	Nursery 2
Preferred Route 2	18.84	19.22	0.38	Yes	Brentwood Golf Club
Preferred Route 2	18.84	19.22	0.38	Yes	Midview Middle and High School

[a]GoogleEarth aerial interpretation.

8.4 Collocation with Railroad and Utility Corridors

Typically federal and state agencies prefer to see linear infrastructure, whether utilities or transportation, be collocated where practicable and feasible. Effort has been made to site the Preferred Route 1 and Preferred Route 2 along existing corridors where possible to minimize habitat fragmentation and utilize an area with an existing designated land use, while keeping in mind route length. **Table 8.4-1 and 8.4-2** list the locations where the preliminary Preferred Route 1 and Preferred Route 2 parallel existing linear corridors including electric transmission lines, pipelines, and railways.

Table 8.4-1 Existing Utilities Paralleled and Crossed by the Preliminary Route Corridors

Route	Crossing Type (Collocate/Crossing)	From MP	To MP	Length	Parallel Utility and Owner	Land Owner
Preferred Route 1	Collocate	0.09	0.97	0.88	Overhead Powerline	Orion Power Midwest LP
	Collocate	1.38	1.83	0.45	Overhead Powerline	Orion Power Midwest LP
	Collocate	3.56	3.78	0.22	Overhead Powerline	City of Avon
	Collocate	6.29	9.01	2.73	Overhead Powerline	Ohio Edison Co City of Avon Lake
	Collocate	12.42	12.93	0.51	Overhead Powerline	Multiple Land Owners
	Collocate	13.88	14.62	0.74	Overhead Powerline	Multiple Land Owners
	Collocate	16.49	16.69	0.20	Overhead Powerline	Multiple Land Owners
	Collocate	17.20	17.60	0.40	Overhead Powerline	Multiple Land Owners

Route	Crossing Type (Collocate/Crossing)	From MP	To MP	Length	Parallel Utility and Owner	Land Owner
Preferred Route 2	Collocate	5.63	8.41	2.78	Overhead Powerline	Pennsylvania Lines LLC
	Crossing	6.02	-	-	Overhead Powerline	Cleveland Electric Illuminating
	Collocate	13.07	13.33	0.26	Overhead Powerline	Ohio Edison Co
	Collocate	16.42	19.28	2.86	Overhead Powerline	Multiple Land Owners
	Collocate	20.13	20.33	0.20	Overhead Powerline	Multiple Land Owners
	Collocate	20.85	21.25	0.40	Overhead Powerline	Multiple Land Owners

Table 8.4-2 Existing Railroads Paralleled and Crossed by the Preliminary Route Corridors

Route	Crossing Type (Collocate/Crossing)	From MP	To MP	Length	Railroad
Preferred Route 1	Crossing	0.27	-	-	Orion Power Midwest
	Collocate	0.30	0.83	0.54	Norfolk and Southern R.R.
	Crossing	0.83	-	-	Orion Power Midwest
	Crossing	1.84	-	-	Norfolk and Southern R.R.
	Crossing	2.02	-	-	Norfolk and Southern R.R.
	Collocate	3.89	6.29	2.39	Conrail Corp.
	Crossing	9.33	-	-	Conrail Corp.
	Collocate	17.60	17.86	0.26	Chessie CSX System R.R.
	Crossing	17.70	-	-	Chessie CSX System R.R.
Preferred Route 2	Crossing	0.27	-	-	Orion Power Midwest
	Crossing	0.83	-	-	Orion Power Midwest
	Crossing	2.20	-	-	Norfolk and Southern R.R.
	Collocate	3.69	5.00	1.31	Norfolk and Southern R.R.
	Crossing	3.98	-	-	Norfolk and Southern R.R.
	Crossing	4.98	-	-	Norfolk and Southern R.R.
	Collocate	5.45	5.56	0.11	Norfolk and Southern R.R.
	Crossing	6.38	-	-	Conrail Corp.
	Crossing	13.65	-	-	Conrail Corp.
	Collocate	21.25	21.51	0.26	Chessie CSX System R.R.
	Crossing	21.30	-	-	Chessie CSX System R.R.

8.5 Administrative Boundaries

For NRG's information AECOM has provided **Table 8.5-1** which details the community/township entities, tax districts, and school districts traversed by the Preferred Route 1 and 2.

Table 8.5-1 Administrative Boundaries Crossed by the Preliminary Route Corridors

Route	From MP	To MP	Community/Township	Tax District	School District
Preferred Route 1	0.00	2.02	Avon Lake City	11	Avon Lake CSD
	2.02	6.29	Avon City	10	Avon LSD
	6.29	11.21	North Ridgeville City	50	North Ridgeville CSD
	11.21	11.59	Elyria City	34	Midview LSD
	11.59	11.72	Eaton Township	28	Midview LSD
	11.72	11.90	Elyria City	34	Midview LSD
	11.90	15.33	Eaton Township	28	Midview LSD
	15.33	18.79	Carlisle Township	22	Midview LSD
	18.79	19.58	LaGrangeTownship	40	Keystone LSD
Preferred Route 2	0.00	2.19	Avon Lake City	11	Avon Lake CSD
	2.19	2.34	Avon City	10	Avon LSD
	2.34	6.39	Sheffield Village	65	Sheffield / Sheffield Lake CSD
	6.39	8.42	Avon City	10	Avon LSD
	8.42	15.40	North Ridgeville City	50	North Ridgeville CSD
	15.40	15.91	Elyria City	34	Midview LSD
	15.91	19.44	Eaton Township	28	Midview LSD
	19.44	22.44	Carlisle Township	22	Midview LSD
	22.44	23.22	LaGrangeTownship	40	Keystone LSD

8.6 Property Owners

Appendix E provides a list of all property owners including state, municipal, county and private traversed by both preliminary routes based on a 100ft corridor. Once a route corridor is selected parcel boundaries will be identified and reviewed to further refine the alignment to minimize the number of property owners impacted.

8.7 Routing Considerations Based on Land Use

Effort has been made to the site the Preferred Route 1 and Preferred Route 2 outside the limits of public lands unless factors such as collocations or limited routing options have required placement in such areas. The county parks crossed by Preferred Route 2 would require additional coordination but at the county level it's expected that the permit process for acquiring easements would not be considered a fatal flaw. The locations would require special permits and fees and consultation with Lorain County with regard to the proposed project should be initiated as soon as appropriate in order to determine permitting.

Paralleling with existing utilities is preferable when possible because these locations are previously disturbed and support utility infrastructure, however they can also allow for additional coordination with multiple utilizes which can be timely, however typically route collocations garners agency approval and aids in public outreach.

Due to the location of the route and unavoidable pockets of moderate to dense population, upon selection of a preferable route a population study will be completed to determine pipeline classes based on population density and to further refine the route within the preferred corridor. While avoiding densely populated areas has been considered, where practical, due to the geographic area siting near residential and commercial areas is unavoidable. Early development and information distribution about the project to the local public entities will prevent distorted or biased publicity from groups that oppose every energy project, regardless of its benefits. Input from the local community organizations and individuals are valuable information in selecting a route that minimizes delays during permitting and construction

9.0 Costing Criteria

The Preferred Route 1 and Preferred Route 2 presented within this Preliminary Routing and Supporting Desktop Feasibility Study are situated within the same general landscape and the main factors driving costs are not drastically different with either route. However, the factors detailed below drive cost and they have been applied to both routes to determine a low, medium, or high qualitative costing assessment.

AECOM is working to compile a quantitative assessment of costs based on the parameters listed below in **Table 9.1-1** and will be providing a more detailed analysis under separate cover breaking out these items for NRG's review. **Appendix F** provides a Sample Cost Sheet which will be utilized for both routes in order to compile preliminary construction costs.

Table 9.1-1 Cost Factors for both Preliminary Routes

General Cost Considerations	Concerns	Preferred Route 1	Preferred Route 2
Length	Length drives overall cost for pipe and construction	Medium	High
Bends	Number of bends due to terrain or direction changes	Medium	Medium
Forest Clearing	Costs for clearing activities	Low	Low
Agricultural	Costs for specialized construction (topsoil segregating/restoration/stone removal)	High	High
Wetland Crossings	Costs for specialized wetland construction	Low	Low
Stream Crossings	Costs for specialized waterbody construction	Medium	Medium
Terrain	Cost due to steep terrain	Low	Low
Residential Commercial Areas	Costs for specialized construction when working near residencies/ buildings	Medium	Medium
Extra Work Space	Quantity of extra work space needed and potential difficulty in obtaining permission for extra work space.	Medium	Medium
Road/RR/Utility Crossings	Number of crossings, difficulty of crossings, method of crossings, casing requirements, embankment stability issues.	Medium	Medium
	Overall Cost Rating	Medium	Medium

10.0 Conclusions and Summary of Preliminary Routes

Based upon AECOM efforts to select two viable routes for the NRG Avon Lake Pipeline Project and subsequent desktop data review, it is recommended that a few resources/issues be further assessed during final siting of the pipeline and associated facilities. While none of the identified resources/issues identified in this Study currently appear to present fatal flaws to development of the Project, they will all likely garner additional scrutiny from the regulatory community and public, in general (i.e. wetland impacts, residential areas).

Of the two routes both the Preferred Route 1 and Preferred Route 2 cross the largest waterbody consisting of the East Branch of the Black River, whereas the remainder of the waterways crossed by either route consists of smaller perennial and intermittent waterways. Due to its size, versus the remainder of the crossings, this waterbody will require more involved construction. There are also multiple impaired streams that will be crossed by the Project, which will require additional mitigation measures during construction to address erosion and sedimentation during construction.

Either route crosses mapped wetlands. Impacts to these wetland areas may be reduced or avoided with minor re-routes. Field verification of wetland areas can also assist in accurate routing of the Project such that it would avoid or minimize impacts to wetlands where practicable. In addition, further field surveys will identify additional wetlands than those identified by NWI, which may require additional route shifts dependent on the delineation findings.

The Project does have the potential to impact federal- and state-protected species, but the breathe of these impacts cannot be further assessed until project specific federal and state agency consultation occurs. Neither the Preferred Route 1 nor Preferred Route 2 will avoid any potential impact outright as they cross similar land uses. Desk-top review did not determine that either route crosses areas with historical or cultural significance.

The Preferred Route 1 and Preferred Route 2 are collocated with existing electrical transmission line corridors, pipeline ROWs, and railways to avoid and minimize impacts to infrastructure and residences. Both routes will require a number of State Highways, State Roads and railroad crossings, which will require the pipeline to be installed via a trenchless construction method (e.g., directional bore, horizontal directional drill). In addition, both routes will cross Interstate 80 a federally maintained roadways which will require coordination with the Federal Highway Administration as well as the Ohio Turnpike which will trigger involvement with the Ohio Turnpike Authority. Permits will be necessary to cross these highways and state roads, as well as negotiations with the identified railroad companies.

Only the Preferred Route 2 cross lands owned and managed by the Lorain County Park System. Special permits and coordination would be required to cross these state and county owned lands. Additional environmental impact analysis could be required by these agencies and the issuance of the Special Use Permits could be determined by the local management of these sites.

In areas, the Preferred Route 1 and Preferred Route 2 come in close proximity to residential, commercial and industrial areas, which cannot be avoided entirely due to the suburban nature of the area and the fixed start and end points of the route. Where possible, care has been taken to route these corridors away from densely populated areas. Once a route corridor is selected parcel boundaries will be identified and reviewed to further refine the alignment to minimize the number of property owners impacted.

While this Study presents a preliminary assessment of sensitive environmental areas/issues within the scope of what was assessed as detailed in **Table 10.1-1**, additional items will almost certainly be identified as a result of Project-specific agency consultation, field surveys, and public outreach. The assessment of route variations should be expected to continue throughout the evaluation process. Optimally however, most major routing alternatives should be identified early in the planning stages, thus leaving only minor, site-specific, and more easily evaluated alternatives.

AECOM's preliminary route siting and review identified two routes alternatives between one origination point and two tie-in locations points. AECOM has assumed that the final selection of route will be decided at the direction of NRG's project team, with continued inputs from identified engineering constraints and landowner negotiations.

AECOM's recommended next steps for the Project include the following:

- Field surveys and Project specific consultations should be initiated as soon as possible in order to provide more precise routing guidance and more fully assess the critical issues presented in this plan and those issues that may have escaped the data limitations of this preliminary routing assessment.
- Endangered and threatened species related tree-clearing should be considered when developing the Project schedule. If seasonal constraints/guidance cannot be accommodated, additional surveys/permitting efforts, and/or mitigation will likely be required.
- Pre-application meetings should be held with the state utility commission, Ohio Power Siting Board, federal agencies (e.g., USFWS, USACE), and state agencies (OPSB) to introduce the Project, develop a collaborative Project schedule, work through pertinent permitting process details, discuss the level of field survey that can be conducted prior to the issuance of a route permit and lay the groundwork for the permitting process going forward.

Table 10.1-1 Summary of Constraints Crossed by the Preliminary Routes

Route	Total Length	Totals Miles Wetland Crossed	Total % Wetland Crossed	Wetlands Types (miles) PEM	PFO/ PSS	Riverine	Other	Number of Perennial & Intermittent Waterbody Crossings	Ownership (Miles) Federal	State	County	Private	Collocation with Existing Utility Road Railway ROWs Miles	%	Land Uses Developed Miles	%	Agricultural Miles	%	Vegetated Miles	%	Costs Low Medium High	# Parkland	# Special Land Uses	# Mines	# National Register Historic Places Sites w/in 0.25 miles	# Communities	# School Districts	# Tax Districts	# Road Crossings	# Railway Crossings	# Property Owners/Parcels
Preferred Route 1	19.58	0.04	0.20	0	0.04	0.06	0	5/7 = 12 total	0	0.29	1.06	18.17	10.12	51.69	1.54	7.87	12.52	63.94	5.36	27.37	Medium	0	4	0	1	7	5	7	9	6/22	/
Preferred Route 2	23.22	0.19	0.82	0	0.19	0.08	0	4/12 = 16 total	0	0.30	1.07	21.79	8.75	37.68	1.60	6.89	14.14	60.90	7.30	31.44	Medium	2	4	0	4	8	6	8	13	8/22	/

Notes:
A = State land also includes Ohio Turnpike Commission
B = Land uses will not equal total length as total does not include roadway, railway, and waterway crossings.
C = The total number of railroad crossings has been provided as well as the number of total rails, as some crossings include more than one rail.

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Appendix A

Environmental Constraint Aerial Mapping

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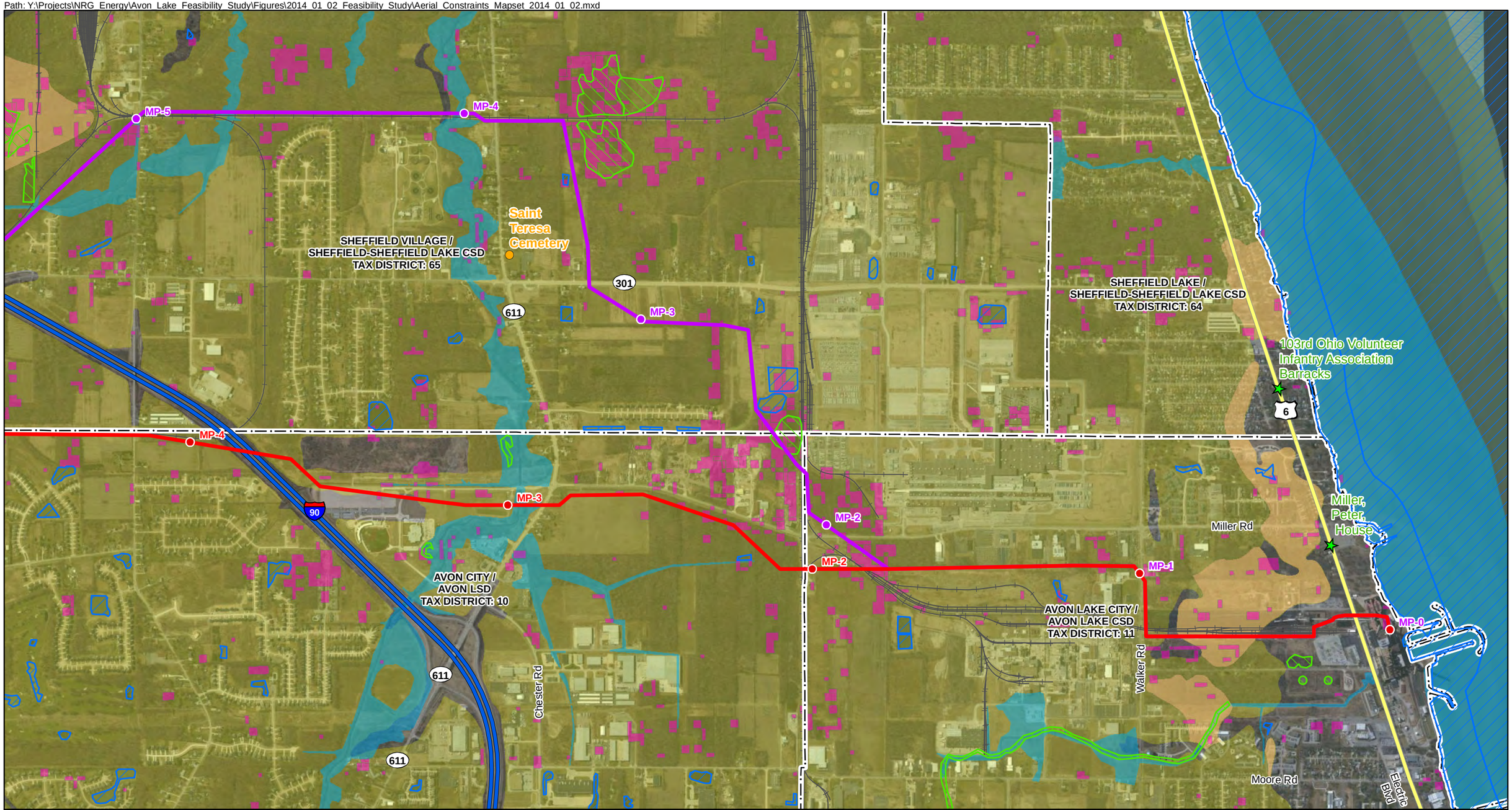

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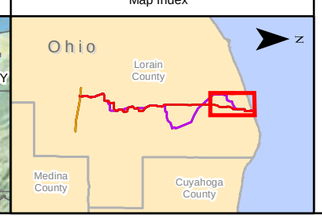
Map Index



Legend

- Preferred Route 1 Milepost
- Preferred Route 2 Milepost
- Dominion Line Milepost
- Preferred Route 1
- Preferred Route 2
- Dominion Line
- NWI Wetland
- NWI Waterbody
- Ohio Wetlands Inventory (1987)
- 100 Year Flood Zones
- Prime Farmland
- Political District
- NRHP Locations
- Cemeteries
- Shallow Depth to Bedrock (> 50 cm)
- Railroad
- Highway
- Major Road
- Other Major Road

0 750 1,500 3,000 Feet

1:18,000

NRG Avon Lake Pipeline Project

Aerial Constraints Mapseries

AECOM

Figure 3-1

January 2013

Data Sources: ArcGIS Online FEMA 100 Year Flood Layer 2013; SSURGO Soils 2013; Lorain County GIS Data 2013; Ohio Wetlands Inventory (1987); NRHP Database 2013
Imagery: Bing Map Aerials

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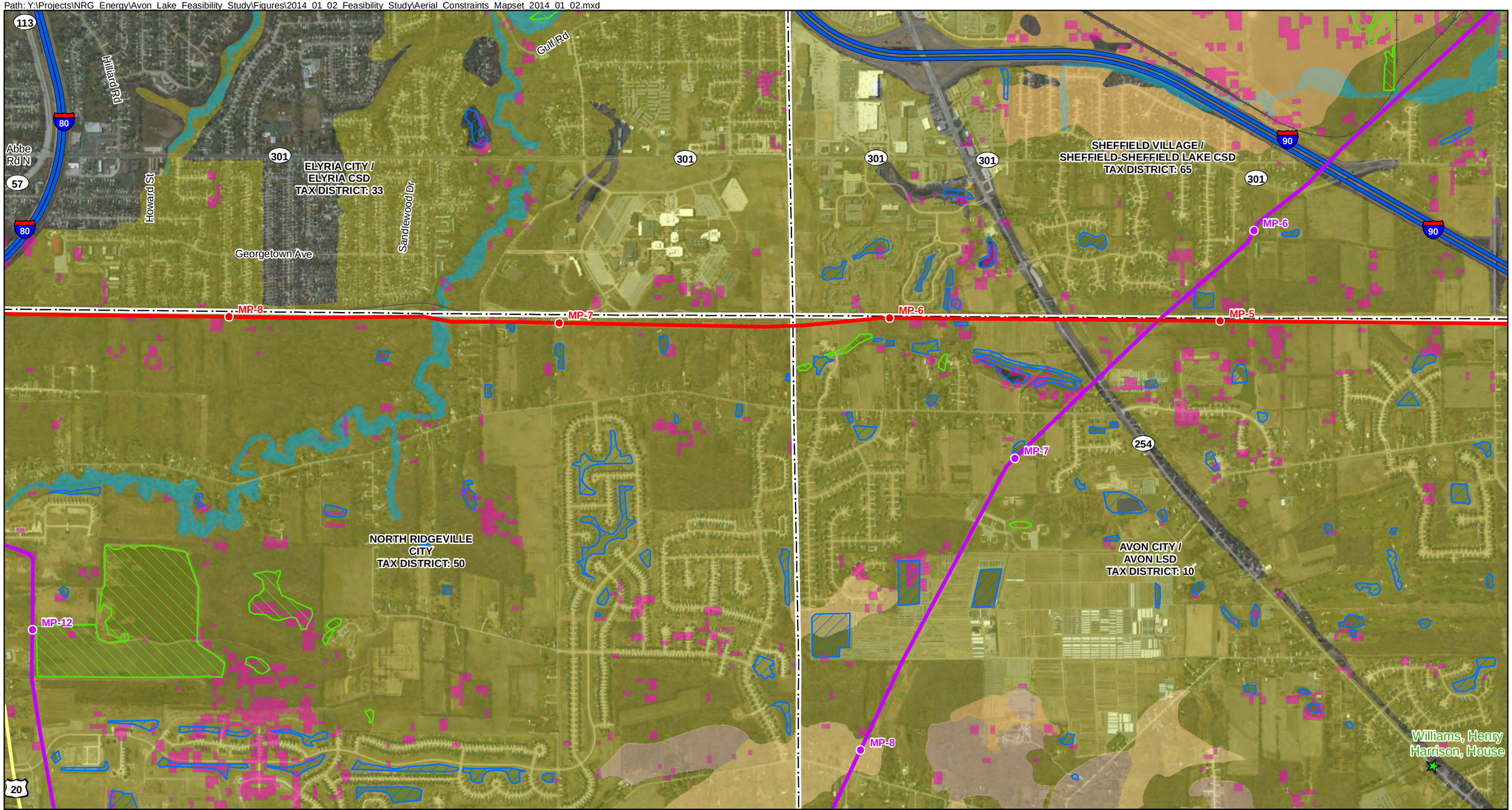

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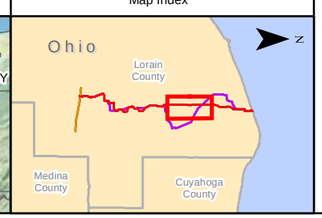

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NRG Avon Lake Pipeline Project

Aerial Constraints Mapseries

AECOM

Figure 3-1

January 2013

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Imagery: Bing Map Aerials

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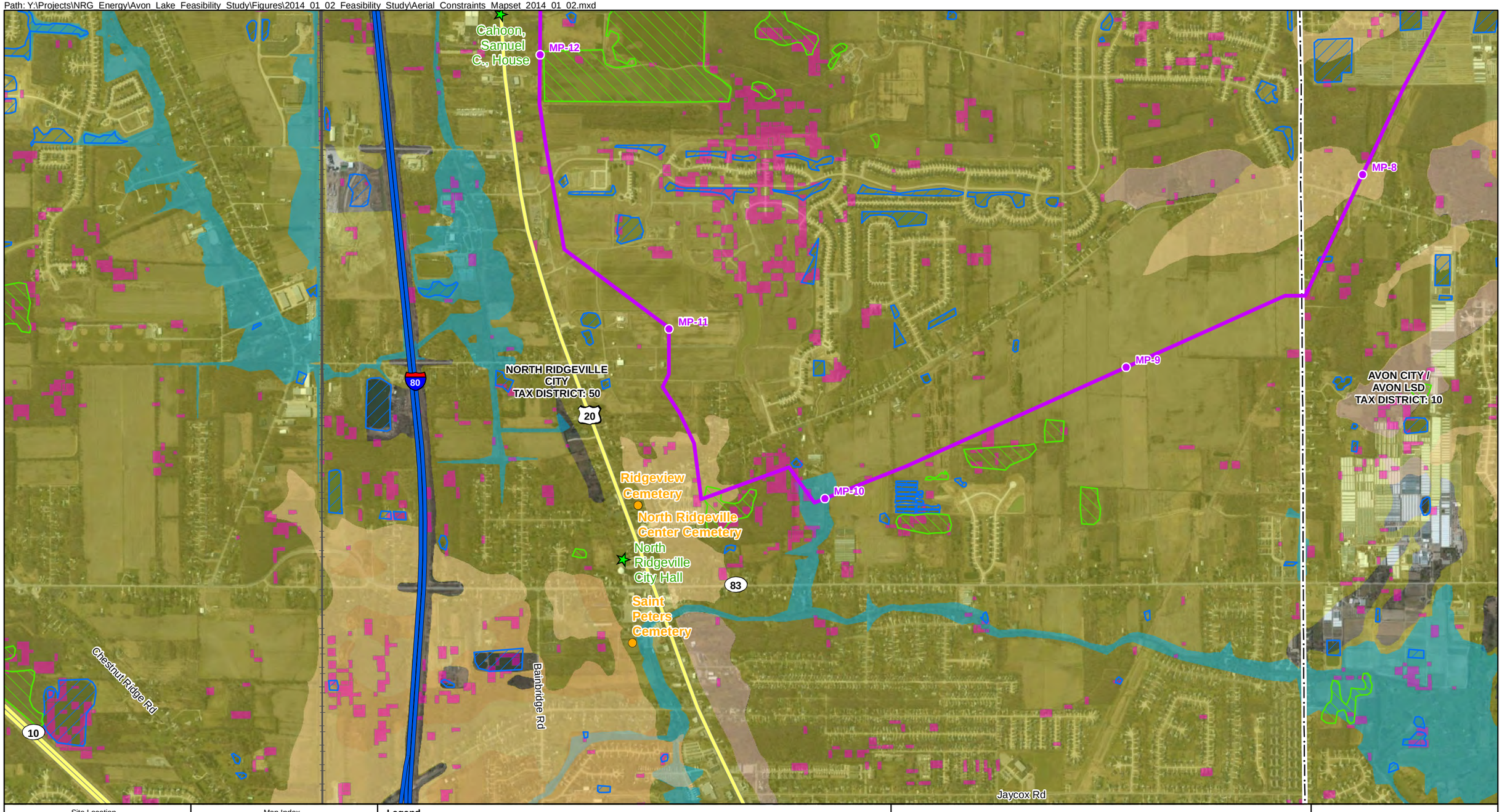

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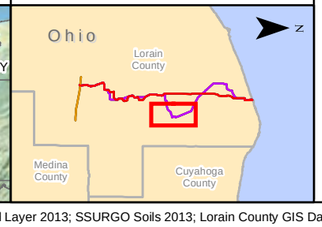
Map Index



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NRG Avon Lake Pipeline Project

Aerial Constraints Mapseries

AECOM

Figure 3-1

January 2013

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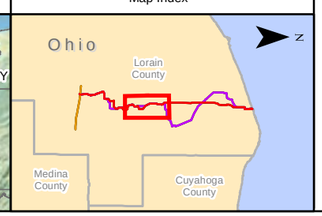
ELYRIA CITY / MIDVIEW LSD TAX DISTRICT: 34
Grafton Rd
CARLISLE TWP / MIDVIEW LSD TAX DISTRICT: 22
E River Rd
ELYRIA CITY / MIDVIEW LSD TAX DISTRICT: 34
CARLISLE TWP / MIDVIEW LSD TAX DISTRICT: 22
Stanford Ave
Clark St
Cleveland St
Poplar St
Hilliard Rd
Abbe Rd S
Abbe Rd N
ELYRIA CITY / ELYRIA CSD TAX DISTRICT: 33
20
57
113
301
80
Dewhurst Rd
CARLISLE TWP / MIDVIEW LSD TAX DISTRICT: 22
MP-10
MP-14
MP-9
MP-13
MP-15
MP-17
MP-16
MP-11
Chestnut Ridge Rd
ELYRIA CITY / MIDVIEW LSD TAX DISTRICT: 34
10
EATON TWP / MIDVIEW LSD TAX DISTRICT: 28
Butternut Ridge Cemetery
Sugar Ridge Cemetery
NORTH RIDGEVILLE CITY TAX DISTRICT: 50
Cahoon, Samuel C., House
MP-12

Site Location

Map Index



Legend

- Preferred Route 1 Milepost
- Preferred Route 2 Milepost
- Dominion Line Milepost
- Preferred Route 1
- Preferred Route 2
- Dominion Line
- NWI Wetland
- NWI Waterbody
- Ohio Wetlands Inventory (1987)
- 100 Year Flood Zones
- Prime Farmland
- Political District
- NRHP Locations
- Cemeteries
- Shallow Depth to Bedrock (> 50 cm)
- Railroad
- Highway
- Major Road
- Other Major Road

0 750 1,500 3,000 Feet

1:18,000

NRG Avon Lake Pipeline Project

Aerial Constraints Mapseries

AECOM

Figure 3-1

January 2013

Data Sources: ArcGIS Online FEMA 100 Year Flood Layer 2013; SSURGO Soils 2013; Lorain County GIS Data 2013; Ohio Wetlands Inventory (1987); NRHP Database 2013
Imagery: Bing Map Aerials

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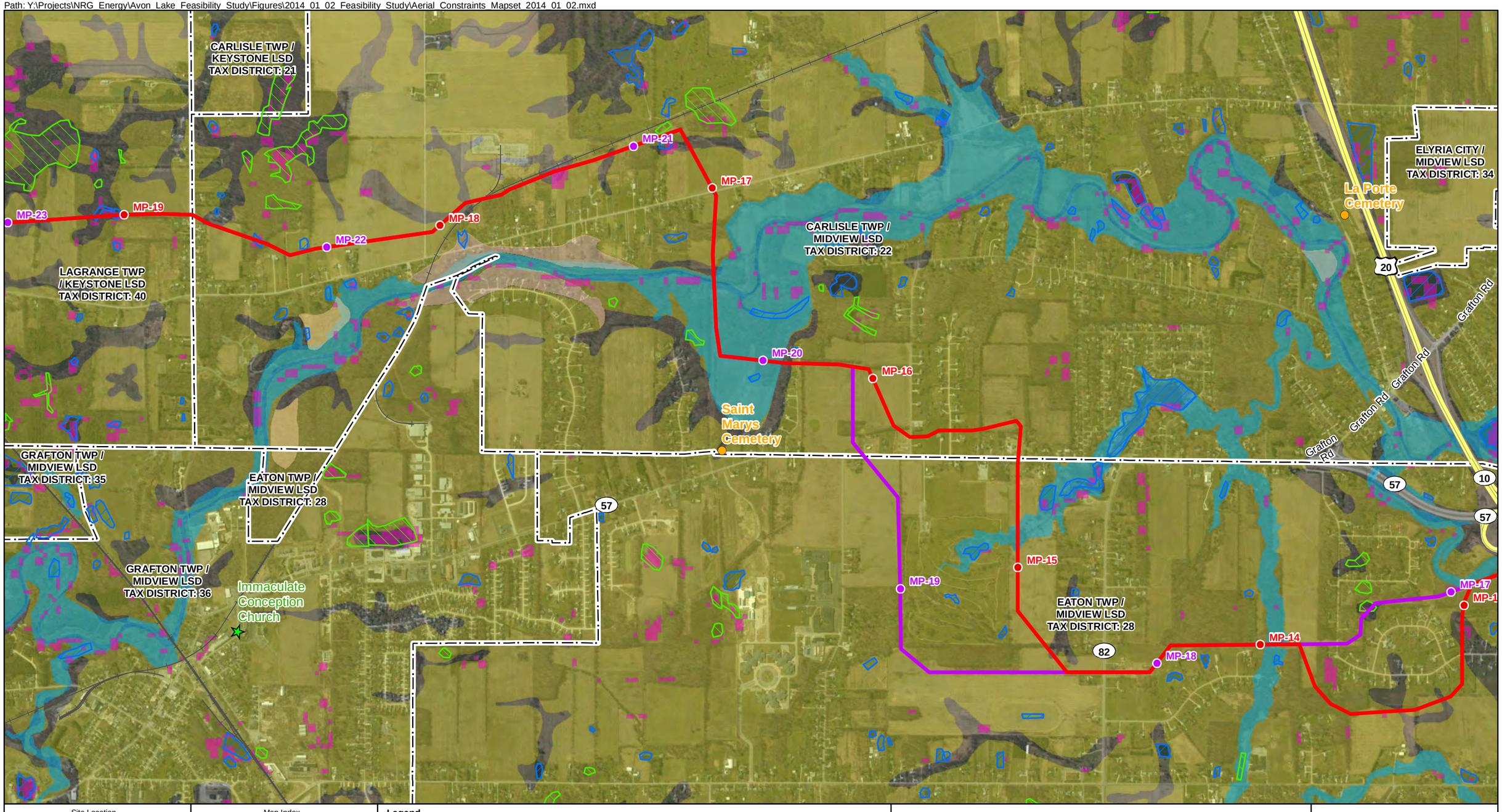
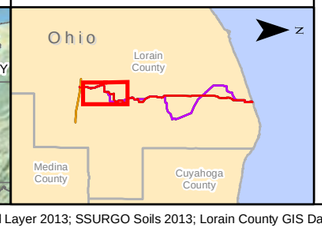


Site Location

Map Index



Legend

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1:18,000

NRG Avon Lake Pipeline Project

Aerial Constraints Mapseries

AECOM

Figure 3-1

January 2013

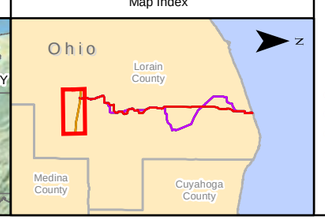
Data Sources: ArcGIS Online FEMA 100 Year Flood Layer 2013; SSURGO Soils 2013; Lorain County GIS Data 2013; Ohio Wetlands Inventory (1987); NRHP Database 2013
Imagery: Bing Map Aerials

Path: Y:\Projects\NRG_Energy\Avon_Lake_Feasibility_Study\Figures\2014_01_02_Feasibility_Study\Aerial_Constraints_Mapset_2014_01_02.mxd

MP-19
MP-23
MP-4
MP-3
MP-2
MP-1
MP-0
LAGRANGE TWP / KEYSTONE LSD TAX DISTRICT: 40
LAGRANGE TWP / LAGRANGE VILLAGE / KEYSTONE LSD TAX DISTRICT: 41
GRAFTON TWP / MIDVIEW LSD TAX DISTRICT: 36
GRAFTON TWP / MIDVIEW LSD TAX DISTRICT: 35
Breckenridge, Justin, House
North Street Cemetery
83
57

Site Location

Map Index



Legend

- Preferred Route 1 Milepost
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N W E S

0 750 1,500 3,000 Feet

1:18,000

NRG Avon Lake Pipeline Project

Aerial Constraints Mapseries

AECOM

Figure 3-1

January 2013

Data Sources: ArcGIS Online FEMA 100 Year Flood Layer 2013; SSURGO Soils 2013; Lorain County GIS Data 2013; Ohio Wetlands Inventory (1987); NRHP Database 2013
Imagery: Bing Map Aerials

Appendix B

Waterbodies Crossed by the Proposed Project

Appendix B - Waterbodies Crossed by the Proposed Project						
Route	MP	Stream Name	Flow Type	NRI Listed?	Wild Or Scenic River?	303d Impaired Water?
Preferred Route 1	2.96	French Creek	Perennial	No	No	Yes
Preferred Route 1	3.59	Unnamed	Intermittent	No	No	Yes
Preferred Route 1	5.81	Jungbluth Ditch	Intermittent	No	No	Yes
Preferred Route 1	7.36	Ridgeway Ditch	Perennial	No	No	Yes
Preferred Route 1	8.55	Unnamed	Intermittent	No	No	Yes
Preferred Route 1	10.34	Unnamed	Intermittent	No	No	Yes
Preferred Route 1	12.75	Willow Creek	Perennial	No	No	Yes
Preferred Route 1	13.95	Jackson Ditch	Intermittent	No	No	Yes
Preferred Route 1	14.30	Hill Ditch	Intermittent	No	No	Yes
Preferred Route 1	15.08	Alexander Ditch	Perennial	No	No	Yes
Preferred Route 1	15.83	Unnamed	Intermittent	No	No	Yes
Preferred Route 1	16.71	East Branch Black River	Perennial	No	No	Yes
Preferred Route 2	4.02	French Creek	Perennial	No	No	Yes
Preferred Route 2	4.30	Walker Ditch	Intermittent	No	No	Yes
Preferred Route 2	4.71	Jungbluth Ditch	Intermittent	No	No	Yes
Preferred Route 2	5.40	Jungbluth Ditch	Intermittent	No	No	Yes
Preferred Route 2	6.03	Walker Ditch	Intermittent	No	No	Yes
Preferred Route 2	7.70	Kline Ditch	Intermittent	No	No	Yes
Preferred Route 2	8.50	Slater Ditch	Intermittent	No	No	Yes
Preferred Route 2	10.00	Unnamed	Intermittent	No	No	Yes
Preferred Route 2	12.45	Ridgeway Ditch	Intermittent	No	No	Yes
Preferred Route 2	14.65	Unnamed	Intermittent	No	No	Yes
Preferred Route 2	16.75	Willow Creek	Perennial	No	No	Yes
Preferred Route 2	17.61	Jackson Ditch	Intermittent	No	No	Yes
Preferred Route 2	17.95	Hill Ditch	Intermittent	No	No	Yes
Preferred Route 2	18.92	Alexander Ditch	Perennial	No	No	Yes
Preferred Route 2	19.50	Unnamed	Intermittent	No	No	Yes
Preferred Route 2	20.36	East Branch Black River	Intermittent	No	No	Yes

Appendix C

Federally and State Listed Species within Lorain County, OH

Appendix C - State and Federally Listed Species in Lorain County, OH				
Last Recorded	**Scientific Name**	**Common Name**	**State Status**	**Federal Status**
Plants				
1979	*Carex albolutescens*	Pale Straw Sedge	P	
1991	*Carex atlantica ssp. capillacea*	Howe's Sedge	T	
1969	*Carex lasiocarpa*	Slender Sedge	P	
1991	*Carex projecta*	Necklace Sedge	T	
1997	*Carex straminea*	Straw Sedge	P	
1966	*Corallorhiza maculata*	Spotted Coral-root	P	
1997	*Cornus rugosa*	Round-leaved Dogwood	P	
1965	*Corydalis sempervirens*	Rock-harlequin	T	
1997	*Equisetum sylvaticum*	Woodland Horsetail	P	
1980	*Euphorbia polygonifolia*	Seaside Spurge	P	
1997	*Gentianopsis procera*	Small Fringed Gentian	P	
1992	*Glyceria acutiflora*	Sharp-glumed Manna Grass	P	
1964	*Gymnocarpium dryopteris*	Common Oak Fern	E	
1974	*Juniperus communis*	Ground Juniper	E	
1993	*Lathyrus ochroleucus*	Yellow Vetchling	E	
1976	*Lechea intermedia*	Round-fruited Pinweed	P	
1986	*Melampyrum lineare*	Cow-wheat	T	
1965	*Myriophyllum sibiricum*	American Water-milfoil	E	
1993	*Phegopteris connectilis*	Long Beech Fern	P	
1991	*Piptatherum racemosum*	Mountain-rice	P	
1991	*Poa saltuensis ssp. languida*	Weak Spear Grass	P	
1971	*Rosa blanda*	Smooth Rose	P	
1997	*Shepherdia canadensis*	Canada Buffalo-berry	P	
2011	*Solidago squarrosa*	Leafy Goldenrod	T	
1965	*Spiranthes lucida*	Shining Ladies'-tresses	P	
1964	*Symphyotrichum dumosum*	Bushy Aster	T	
1993	*Thuja occidentalis*	Arbor Vitae	P	
Animals				
1979	*Acipenser fulvescens*	Lake Sturgeon	E	
1987	*Bartramia longicauda*	Upland Sandpiper	E	
1983	*Catharus guttatus*	Hermit Thrush	SI	
1994	*Cistothorus platensis*	Sedge Wren	SC	
197-	*Clemmys guttata*	Spotted Turtle	T	
1985	*Dendroica magnolia*	Magnolia Warbler	SI	
1993	*Emydoidea blandingii*	Blanding's Turtle	T	
1994	*Euphyes bimacula*	Two-spotted Skipper	SC	
2008	*Falco peregrinus*	Peregrine Falcon	T	
1984	*Gallinago delicata*	Wilson's Snipe	SI	
1999	*Grus canadensis*	Sandhill Crane	E	
2011	*Haliaeetus leucocephalus*	Bald Eagle	T	
1971	*Hemidactylium scutatum*	Four-toed Salamander	SC	
1996	*Lampsilis fasciola*	Wavy-rayed Lampmussel	SC	
2001	*Lasmigona compressa*	Creek Heelsplitter	SC	
1963	*Ligumia nasuta*	Eastern Pondmussel	E	
1963	*Ligumia recta*	Black Sandshell	T	
1994	*Notropis dorsalis*	Bigmouth Shiner	T	
1962	*Obliquaria reflexa*	Threehorn Wartyback	T	
1999	*Percina copelandi*	Channel Darter	T	
1977	*Tyto alba*	Barn Owl	T	
1983	*Vermivora chrysoptera*	Golden-winged Warbler	X	
1983	*Wilsonia canadensis*	Canada Warbler	SI	
	Charadrius melodus	Piping Plover		E
	Calidris canutus rufa	Red Knot		PE
	Dendroica kirtlandii	Kirtland's Warbler		E
	Myotis sodalis	Indiana Bat		E
	Myotis septentrionalis	Northern Long-eared Bat		PE

P - Potentially Threatened; T - Threatened; E - Endangered; SC - Species of Concern; SI - Special Interest;
PE - Proposed Endangered; X - Extirpated

Sources:

Federal listed species: USFWS. Information, Planning, and Conservation System (IPaC) 2013.

State listed species: Ohio DNR - Division of Wildlife, National Heritage Database, State-listed Species for Lorain County, 2012.

Appendix D

Soil Types Crossed by the Project

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	0.00	0.47	0.47	AkA	Allis loam, 0 to 2 percent slopes	Not prime farmland	2.98
Preferred Route 1	0.47	0.70	0.23	Ms	Miner silty clay loam, shale substratum	Prime farmland if drained	4.17
Preferred Route 1	0.70	0.75	0.05	AkA	Allis loam, 0 to 2 percent slopes	Not prime farmland	2.98
Preferred Route 1	0.75	0.78	0.04	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 1	0.78	0.83	0.05	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	0.83	0.92	0.08	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	0.92	1.05	0.13	JtA	Jimtown loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	1.05	1.16	0.11	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	1.16	1.19	0.03	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	1.19	1.22	0.03	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	1.22	1.25	0.03	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	1.25	1.41	0.16	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	1.41	1.64	0.22	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	1.64	1.74	0.10	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	1.74	1.75	0.01	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 1	1.75	1.94	0.19	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	1.94	2.40	0.46	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	2.40	2.62	0.22	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	2.62	2.76	0.14	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	2.76	2.92	0.15	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	2.92	2.97	0.05	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	2.97	3.03	0.05	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	3.03	3.12	0.09	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	3.12	3.27	0.16	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	3.27	3.43	0.15	W	Water	Not prime farmland	> 6.6
Preferred Route 1	3.43	3.54	0.11	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	3.54	3.78	0.23	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	3.78	3.89	0.11	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 1	3.89	3.91	0.02	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	3.91	3.96	0.05	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	3.96	5.26	1.30	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	5.26	5.47	0.20	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 1	5.47	5.51	0.05	OtC	Oshtemo sandy loam, 6 to 12 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	5.51	5.76	0.25	OtB	Oshtemo sandy loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	5.76	5.85	0.08	Hy	Holly silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	5.85	5.87	0.03	ClA	Chili loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	5.87	5.97	0.10	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	5.97	6.04	0.07	ClA	Chili loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	6.04	6.37	0.33	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	6.37	6.39	0.02	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 1	6.39	6.47	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	6.47	6.51	0.04	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	6.51	6.59	0.08	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	6.59	6.66	0.07	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 1	6.66	6.89	0.23	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	6.89	7.05	0.16	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	7.05	7.09	0.04	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	7.09	7.17	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	7.17	7.20	0.04	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	7.20	7.33	0.12	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	7.33	7.39	0.06	Lb	Lobdell silt loam	Prime farmland if protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	7.39	7.54	0.15	Hy	Holly silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	7.54	7.62	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	7.62	8.30	0.68	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	8.30	8.52	0.22	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	8.52	8.77	0.25	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	8.77	8.91	0.13	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	8.91	8.95	0.04	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 1	8.95	8.97	0.02	ClB	Chili loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	8.97	8.98	0.01	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 1	8.98	8.99	0.01	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	8.99	9.01	0.01	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 1	9.01	9.01	0.01	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	9.01	9.10	0.08	Cz	Udorthents	Not prime farmland	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	9.10	9.18	0.09	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	9.18	9.36	0.18	FeA	Fitchville-Urban land complex, nearly level	Not prime farmland	> 6.6
Preferred Route 1	9.36	9.41	0.05	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	9.41	9.61	0.21	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	9.61	10.16	0.54	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	10.16	10.21	0.05	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	10.21	10.23	0.02	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 1	10.23	10.31	0.08	OtB	Oshtemo sandy loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	10.31	10.36	0.05	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	10.36	10.69	0.33	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	10.69	10.73	0.04	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	10.73	10.91	0.18	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	10.91	11.26	0.34	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	11.26	11.28	0.02	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	11.28	11.46	0.19	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	11.46	11.49	0.02	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	11.49	11.70	0.21	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	11.70	11.84	0.14	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	11.84	11.87	0.04	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	11.87	11.92	0.04	ClB	Chili loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	11.92	11.94	0.02	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	11.94	12.13	0.19	Sb	Sebring silt loam	Prime farmland if drained	> 6.6
Preferred Route 1	12.13	12.21	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	12.21	12.30	0.08	Sb	Sebring silt loam	Prime farmland if drained	> 6.6
Preferred Route 1	12.30	12.38	0.08	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	12.38	12.45	0.07	Sb	Sebring silt loam	Prime farmland if drained	> 6.6
Preferred Route 1	12.45	12.64	0.20	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	12.64	12.68	0.04	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	12.68	12.69	0.00	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	12.69	12.72	0.04	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 1	12.72	12.75	0.03	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	12.75	12.77	0.02	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	12.77	13.03	0.25	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	13.03	13.14	0.11	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	13.14	13.22	0.08	ClB	Chili loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	13.22	13.26	0.04	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	13.26	13.31	0.05	ClB	Chili loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	13.31	13.33	0.02	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	13.33	13.44	0.11	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	13.44	13.47	0.02	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	13.47	13.93	0.47	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	13.93	13.98	0.05	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	13.98	14.25	0.27	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	14.25	14.32	0.07	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	14.32	14.69	0.37	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	14.69	14.72	0.03	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	14.72	14.97	0.25	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	14.97	15.02	0.05	ElB2	Ellsworth silt loam, 2 to 6 percent slopes, moderately eroded	All areas are prime farmland	> 6.6
Preferred Route 1	15.02	15.06	0.03	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	15.06	15.12	0.06	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	15.12	15.69	0.57	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	15.69	15.70	0.01	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	15.70	15.76	0.06	ElB	Ellsworth silt loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	15.76	15.85	0.09	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	15.85	16.05	0.20	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	16.05	16.11	0.06	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	16.11	16.13	0.02	RdB	Rawson loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	16.13	16.24	0.11	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	16.24	16.27	0.02	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	16.27	16.30	0.04	ElD2	Ellsworth silt loam, 12 to 18 percent slopes, moderately eroded	Not prime farmland	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	16.30	16.32	0.02	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	16.32	16.58	0.25	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	16.58	16.70	0.12	Tg	Tioga fine sandy loam	Prime farmland if protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	16.70	16.72	0.02	W	Water	Not prime farmland	> 6.6
Preferred Route 1	16.72	16.73	0.01	Lb	Lobdell silt loam	Prime farmland if protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 1	16.73	16.76	0.03	ClD2	Chili loam, 6 to 18 percent slopes, moderately eroded	Not prime farmland	> 6.6
Preferred Route 1	16.76	16.87	0.10	ClA	Chili loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	16.87	16.88	0.01	FdA	Fitchville silt loam, low terrace, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	16.88	16.97	0.09	BtA	Bogart loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	16.97	17.02	0.05	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	17.02	17.13	0.12	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	17.13	17.18	0.04	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	17.18	17.18	0.00	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	17.18	17.24	0.06	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	17.24	17.34	0.10	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 1	17.34	17.41	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	17.41	17.45	0.04	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	17.45	17.57	0.12	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	17.57	17.66	0.09	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	17.66	17.88	0.22	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	17.88	17.91	0.03	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	17.91	17.92	0.02	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	17.92	17.96	0.04	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	17.96	18.22	0.26	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	18.22	18.30	0.08	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	18.30	18.42	0.12	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	18.42	18.59	0.18	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	18.59	18.64	0.04	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 1	18.64	18.74	0.10	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	18.74	18.76	0.02	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	18.76	19.00	0.24	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	19.00	19.12	0.12	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 1	19.12	19.23	0.11	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	19.23	19.49	0.26	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	19.49	19.53	0.04	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 1	19.53	19.56	0.03	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 1	19.56	19.58	0.01	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	0.00	0.47	0.47	AkA	Allis loam, 0 to 2 percent slopes	Not prime farmland	2.98
Preferred Route 2	0.47	0.70	0.23	Ms	Miner silty clay loam, shale substratum	Prime farmland if drained	4.17
Preferred Route 2	0.70	0.75	0.05	AkA	Allis loam, 0 to 2 percent slopes	Not prime farmland	2.98
Preferred Route 2	0.75	0.78	0.04	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	0.78	0.83	0.05	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	0.83	0.92	0.08	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	0.92	1.05	0.13	JtA	Jimtown loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	1.05	1.16	0.11	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	1.16	1.19	0.03	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	1.19	1.22	0.03	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	1.22	1.25	0.03	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	1.25	1.41	0.16	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	1.41	1.64	0.22	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	1.64	1.74	0.10	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	1.74	1.75	0.01	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	1.75	1.95	0.20	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	1.95	2.13	0.18	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	2.13	2.36	0.23	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	2.36	2.51	0.14	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	2.51	2.60	0.10	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	2.60	2.80	0.19	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	2.80	3.11	0.32	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	3.11	3.36	0.24	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	3.36	3.73	0.37	Ln	Lorain silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	3.73	3.84	0.11	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	3.84	3.93	0.09	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	3.93	4.00	0.07	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	4.00	4.04	0.04	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	4.04	4.06	0.02	ElC2	Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded	Not prime farmland	> 6.6
Preferred Route 2	4.06	4.29	0.23	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	4.29	4.33	0.04	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	4.33	4.53	0.20	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	4.53	4.59	0.06	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	4.59	4.67	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	4.67	4.72	0.05	ElB2	Ellsworth silt loam, 2 to 6 percent slopes, moderately eroded	All areas are prime farmland	> 6.6
Preferred Route 2	4.72	5.67	0.95	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	5.67	5.74	0.07	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 2	5.74	6.43	0.69	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	6.43	6.63	0.20	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	6.63	6.67	0.04	OtC	Oshtemo sandy loam, 6 to 12 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	6.67	6.86	0.19	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	6.86	6.89	0.03	JtA	Jimtown loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	6.89	6.96	0.07	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	6.96	7.01	0.05	Om	Olmsted fine sandy loam	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	7.01	7.17	0.16	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	7.17	7.31	0.15	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	7.31	7.79	0.47	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	7.79	7.83	0.04	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	7.83	7.92	0.10	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	7.92	7.96	0.04	CoB	Conotton gravelly loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	7.96	8.07	0.11	MtA	Mitiwanga silt loam, 0 to 2 percent slopes	Prime farmland if drained	2.92
Preferred Route 2	8.07	8.13	0.06	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	8.13	8.24	0.10	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	8.24	8.49	0.26	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	8.49	8.52	0.03	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	8.52	8.60	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	8.60	8.92	0.32	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	8.92	9.03	0.11	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	9.03	9.48	0.45	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	9.48	9.65	0.17	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	9.65	9.77	0.12	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	9.77	9.80	0.04	Mo	Mermill loam	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	9.80	9.82	0.02	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	9.82	10.02	0.20	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	10.02	10.02	0.00	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	10.02	10.10	0.08	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	10.10	10.13	0.04	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	10.13	10.19	0.05	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	10.19	10.34	0.15	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	10.34	10.66	0.32	MtA	Mitiwanga silt loam, 0 to 2 percent slopes	Prime farmland if drained	2.92
Preferred Route 2	10.66	10.74	0.09	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	10.74	10.78	0.04	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	10.78	10.79	0.01	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	10.79	10.80	0.01	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	10.80	10.91	0.11	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	10.91	11.15	0.24	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	11.15	11.45	0.30	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	11.45	11.73	0.28	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	11.73	11.81	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	11.81	11.87	0.06	Mo	Mermill loam	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	11.87	12.23	0.36	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	12.23	12.29	0.06	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	12.29	12.32	0.03	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	12.32	12.40	0.08	OtB	Oshtemo sandy loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	12.40	13.04	0.63	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	13.04	13.09	0.05	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	13.09	13.23	0.13	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	13.23	13.27	0.04	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 2	13.27	13.29	0.02	ClB	Chili loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	13.29	13.30	0.01	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 2	13.30	13.31	0.01	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	13.31	13.32	0.01	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 2	13.32	13.33	0.01	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	13.33	13.41	0.08	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 2	13.41	13.50	0.09	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	13.50	13.68	0.18	FeA	Fitchville-Urban land complex, nearly level	Not prime farmland	> 6.6
Preferred Route 2	13.68	13.72	0.05	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	13.72	13.93	0.21	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	13.93	14.47	0.54	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	14.47	14.52	0.05	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	14.52	14.55	0.02	Mo	Mermill loam	Prime farmland if drained	> 6.6
Preferred Route 2	14.55	14.63	0.08	OtB	Oshtemo sandy loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	14.63	14.68	0.05	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	14.68	15.01	0.33	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	15.01	15.05	0.04	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	15.05	15.25	0.20	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	15.25	15.56	0.31	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	15.56	15.74	0.18	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	15.74	15.85	0.11	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	15.85	15.88	0.02	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	15.88	15.92	0.04	ClB	Chili loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	15.92	15.94	0.02	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	15.94	16.13	0.19	Sb	Sebring silt loam	Prime farmland if drained	> 6.6
Preferred Route 2	16.13	16.21	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	16.21	16.30	0.08	Sb	Sebring silt loam	Prime farmland if drained	> 6.6
Preferred Route 2	16.30	16.38	0.08	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	16.38	16.45	0.07	Sb	Sebring silt loam	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	16.45	16.64	0.20	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	16.64	16.69	0.04	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	16.69	16.69	0.00	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	16.69	16.72	0.04	Cz	Udorthents	Not prime farmland	> 6.6
Preferred Route 2	16.72	16.75	0.03	OtA	Oshtemo sandy loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	16.75	16.77	0.02	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	16.77	16.94	0.17	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	16.94	16.95	0.01	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	16.95	17.09	0.14	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	17.09	17.12	0.04	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	17.12	17.18	0.06	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	17.18	17.22	0.04	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	17.22	17.29	0.08	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	17.29	17.59	0.30	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	17.59	17.64	0.05	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	17.64	17.91	0.27	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	17.91	17.98	0.07	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	17.98	18.81	0.84	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	18.81	18.87	0.06	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	18.87	18.89	0.02	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	18.89	18.95	0.06	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	18.95	19.24	0.29	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	19.24	19.46	0.22	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	19.46	19.50	0.04	Or	Orrville silt loam	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	19.50	19.53	0.03	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	19.53	19.60	0.07	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	19.60	19.67	0.07	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	19.67	19.71	0.05	RdB	Rawson loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	19.71	19.76	0.04	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	19.76	19.78	0.02	RdB	Rawson loam, 2 to 6 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	19.78	19.89	0.11	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	19.89	19.91	0.02	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	19.91	19.95	0.04	ElD2	Ellsworth silt loam, 12 to 18 percent slopes, moderately eroded	Not prime farmland	> 6.6
Preferred Route 2	19.95	19.97	0.02	Ly	Luray silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	19.97	20.22	0.25	FcA	Fitchville silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	20.22	20.34	0.12	Tg	Tioga fine sandy loam	Prime farmland if protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	20.34	20.36	0.02	W	Water	Not prime farmland	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	20.36	20.38	0.01	Lb	Lobdell silt loam	Prime farmland if protected from flooding or not frequently flooded during the growing season	> 6.6
Preferred Route 2	20.38	20.41	0.03	ClD2	Chili loam, 6 to 18 percent slopes, moderately eroded	Not prime farmland	> 6.6
Preferred Route 2	20.41	20.51	0.10	ClA	Chili loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	20.51	20.52	0.01	FdA	Fitchville silt loam, low terrace, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	20.52	20.61	0.09	BtA	Bogart loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	20.61	20.66	0.05	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	20.66	20.78	0.12	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	20.78	20.82	0.04	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	20.82	20.82	0.00	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	20.82	20.89	0.06	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	20.89	20.98	0.10	Mr	Miner silty clay loam	Prime farmland if drained	> 6.6
Preferred Route 2	20.98	21.06	0.08	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	21.06	21.09	0.04	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	21.09	21.21	0.12	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	21.21	21.30	0.09	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	21.30	21.52	0.22	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6

Appendix D - Soil Types Crossed by the Project							
Route	**From MP**	**To MP**	**Length**	**Soil Unit Symbol**	**Soil Unit Name**	**Prime Farmland Classification**	**Depth to Bedrock (ft)**
Preferred Route 2	21.52	21.55	0.03	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	21.55	21.57	0.02	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	21.57	21.61	0.04	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	21.61	21.87	0.26	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	21.87	21.94	0.08	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	21.94	22.06	0.12	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	22.06	22.24	0.18	HsA	Haskins loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	22.24	22.28	0.04	RdA	Rawson loam, 0 to 2 percent slopes	All areas are prime farmland	> 6.6
Preferred Route 2	22.28	22.38	0.10	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	22.38	22.41	0.02	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	22.41	22.64	0.24	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	22.64	22.76	0.12	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	22.76	22.87	0.11	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	22.87	23.13	0.26	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	23.13	23.17	0.04	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6
Preferred Route 2	23.17	23.21	0.03	TrA	Trumbull silty clay loam, 0 to 2 percent slopes	Not prime farmland	> 6.6
Preferred Route 2	23.21	23.22	0.01	MgA	Mahoning silt loam, 0 to 2 percent slopes	Prime farmland if drained	> 6.6

Appendix E

Property Owner List

Appendix E
Property Owner and Parcel Info
Preferred Route 1

Route	MP	Owner Name
Preferred Route 1	0.07	ORION POWER MIDWEST LP
	0.14	ORION POWER MIDWEST LP
	0.17	ORION POWER MIDWEST LP
	0.33	CLEVELAND ELECTRIC ILLUMINATING COMPANY
	0.49	CLEVELAND ELECTRIC ILLUMINATING
	0.70	CLEVELAND ELECTRIC ILLUMINATING
	0.93	AVON LAKE CITY OF
	0.98	LEONARD GEORGE TRUSTEE
	0.98	ERNEST BUILDING LLC
	0.98	AVON LAKE CITY OF
	0.99	AVON LAKE CITY OF
	0.99	AVON LAKE CITY
	1.01	TILLERY HOLDINGS LLC
	1.06	PENTA STAR ENTERPRISES LLC
	1.14	LLOYD DEVELOPMENT INC
	1.20	RYKON PLATING INC
	1.25	WATTEREDGE LLC
	1.31	TLP INVESTORS GROUP LLC
	1.37	TLP INVESTORS GROUP LLC
	1.42	CORPUS CHRISTI LLC
	1.48	CORPUS CHRISTI LLC
	1.55	MAN TBS FB MILLER LTD
	1.61	HELICAL LINE PRODUCTS
	1.70	HELICALLINE PRODUCTS CO
	1.71	ORION POWER MIDWEST LP
	1.84	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	1.87	ORION POWER MIDWEST LP
	1.94	MOORE ROAD LLC
	2.00	RURAL LORAIN COUNTY WATER AUTHORTY
	2.01	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	2.03	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	2.07	CEICO COMPANY THE
	2.15	VIRGINIA HOLDING CORP
	2.25	VIRGINIA HOLDING CORP
	2.35	VIRGINIA HOLDING CORP
	2.44	VIRGINIA HOLDING CORP
	2.52	VIRGINIA HOLDING CORP
	2.69	VIRGINIA HOLDING COMPANY
	2.81	WARNER SAMUEL EARL TRUSTEE
	2.85	MILLER MARY B

Route	Owner Name	Parcel Count
Preferred Route 1	3M PARKWAY INC	3
	ADAMS BETH S	1
	ANDRE DE LA PORTE CHARLES A TRUSTEE	1
	ARNESEN JUNE B	2
	AVON CITY OF	6
	AVON LAKE CITY	1
	AVON LAKE CITY OF	4
	BALOG SALLY A	1
	BALOGH LINDA C TRUSTEE	1
	BALTIMORE & OHIO RR CSX SYSTEM	1
	BECKER PAUL J & ROSEMARY E	1
	BEHM FRED G & MARY W TRUSTEES	1
	BETZEL LOUIS F & GAIL E	1
	BOLASH JOSEPH JOHN	1
	BRAATZ RICHARD R & ELLEN E	1
	BRANDYBERRY NANCY J & BRANDYBERRY PAUL A	1
	BURGESS CONSTANCE L	1
	BURNSIDE JOHN STEVEN & CONNIE ANN	1
	BYRD TIMOTHY J	1
	CARLISLE GOLF CLUB INC	1
	CARLISLE TWP OF	1
	CARTER EDMUND A & ANGELA S	2
	CEICO COMPANY THE	1
	CHRISTENSEN TERRY C TRUSTEE	1
	CHRISTO JASON B	1
	CLEVELAND ELECTRIC ILLUMINATING	5
	CLEVELAND ELECTRIC ILLUMINATING COMPANY	2
	COLUMBIA GAS TRANSMISSION LLC	1
	CORPUS CHRISTI LLC	2
	CRIGGER CHARLES H	1
	CROMLING BILL II & MAUREEN M TRUSTEES	2
	DATO LTD	1
	DAVIS BOBBY R & MAE ELAINE	1
	DEMALINE BARBARA J	2
	DENNIS SAMUEL	2
	DILUCIANO MARGARET M	1
	DIOCESE OF CLEVELAND	1
	DULL KENNETH F & ALLTOP KELLY S	1
	E & A PROPERTIES LLC	1
	EATON TOWNSHIP	1

Appendix E
Property Owner and Parcel Info
Preferred Route 1

Route	MP	Owner Name
	2.88	OHIO STATE OF
	2.88	AVON CITY OF
	2.93	KP HOSPITALITY LLC
	3.04	AVON CITY OF
	3.21	AVON CITY OF
	3.32	AVON CITY OF
	3.46	AVON CITY OF
	3.68	AVON CITY OF
	3.82	OHIO STATE OF
	3.96	DILUCIANO MARGARET M
	4.10	PENNSYLVANIA LINES LLC
	4.25	RALICH GAIL A
	4.35	ORCHARD TRAIL HOMEOWNERS ASSOCIATION INC
	4.46	OT HOLDINGS II LLC
	4.61	E & A PROPERTIES LLC
	4.69	PENNSYLVANIA LINES LLC
	4.70	MOON ROAD HOLDINGS LLC
	4.78	SYLVESTER STEVEN L & SYLVESTER MICHELE A
	4.82	GORKA MICHAEL S & HUETTER KAREN
	4.85	ONTARIO LAND COMPANY
	4.87	GORKA MICHAEL S & HUETTER KAREN
	4.91	CLEVELAND ELECTRIC ILLUMINATING
	4.99	(blank)
	5.02	CLEVELAND ELECTRIC ILLUMINATING
	5.11	PENNSYLVANIA LINES LLC
	5.13	CLEVELAND ELECTRIC ILLUMINATING
	5.15	CLEVELAND ELECTRIC ILLUMINATING COMPANY
	5.16	PENNSYLVANIA LINES LLC
	5.19	KELLING ALBERT G & KERECZ JOAN TRUSTEE
	5.35	KELLING ALBERT G & KERECZ JOAN TRUSTEE
	5.62	DEMALINE BARBARA J
	5.63	PENNSYLVANIA LINES LLC
	5.78	DEMALINE BARBARA J
	5.86	FATHERS OF ST JOSEPH INC
	5.91	KERECZ JOAN M TRUSTEE
	5.95	BRAATZ RICHARD R & ELLEN E
	5.98	JULIUS THOMAS A & JOHANNA
	6.01	JULIUS MARK D & DARLENE
	6.07	PENNSYLVANIA LINES LLC
	6.10	HOLT WILLIAM L & ANNA MARIE
	6.20	SCHAFER DEVELOPMENT COMPANY INC

Route	Owner Name	Parcel Count
	EATON TOWNSHIP TRUSTEES	2
	EATON TWP ACQUISITION LLC	2
	ELLIOTT JUDITH B	1
	ELYRIA CITY OF	2
	ERNEST BUILDING LLC	1
	FARMLAND PROPERTIES LLC	2
	FATHERS OF ST JOSEPH INC	1
	FEES DOROTHY	2
	FIELDSTONE LAKES LTD	2
	FISHER CHERYL A & JALOWIEC JONATHAN	1
	GARWOLINSKI STEVE & KATHLEEN	1
	GATES JULIE L	1
	GATEWAY DEVELOPMENT LLC	1
	GIBBONS GARY L & TERRI	1
	GILGENBACH CARSSON P	1
	GORKA MICHAEL S & HUETTER KAREN	2
	GRISSOM JOHNNY W & FISCHER CANDACE M	1
	GUZAY SYLVIA & WILLIAM	1
	HAYWARD PETER L & HEATHER M	1
	HELICAL LINE PRODUCTS	1
	HELICALLINE PRODUCTS CO	1
	HENDERSON ARTHUR R	1
	HENELY AMY N	1
	HOLT WILLIAM L & ANNA MARIE	1
	HORVATH DANIEL E	1
	INVACARE CORPORATION	1
	JULIUS MARK D & DARLENE	1
	JULIUS THOMAS A & JOHANNA	1
	JUMP GARY W & MARILYN S	1
	K HOVNANIAN WATERBURY LLC	1
	KAIZER ANDREW W TRUSTEE & DEANNA K KAIZER TRUSTEE	1
	KAULINS IRENE T	1
	KELLING ALBERT G & KERECZ JOAN TRUSTEE	2
	KERECZ JOAN M TRUSTEE	1
	KONIARSKI MICHAEL C	7
	KP HOSPITALITY LLC	1
	KRECIC EDWARD & ANTHONY	1
	KUENZEL DAVID K	1
	LADD TIMOTHY C & ANIELA J	1
	LAPOS FRANK P & POPE SUSAN L	1
	LEONARD GEORGE TRUSTEE	1

Appendix E
Property Owner and Parcel Info
Preferred Route 1

Route	MP	Owner Name
	6.25	KAULINS IRENE T
	6.28	PETERSEN RICHARD & CAROL
	6.31	OHIO EDISON CO
	6.31	BETZEL LOUIS F & GAIL E
	6.34	OHIO EDISON CO
	6.34	LLADO CARLOS A & SONIA B
	6.38	SAS TIMOTHY J
	6.42	SAS DOROTHY
	6.46	TALEFF CHRIS
	6.46	OHIO EDISON CO
	6.51	SHOUREAS LISA C & SHOUREAS STEVEN D
	6.51	OHIO EDISON CO
	6.55	BALOG SALLY A
	6.60	KUENZEL DAVID K
	6.60	OHIO EDISON CO
	6.69	MANNING MARYANN & MANNING ROBERT G
	6.71	OHIO EDISON CO
	6.88	MARSICO DOROTHY I TRUSTEE
	7.01	WALLACE JULIET J
	7.08	AVON LAKE CITY OF
	7.18	LAPOS FRANK P & POPE SUSAN L
	7.24	NORTH RIDGEVILLE CITY OF
	7.31	PUSTAY ROBERT
	7.37	PUSTAY ROBERT
	7.38	PENNSYLVANIA LINES LLC
	7.41	PUSTAY ROBERT
	7.41	PENNSYLVANIA LINES LLC
	7.43	PENNSYLVANIA LINES LLC
	7.54	PUSTAY ROBERT
	7.69	LORAIN COUNTY COMMUNITY COLLEGE
	7.80	LORAIN COUNTY COMMUNITY COLLEGE
	7.91	LORAIN COUNTY COMMUNITY COLLEGE
	8.06	LORAIN COUNTY COMMUNITY COLLEGE
	8.28	LORAIN COUNTY COMMUNITY COLLEGE
	8.49	3M PARKWAY INC
	8.49	OHIO EDISON CO
	8.68	3M PARKWAY INC
	8.72	OHIO EDISON CO
	8.87	NORTH RIDGEVILLE CITY OF
	8.90	3M PARKWAY INC
	8.99	GATEWAY DEVELOPMENT LLC

Route	Owner Name	Parcel Count
	LEONOWICH JOHN D TRUSTEE	1
	LILLY MARGIE L TRUSTEE	1
	LLADO CARLOS A & SONIA B	1
	LLOYD DEVELOPMENT INC	1
	LORAIN COUNTY BOARD OF COMMISSIONERS	1
	LORAIN COUNTY COMMUNITY COLLEGE	5
	MAN TBS FB MILLER LTD	1
	MANNING MARYANN & MANNING ROBERT G	1
	MARSICO DOROTHY I TRUSTEE	1
	MCCARTNEY THOMAS P & BONITA M	1
	METRO PARKS LORAIN COUNTY	3
	MILLER MARY B	1
	MONGELLO RICHARD C & JOAN M TRUSTEES	1
	MOON ROAD HOLDINGS LLC	1
	MOORE ROAD LLC	1
	MORAHAN DAVID J & KIMBERLY S	1
	MULLINS RALPH L & DEBORAH A	1
	MYERS SCOTT W	1
	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES	3
	NORTH RIDGEVILLE CITY OF	5
	NOSTER IRENE M TRUSTEES & MEKKER GEORGE C ETAL	2
	OCONNOR DAVID K & JULIE M	1
	OHIO EDISON CO	10
	OHIO STATE OF	3
	OLIVER MARLENE	1
	ONTARIO LAND COMPANY	1
	ORCHARD TRAIL HOMEOWNERS ASSOCIATION INC	1
	ORION POWER MIDWEST LP	5
	OT HOLDINGS II LLC	1
	PARKER HOLDINGS LTD	1
	PASCOE KRECIC KRISTEN C & KRECIC ANTHONY	1
	PATRICK JOHN L & DORIS R	1
	PENCE RALPH A & PAMELA A	2
	PENNSYLVANIA LINES LLC	13
	PENTA STAR ENTERPRISES LLC	1
	PETERSEN RICHARD & CAROL	1
	PIONEER RIDGE HOMEOWNERS ASSOCIATION INC	1
	PLAS DONALD W & KELLY A	1
	PUSTAY ROBERT	4
	R W BECKETT CORPORATION INC	1
	RADABAUGH GEORGE W & EVA D	1

Appendix E
Property Owner and Parcel Info
Preferred Route 1

Route	MP	Owner Name
	9.09	PARKER HOLDINGS LTD
	9.19	R W BECKETT CORPORATION INC
	9.28	HORVATH DANIEL E
	9.31	PENNSYLVANIA LINES LLC
	9.32	PENNSYLVANIA LINES LLC
	9.35	PENNSYLVANIA LINES LLC
	9.36	PENNSYLVANIA LINES LLC
	9.38	OHIO EDISON CO
	9.51	INVACARE CORPORATION
	9.63	NORTH RIDGEVILLE CITY OF
	9.70	TAYLOR WOODS PROPERTIES LLC
	9.70	DATO LTD
	9.90	TERNES CARL D ETAL
	10.01	SULLINGER ROBERT W TRUSTEE & MABEL ETAL
	10.35	LEONOWICH JOHN D TRUSTEE
	10.48	SULLINGER ROBERT W TRUSTEE & MABEL ETAL
	10.60	FEES DOROTHY
	10.76	FEES DOROTHY
	10.91	MORAHAN DAVID J & KIMBERLY S
	10.99	GIBBONS GARY L & TERRI
	11.11	DIOCESE OF CLEVELAND
	11.20	FIELDSTONE LAKES LTD
	11.20	NORTH RIDGEVILLE CITY OF
	11.20	NORTH RIDGEVILLE CITY OF
	11.20	ELYRIA CITY OF
	11.21	PIONEER RIDGE HOMEOWNERS ASSOCIATION INC
	11.40	K HOVNANIAN WATERBURY LLC
	11.59	KRECIC EDWARD & ANTHONY
	11.61	OLIVER MARLENE
	11.64	KAIZER ANDREW W TRUSTEE & DEANNA K KAIZER TRUSTEE
	11.69	PASCOE KRECIC KRISTEN C & KRECIC ANTHONY
	11.81	FIELDSTONE LAKES LTD
	11.90	ELYRIA CITY OF
	11.98	DENNIS SAMUEL
	12.00	RAY SHAWN
	12.12	DENNIS SAMUEL
	12.14	CHRISTENSEN TERRY C TRUSTEE
	12.27	ROACH FANNIE M TRUSTEE & ROACH RAY D TRUSTEE
	12.36	RT 57 CHESTNUT RIDGE LLC
	12.44	EATON TWP ACQUISITION LLC
	12.52	EATON TWP ACQUISITION LLC

Route	Owner Name	Parcel Count
	RALICH GAIL A	1
	RANDALL LINDA M & RANDALL TIMOTHY J	1
	RAY SHAWN	1
	REED DOUGLAS L & LINDA G	1
	RESAR PEGGY MARIE	1
	RICKEY PAUL E TRUSTEE	1
	RITSKO ALFRED M & GAYLE R	1
	ROACH FANNIE M TRUSTEE & ROACH RAY D TRUSTEE	1
	ROTHKEGEL ARLENE & ROTHKEGEL CHARLES K	1
	RT 57 CHESTNUT RIDGE LLC	1
	RUMPLER BEVERLY K	1
	RURAL LORAIN COUNTY WATER AUTHORTY	1
	RYAN JOHN M & LAUREL V	2
	RYKON PLATING INC	1
	SAS DOROTHY	1
	SAS TIMOTHY J	1
	SAUER BILL	1
	SCHAAL RICHARD B	1
	SCHAEFER JILL D	1
	SCHAFER DEVELOPMENT COMPANY INC	1
	SHOUREAS LISA C & SHOUREAS STEVEN D	1
	SKLENAR RUTH A	1
	SPITZER HARDWARE & SUPPLY CO	2
	SPITZER HARDWARE & SUPPLY CO THE	1
	SPRINGVALE DEVELOPMENT COMPANY	1
	SPRINGVALE DEVELOPMENT COMPANY LTD	4
	STANCEY JOHN & VIORICA TRUSTEES	1
	SULLINGER ROBERT W TRUSTEE & MABEL ETAL	2
	SYLVESTER STEVEN L & SYLVESTER MICHELE A	1
	TALEFF CHRIS	1
	TAYLOR BRENDA L & BERRY A	1
	TAYLOR WOODS PROPERTIES LLC	1
	TERNES CARL D ETAL	1
	TILLERY HOLDINGS LLC	1
	TLP INVESTORS GROUP LLC	2
	UNGER STEPHANIE KAY & VAJDA SHERYL LYNN	1
	VIRGINIA HOLDING COMPANY	1
	VIRGINIA HOLDING CORP	5
	VONYA GEORGE & DEBRA	1
	WALLACE JULIET J	1
	WALLACE ROBERT F & SUSAN J	1

Appendix E
Property Owner and Parcel Info
Preferred Route 1

Route	MP	Owner Name
	12.59	RUMPLER BEVERLY K
	12.60	CRIGGER CHARLES H
	12.69	OHIO STATE OF
	12.72	LORAIN COUNTY BOARD OF COMMISSIONERS
	12.74	CHRISTO JASON B
	12.87	SKLENAR RUTH A
	13.02	BEHM FRED G & MARY W TRUSTEES
	13.07	SCHAEFER JILL D
	13.09	ADAMS BETH S
	13.12	ZELINKA JOSEPH A & PAMELA S
	13.15	EATON TOWNSHIP TRUSTEES
	13.20	WALLACE ROBERT F & SUSAN J
	13.22	RICKEY PAUL E TRUSTEE
	13.28	EATON TOWNSHIP TRUSTEES
	13.29	FARMLAND PROPERTIES LLC
	13.30	MONGELLO RICHARD C & JOAN M TRUSTEES
	13.35	FARMLAND PROPERTIES LLC
	13.52	GILGENBACH CARSSON P
	13.64	WITT EDWARD J & BURKE JEAN L
	13.64	WITT EDWARD J & BURKE JEAN L
	13.64	HAYWARD PETER L & HEATHER M
	13.65	WITT EDWARD J & BURKE JEAN L
	13.69	MCCARTNEY THOMAS P & BONITA M
	13.74	MYERS SCOTT W
	13.81	NOSTER IRENE M TRUSTEES & MEKKER GEORGE C ETAL
	13.92	NOSTER IRENE M TRUSTEES & MEKKER GEORGE C ETAL
	13.93	ANDRE DE LA PORTE CHARLES A TRUSTEE
	14.01	CROMLING BILL II & MAUREEN M TRUSTEES
	14.02	RESAR PEGGY MARIE
	14.09	CROMLING BILL II & MAUREEN M TRUSTEES
	14.12	WUKIE THERESA M TRUSTEE
	14.17	WHARY KIM W & JUDITH L
	14.21	STANCEY JOHN & VIORICA TRUSTEES
	14.22	SPITZER HARDWARE & SUPPLY CO
	14.26	CARTER EDMUND A & ANGELA S
	14.27	SPITZER HARDWARE & SUPPLY CO
	14.32	UNGER STEPHANIE KAY & VAJDA SHERYL LYNN
	14.35	CARTER EDMUND A & ANGELA S
	14.43	DAVIS BOBBY R & MAE ELAINE
	14.51	EATON TOWNSHIP
	14.55	HENDERSON ARTHUR R

Route	Owner Name		Parcel Count	
	WALTER DENNIS J & JAYNE E			1
	WALTER JOHN M & JENNA L			1
	WARNER SAMUEL EARL TRUSTEE			1
	WATTEREDGE LLC			1
	WHARY KIM W & JUDITH L			1
	WHEATLEY JOHN P & ANITA L			1
	WIECHOWSKI STANLEY & NANCY ANN			1
	WILLIAMS MARCIA ANN & WILLIAMS DONALD LEE			1
	WITT EDWARD J & BURKE JEAN L			3
	WOODS CHRIS W & WOODS GLYNDAR O			1
	WOODS DORA G & WOODS DONALD D & DORA G			1
	WRIGHT JOHN A & ALICE W TRUSTEES			1
	WUKIE THERESA M TRUSTEE			1
	ZELINKA JOSEPH A & PAMELA S			1
	(blank)			1
Grand Total	**Property Owner Count**	**178**	**Parcel Count**	**270**

Appendix E
Property Owner and Parcel Info
Preferred Route 1

Route	MP	Owner Name
	14.60	SPRINGVALE DEVELOPMENT COMPANY LTD
	14.61	SPRINGVALE DEVELOPMENT COMPANY LTD
	14.69	WIECHOWSKI STANLEY & NANCY ANN
	14.71	SPRINGVALE DEVELOPMENT COMPANY LTD
	15.04	SPRINGVALE DEVELOPMENT COMPANY LTD
	15.29	SPRINGVALE DEVELOPMENT COMPANY
	15.35	SAUER BILL
	15.37	COLUMBIA GAS TRANSMISSION LLC
	15.49	SPITZER HARDWARE & SUPPLY CO THE
	15.55	ROTHKEGEL ARLENE & ROTHKEGEL CHARLES K
	15.56	RADABAUGH GEORGE W & EVA D
	15.58	HENELY AMY N
	15.61	BURNSIDE JOHN STEVEN & CONNIE ANN
	15.66	CARLISLE TWP OF
	15.69	BOLASH JOSEPH JOHN
	15.75	WILLIAMS MARCIA ANN & WILLIAMS DONALD LEE
	15.80	PENCE RALPH A & PAMELA A
	15.84	PENCE RALPH A & PAMELA A
	15.85	KONIARSKI MICHAEL C
	15.87	KONIARSKI MICHAEL C
	15.88	KONIARSKI MICHAEL C
	15.89	KONIARSKI MICHAEL C
	15.90	KONIARSKI MICHAEL C
	15.92	KONIARSKI MICHAEL C
	15.95	KONIARSKI MICHAEL C
	16.28	BURGESS CONSTANCE L
	16.63	JUMP GARY W & MARILYN S
	17.17	RYAN JOHN M & LAUREL V
	17.23	TAYLOR BRENDA L & BERRY A
	17.28	RYAN JOHN M & LAUREL V
	17.29	CARLISLE GOLF CLUB INC
	17.32	VONYA GEORGE & DEBRA
	17.37	LADD TIMOTHY C & ANIELA J
	17.42	REED DOUGLAS L & LINDA G
	17.47	OCONNOR DAVID K & JULIE M
	17.58	RITSKO ALFRED M & GAYLE R
	17.70	GATES JULIE L
	17.73	LILLY MARGIE L TRUSTEE
	17.75	BALOGH LINDA C TRUSTEE
	17.76	BALTIMORE & OHIO RR CSX SYSTEM
	17.76	WHEATLEY JOHN P & ANITA L

Route	Owner Name	Parcel Count

Appendix E
Property Owner and Parcel Info
Preferred Route 1

Route	MP	Owner Name
	17.78	BYRD TIMOTHY J
	17.81	WOODS CHRIS W & WOODS GLYNDAR O
	17.95	OHIO EDISON CO
	18.23	ELLIOTT JUDITH B
	18.35	BRANDYBERRY NANCY J & BRANDYBERRY PAUL A
	18.38	PLAS DONALD W & KELLY A
	18.40	FISHER CHERYL A & JALOWIEC JONATHAN
	18.43	ARNESEN JUNE B
	18.47	ARNESEN JUNE B
	18.54	PATRICK JOHN L & DORIS R
	18.57	BECKER PAUL J & ROSEMARY E
	18.67	WRIGHT JOHN A & ALICE W TRUSTEES
	18.75	DULL KENNETH F & ALLTOP KELLY S
	18.77	SCHAAL RICHARD B
	18.81	GUZAY SYLVIA & WILLIAM
	18.84	WOODS DORA G & WOODS DONALD D & DORA G
	18.91	MULLINS RALPH L & DEBORAH A
	18.97	RANDALL LINDA M & RANDALL TIMOTHY J
	19.09	GRISSOM JOHNNY W & FISCHER CANDACE M
	19.23	METRO PARKS LORAIN COUNTY
	19.35	METRO PARKS LORAIN COUNTY
	19.42	METRO PARKS LORAIN COUNTY
	19.45	GARWOLINSKI STEVE & KATHLEEN
	19.51	WALTER JOHN M & JENNA L
	19.58	WALTER DENNIS J & JAYNE E

Route	Owner Name	Parcel Count

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
Preferred Route 2	**0.07**	ORION POWER MIDWEST LP
	0.14	ORION POWER MIDWEST LP
	0.17	ORION POWER MIDWEST LP
	0.33	CLEVELAND ELECTRIC ILLUMINATING COMPANY
	0.49	CLEVELAND ELECTRIC ILLUMINATING
	0.52	ORION POWER MIDWEST LP
	0.70	CLEVELAND ELECTRIC ILLUMINATING
	0.93	AVON LAKE CITY OF
	0.98	LEONARD GEORGE TRUSTEE
	0.98	ERNEST BUILDING LLC
	0.98	AVON LAKE CITY OF
	0.99	AVON LAKE CITY OF
	0.99	AVON LAKE CITY
	1.01	TILLERY HOLDINGS LLC
	1.06	PENTA STAR ENTERPRISES LLC
	1.14	LLOYD DEVELOPMENT INC
	1.20	RYKON PLATING INC
	1.25	WATTEREDGE LLC
	1.31	TLP INVESTORS GROUP LLC
	1.37	TLP INVESTORS GROUP LLC
	1.42	CORPUS CHRISTI LLC
	1.48	CORPUS CHRISTI LLC
	1.55	MAN TBS FB MILLER LTD
	1.61	HELICAL LINE PRODUCTS
	1.73	ORION POWER MIDWEST LP
	1.75	HELICALLINE PRODUCTS CO
	1.93	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	1.94	AVON LAKE CITY
	1.96	CLEVELAND ELECTRIC ILLUMINATING
	1.98	CLEVELAND ELECTRIC
	2.03	CLEVELAND ELECTRIC ILLUMINATING CO
	2.10	FORD MOTOR COMPANY
	2.13	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	2.18	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	2.20	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	2.26	1284 REALTY CO INC
	2.33	RAHMAN FAMILY LIMITED PARTNERSHIP II
	2.45	RIETH ELEANOR
	2.62	GERENT HARRY R & KLANN CHRISTINE & ETAL

Route	Owner Name	Parcel Count
Preferred Route 2	1284 REALTY CO INC	1
	3M PARKWAY INC	4
	ACKERMAN DANIEL J	1
	ACKERMAN JEAN F TRUSTEE	1
	ACKERMAN JOHN	1
	ACKERMAN RUDY J	1
	ALI STEVE	1
	ANDRE DE LA PORTE CHARLES A TRUSTEE	1
	ANGELL RONALD J	1
	ARNESEN JUNE B	2
	ATKINSON FRANCES C	1
	AVON CITY OF	3
	AVON LAKE CITY	2
	AVON LAKE CITY OF	3
	BAEDER DAVID C & MEGAN A	2
	BALOGH LINDA C TRUSTEE	1
	BALTIMORE & OHIO RR CSX SYSTEM	1
	BECKER PAUL J & ROSEMARY E	1
	BENDER JOHN ANDREW & NICKRAS KATHERINE M	1
	BERENS GERALD J & JEAN	1
	BERES MICHAEL P	1
	BORLING CHARLES J	1
	BOULDER POINT LLC	1
	BRADLEY CENTER LIMITED PARTNERSHIP	1
	BRANDYBERRY NANCY J & BRANDYBERRY PAUL A	1
	BRENTWOOD GOLF CLUB INC	1
	BROWN JAMES ALAN	1
	BROWNING TIMOTHY C & LESLIE J	1
	BURGESS CONSTANCE L	1
	BYRD TIMOTHY J	1
	CARLISLE GOLF CLUB INC	1
	CARTER EDMUND A & ANGELA S	2
	CHRISTENSEN TERRY C TRUSTEE	1
	CHRISTO JASON B	1
	CLEVELAND ELECTRIC	1
	CLEVELAND ELECTRIC ILLUMINATING	7
	CLEVELAND ELECTRIC ILLUMINATING CO	1
	CLEVELAND ELECTRIC ILLUMINATING COMPANY	2
	CLINGAN CHRISTINE	1

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	2.69	PATRICK GAYLE P
	2.71	GERENT HARRY R & KLANN CHRISTINE & ETAL
	2.79	ACKERMAN RUDY J
	2.82	ACKERMAN JOHN
	2.85	RIETH MARYANN & RIETH DENNIS E
	2.86	ACKERMAN DANIEL J
	3.05	ACKERMAN JEAN F TRUSTEE
	3.19	OHIO STATE OF
	3.29	GERENT HARRY R & KLANN CHRISTINE & ETAL
	3.53	GREEN ACRES DUDE RANCH INC
	3.79	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	3.80	HILL LAURA L
	3.93	OCA LLC
	3.97	OFFUTT JUDITH
	4.00	METRO PARKS LORAIN COUNTY
	4.11	METRO PARKS LORAIN COUNTY
	4.40	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	4.46	METRO PARKS LORAIN COUNTY
	4.80	METRO PARKS LORAIN COUNTY
	4.98	M L PROPERTIES OF LORIAN COUNTY LLC
	4.99	PENNSYLVANIA LINES LLC
	5.00	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES
	5.13	PENN CENTRAL CORPORATION
	5.13	PENNSYLVANIA LINES LLC
	5.46	PENN CENTRAL CORPORATION
	5.48	NORFOLK & WESTERN RR
	5.54	NORFOLK & WESTERN RR
	5.60	NORFOLK & WESTERN RR
	5.67	OHIO STATE OF
	5.68	OHIO STATE OF
	5.69	OHIO STATE OF
	5.69	OHIO STATE OF
	5.71	OHIO STATE OF
	5.71	OHIO STATE OF
	5.75	JW WESTLAKE LAND COMPANY LLC
	5.76	PENNSYLVANIA LINES LLC
	5.77	STATE OF OHIO DEPARTMENT OF TRANSPORTATION
	5.78	OHIO STATE OF
	5.79	PENNSYLVANIA LINES LLC
	5.80	OHIO STATE OF

Route	Owner Name	Parcel Count
	COLUMBIA GAS TRANSMISSION LLC	1
	CONLIN GARY R & KATHLEEN M	1
	COPE PAULA D	1
	CORPUS CHRISTI LLC	2
	COTTAGES AT SAVANNAH CONDO UNIT OWNERS ASSOC	1
	CRIGGER CHARLES H	1
	CROMLING BILL II & MAUREEN M TRUSTEES	2
	CURTIS JAY J & CHRISTINE L	1
	DATO LTD	1
	DAVID F SCHNEIDER POST NO 7035 VFW INCORPORATED	1
	DAVIS BOBBY R & MAE ELAINE	1
	DENNIS RICHARD H & ANN L	1
	DENNIS SAMUEL	2
	DEVO ENTERPRISES LLC	1
	DIEDERICH JUDITH & SMITH TERRENCE J	1
	DIEDERICH LOYOLA TRUSTEE	1
	DIEDERICH ROBERT & SMITH TERRENCE J	1
	DILLON ROYCE A & KAREN L	1
	DOROW DELLA TRUSTEE	3
	DUDIK CYNTHIA A	1
	DULL KENNETH F & ALLTOP KELLY S	1
	EATON TOWNSHIP	1
	EATON TOWNSHIP TRUSTEES	1
	EATON TWP ACQUISITION LLC	2
	EDWARDS MICHAEL J	1
	ELLIOTT JUDITH B	1
	ELYRIA CITY OF	1
	EMH REGIONAL MEDICAL CENTER	1
	ERNEST BUILDING LLC	1
	ESTES EXPRESS LINES	1
	FATHERS OF ST JOSEPH INC	1
	FEDDERS JENNIFER PISANELLI K & HOLOWECKY B	1
	FEES DOROTHY	2
	FESCO ERNEST ANTHONY II & BETTE JOANNE	1
	FIELDSTONE LAKES LTD	2
	FISHER CHERYL A & JALOWIEC JONATHAN	1
	FOOR MICHAEL L BAIRD-FOOR STACIE	1
	FORD MOTOR COMPANY	1
	FREEMAN JOSHUA M & LEITNER LEANN B	1
	GABEL KENNETH C JR & JEANNE M	1

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	5.81	OHIO STATE OF
	5.82	OHIO STATE OF
	5.84	GORKA MICHAEL S & HUETTER KAREN
	5.88	GORKA MICHAEL S & HUETTER KAREN
	5.93	PENNSYLVANIA LINES LLC
	5.95	GORKA MICHAEL S & HUETTER KAREN
	5.99	CLEVELAND ELECTRIC ILLUMINATING
	6.01	GORKA MICHAEL S & HUETTER KAREN
	6.03	CLEVELAND ELECTRIC ILLUMINATING
	6.10	HOLOWECKY TIMOTHY A
	6.21	PENNSYLVANIA LINES LLC
	6.21	SOBOTKA TERRY M & TIFFANY J
	6.30	PENNSYLVANIA LINES LLC
	6.35	PENNSYLVANIA LINES LLC
	6.38	PENNSYLVANIA LINES LLC
	6.40	PENNSYLVANIA LINES LLC
	6.44	CLEVELAND ELECTRIC ILLUMINATING COMPANY
	6.51	KELLING ALBERT G & KERECZ JOAN TRUSTEE
	6.53	KELLING ALBERT G & KERECZ JOAN TRUSTEE
	6.63	PINEHAVEN GREENHOUSES INC
	6.68	BAEDER DAVID C & MEGAN A
	6.72	BAEDER DAVID C & MEGAN A
	6.72	FATHERS OF ST JOSEPH INC
	6.73	GEMELAS NATALIE J & JAMES S
	6.75	BERES MICHAEL P
	6.78	BERENS GERALD J & JEAN
	6.80	AVON CITY OF
	6.80	AVON CITY OF
		OCASIO ROBERTO JR & MICHELE L
	6.80	OCASIO ROBERTO JR & MICHELE L
	6.81	SCHWARTZ KAREN R
	6.83	SCHWARTZ KAREN R
	6.86	SCHWARTZ KAREN R
	6.89	ZAN JOANN M
	6.91	MARQUIS TEREASA L & MARQUIS ROBERT C
	6.92	DILLON ROYCE A & KAREN L
	7.03	(blank)
	7.23	AVON CITY OF
	7.41	CLEVELAND ELECTRIC ILLUMINATING
	7.54	WILLOWAY PROPERTIES LLC

Route	Owner Name	Parcel Count
	GARWOLINSKI STEVE & KATHLEEN	1
	GATES JULIE L	1
	GATEWAY DEVELOPMENT LLC	1
	GEMELAS NATALIE J & JAMES S	1
	GERENT HARRY R & KLANN CHRISTINE & ETAL	3
	GIBBONS GARY L & TERRI	1
	GORKA MICHAEL S & HUETTER KAREN	4
	GREEN ACRES DUDE RANCH INC	1
	GRISSOM JOHNNY W & FISCHER CANDACE M	1
	GUPTA ANKUR A	1
	GUZAY SYLVIA & WILLIAM	1
	HELFRICH MATTHIAS & JOANNE	1
	HELICAL LINE PRODUCTS	1
	HELICALLINE PRODUCTS CO	1
	HENDERSON ARTHUR R	1
	HICKORY LAND HOLDING LLC	14
	HILL LAURA L	1
	HOLOWECKY TIMOTHY A	1
	HORVATH DANIEL E	1
	HRICOVEC MARK T	1
	INVACARE CORPORATION	1
	JUMP GARY W & MARILYN S	1
	JUSTICE ALICE	1
	JW WESTLAKE LAND COMPANY LLC	1
	K HOVNANIAN OSTER HOMES LLC	1
	KANTOSKY HENRY ESTATE OF	2
	KELLING ALBERT G & KERECZ JOAN TRUSTEE	2
	KING JAMES W & LORETTA A	1
	KISTNER MICHAEL A & LANA K	1
	KONIARSKI MICHAEL C	1
	KOSOBUDZKI KRYSTYNA J	1
	KRISHNAN NAGUREDDI & THERESA	1
	KUBASAK ROBERT B & DEBRA J	1
	LADD TIMOTHY C & ANIELA J	1
	LEONARD GEORGE TRUSTEE	1
	LEONOWICH JOHN D TRUSTEE	1
	LILLY MARGIE L TRUSTEE	1
	LLOYD DEVELOPMENT INC	1
	LORAIN COUNTY BOARD OF COMMISSIONERS	1
	LORAIN RIDGE PROPERTY LLC	1

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	7.77	CURTIS JAY J & CHRISTINE L
	7.91	FEDDERS JENNIFER PISANELLI K & HOLOWECKY B
	7.97	MIKULIC JOHN J TRUSTEE
	8.02	HRICOVEC MARK T
	8.09	CLEVELAND ELECTRIC ILLUMINATING
	8.15	RUDOLPH LINDA MARIE
	8.16	RUDOLPH LINDA MARIE
	8.23	DAVID F SCHNEIDER POST NO 7035 VFW INCORPORATED
	8.30	RICE COURTNEY ANNE
	8.34	TESMER GEORGE A JR & MARSHA L
	8.39	STANCZYK CAROLINE S & STANCZYK JEFFREY L
	8.46	HICKORY LAND HOLDING LLC
	8.61	HICKORY LAND HOLDING LLC
	8.76	WENSINK ROBERT B ETAL
	8.81	SLUSHER ROBERT R
	8.84	KING JAMES W & LORETTA A
	8.87	NORTH RIDGEVILLE CITY OF
	8.89	WENSINK ROBERT B ETAL
	8.90	3M PARKWAY INC
	8.92	WENSINK ROBERT B ETAL
	8.95	3M PARKWAY INC
	8.97	NAGEL DON JR & LYNN M & JUPINA RAYMOND ALAN
	8.99	GATEWAY DEVELOPMENT LLC
	9.02	OHIO TURNPIKE COMMISSION
	9.09	PARKER HOLDINGS LTD
	9.11	NORTH RIDGE POINT LTD
	9.19	R W BECKETT CORPORATION INC
	9.25	NORTH RIDGE POINT LTD
	9.28	HORVATH DANIEL E
	9.31	PENNSYLVANIA LINES LLC
	9.32	SMITH MICHAEL J & KATHLEEN A
	9.32	PENNSYLVANIA LINES LLC
	9.35	PENNSYLVANIA LINES LLC
	9.36	PENNSYLVANIA LINES LLC
	9.37	MINNICH DAVID A & CAROLE V
	9.38	OHIO EDISON CO
	9.41	MUCHA RICHARD
	9.46	MUCHA RICHARD
	9.51	INVACARE CORPORATION
	9.51	VALORE PROPERTIES INC

Route	Owner Name	Parcel Count
	M L PROPERTIES OF LORIAN COUNTY LLC	1
	MAN TBS FB MILLER LTD	1
	MARQUIS TEREASA L & MARQUIS ROBERT C	1
	MEDERER JOSEPH M & MARY ELLEN	1
	METRO PARKS LORAIN COUNTY	11
	METTI ROBERT C & THORNBERRY CINDY R	1
	MIKULIC JOHN J TRUSTEE	1
	MILLER BROTHER BUILDERS	3
	MILLER RICK J	1
	MILLER RICKEY E	1
	MINNICH DAVID A & CAROLE V	1
	MORAHAN DAVID J & KIMBERLY S	1
	MSCFG LLC	1
	MUCHA RICHARD	2
	MULLINS RALPH L & DEBORAH A	1
	MYERS SCOTT W	1
	NAGEL DON JR & LYNN M & JUPINA RAYMOND ALAN	1
	NAVY CENTER RIDGE REAL ESTATE LLC	1
	NORFOLK & WESTERN RR	3
	NORFOLK SOUTHERN COMBINED RAILROAD SUBSIDIARIES	7
	NORTH RIDGE POINT LTD	2
	NORTH RIDGEVILLE CITY OF	4
	NORTH RIDGEVILLE SHOPPING CENTRE LLC	7
	NORTHVIEW PROPERTIES	1
	NOSTER IRENE M TRUSTEES & MEKKER GEORGE C ETAL	2
	NVR INC	1
	OCA LLC	1
	OCASIO ROBERTO JR & MICHELE L	2
	OCONNOR DAVID K & JULIE M	1
	OFFUTT JUDITH	1
	OHIO EDISON CO	3
	OHIO STATE OF	12
	OHIO TURNPIKE COMMISSION	1
	ORION POWER MIDWEST LP	5
	PARKER HOLDINGS LTD	1
	PARSONS MICHAEL E & DIANNA L	1
	PATRICK GAYLE P	1
	PATRICK JOHN L & DORIS R	1
	PENN CENTRAL CORPORATION	2
	PENNSYLVANIA LINES LLC	14

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	9.55	VALORE PROPERTIES INC
	9.63	NORTH RIDGEVILLE CITY OF
	9.68	VALORE PROPERTIES INC
	9.70	TAYLOR WOODS PROPERTIES LLC
	9.70	DATO LTD
	9.82	DOROW DELLA TRUSTEE
	9.88	DOROW DELLA TRUSTEE
	9.90	TERNES CARL D ETAL
	9.95	DOROW DELLA TRUSTEE
	10.01	SULLINGER ROBERT W TRUSTEE & MABEL ETAL
	10.08	STOPPER DANIEL R & JENNIFER
	10.21	SEDIVEC VICTOR & LAVERNE
	10.28	GABEL KENNETH C JR & JEANNE M
	10.30	BROWNING TIMOTHY C & LESLIE J
	10.32	FESCO ERNEST ANTHONY II & BETTE JOANNE
	10.34	BROWN JAMES ALAN
	10.35	LEONOWICH JOHN D TRUSTEE
	10.37	COPE PAULA D
	10.41	METTI ROBERT C & THORNBERRY CINDY R
	10.42	EDWARDS MICHAEL J
	10.48	SULLINGER ROBERT W TRUSTEE & MABEL ETAL
	10.49	COTTAGES AT SAVANNAH CONDO UNIT OWNERS ASSOC
	10.51	SHROYER HERBERT & CAROL
	10.55	BENDER JOHN ANDREW & NICKRAS KATHERINE M
	10.57	ANGELL RONALD J
	10.60	FEES DOROTHY
	10.60	PITTS DONALD J & PATRICIA
	10.64	BOULDER POINT LLC
	10.69	RIDGE MINERALS LLC
	10.75	RIDGE MINERALS LLC
	10.81	RIDGE MINERALS LLC
	10.87	MSCFG LLC
	10.99	RIDGE MINERALS LLC
	11.16	K HOVNANIAN OSTER HOMES LLC
	11.26	HICKORY LAND HOLDING LLC
	11.30	HICKORY LAND HOLDING LLC
	11.32	HICKORY LAND HOLDING LLC
	11.36	HICKORY LAND HOLDING LLC
	11.40	HICKORY LAND HOLDING LLC
	11.49	NAVY CENTER RIDGE REAL ESTATE LLC

Route	Owner Name	Parcel Count
	PENTA STAR ENTERPRISES LLC	1
	PINEHAVEN GREENHOUSES INC	1
	PITTS DONALD J & PATRICIA	1
	PLAS DONALD W & KELLY A	1
	PLATEK RUTH ANN & STANKO ROBERT PAUL TRUSTEE	1
	R W BECKETT CORPORATION INC	1
	RAHMAN FAMILY LIMITED PARTNERSHIP II	1
	RANDALL LINDA M & RANDALL TIMOTHY J	1
	RAY SHAWN	1
	REED DOUGLAS L & LINDA G	1
	RESAR PEGGY MARIE	1
	RICE COURTNEY ANNE	1
	RIDGE MINERALS LLC	4
	RIDGEVILLE STAFFORD LLC	1
	RIETH ELEANOR	1
	RIETH MARYANN & RIETH DENNIS E	1
	RITSKO ALFRED M & GAYLE R	1
	ROACH FANNIE M TRUSTEE & ROACH RAY D TRUSTEE	1
	RT 57 CHESTNUT RIDGE LLC	1
	RUDOLPH LINDA MARIE	2
	RUMPLER BEVERLY K	1
	RYAN JOHN M & LAUREL V	2
	RYKON PLATING INC	1
	SANDY RIDGE DEVELOPMENT LTD	3
	SAYLES DAVID & DEBRA	1
	SCHAAL RICHARD B	1
	SCHWARTZ KAREN R	3
	SEDIVEC VICTOR & LAVERNE	1
	SEDIVEC VICTOR & LAVERNE V TRUSTEES	1
	SHROYER HERBERT & CAROL	1
	SKLENAR RUTH A	1
	SLUSHER ROBERT R	1
	SMITH MICHAEL J & KATHLEEN A	1
	SOBOTKA TERRY M & TIFFANY J	1
	SPITZER HARDWARE & SUPPLY CO	2
	SPRINGVALE DEVELOPMENT COMPANY LTD	3
	STANCEY JOHN & VIORICA TRUSTEES	1
	STANCZYK CAROLINE S & STANCZYK JEFFREY L	1
	STATE OF OHIO DEPARTMENT OF TRANSPORTATION	1
	STEMMER TOM	1

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	11.58	HICKORY LAND HOLDING LLC
	11.61	RIDGEVILLE STAFFORD LLC
	11.62	NORTH RIDGEVILLE CITY OF
	11.66	HICKORY LAND HOLDING LLC
	11.70	HICKORY LAND HOLDING LLC
	11.72	HICKORY LAND HOLDING LLC
	11.76	HICKORY LAND HOLDING LLC
	11.78	HICKORY LAND HOLDING LLC
	11.80	HICKORY LAND HOLDING LLC
	11.81	GUPTA ANKUR A
	11.83	METRO PARKS LORAIN COUNTY
	11.84	PLATEK RUTH ANN & STANKO ROBERT PAUL TRUSTEE
	11.86	MILLER RICK J
	11.87	CLINGAN CHRISTINE
	11.89	FREEMAN JOSHUA M & LEITNER LEANN B
	11.90	ELYRIA CITY OF
	11.92	ALI STEVE
	11.94	METRO PARKS LORAIN COUNTY
	11.98	LORAIN RIDGE PROPERTY LLC
	11.98	DENNIS SAMUEL
	12.00	RAY SHAWN
	12.03	DUDIK CYNTHIA A
	12.06	MEDERER JOSEPH M & MARY ELLEN
	12.08	METRO PARKS LORAIN COUNTY
	12.11	METRO PARKS LORAIN COUNTY
	12.12	DENNIS SAMUEL
	12.14	CHRISTENSEN TERRY C TRUSTEE
	12.17	BRADLEY CENTER LIMITED PARTNERSHIP
	12.18	SANDY RIDGE DEVELOPMENT LTD
	12.22	MILLER RICKEY E
	12.24	SANDY RIDGE DEVELOPMENT LTD
	12.24	DENNIS RICHARD H & ANN L
	12.25	NVR INC
	12.27	ROACH FANNIE M TRUSTEE & ROACH RAY D TRUSTEE
	12.31	SANDY RIDGE DEVELOPMENT LTD
	12.35	NORTH RIDGEVILLE CITY OF
	12.36	ESTES EXPRESS LINES
	12.36	RT 57 CHESTNUT RIDGE LLC
	12.37	DIEDERICH JUDITH & SMITH TERRENCE J
	12.39	DIEDERICH ROBERT & SMITH TERRENCE J

Route	Owner Name		Parcel Count
	STOPPER DANIEL R & JENNIFER		1
	SULLINGER ROBERT W TRUSTEE & MABEL ETAL		2
	SUNRISE DEVELOPMENT CO		1
	TAYLOR BRENDA L & BERRY A		1
	TAYLOR WOODS PROPERTIES LLC		1
	TERNES CARL D ETAL		1
	TESMER GEORGE A JR & MARSHA L		1
	THOMAS CHRISTOPHER S		1
	THORNE BRANDON T & MARY B		1
	TILLERY HOLDINGS LLC		1
	TLP INVESTORS GROUP LLC		2
	UNGER STEPHANIE KAY & VAJDA SHERYL LYNN		1
	VALORE PROPERTIES INC		3
	VONYA GEORGE & DEBRA		1
	WALTER DENNIS J & JAYNE E		1
	WALTER JOHN M & JENNA L		1
	WATTEREDGE LLC		1
	WENSINK ROBERT B ETAL		3
	WHARY KIM W & JUDITH L		1
	WHEATLEY JOHN P & ANITA L		1
	WILLOWAY PROPERTIES LLC		1
	WOODS CHRIS W & WOODS GLYNDAR O		1
	WOODS DORA G & WOODS DONALD D & DORA G		1
	WRIGHT JOHN A & ALICE W TRUSTEES		1
	WUKIE THERESA M TRUSTEE		1
	ZAN JOANN M		1
	(blank)		1
Grand Total	**Property Owner Count**	**226**	**Parcel Count 354**

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	12.42	DIEDERICH LOYOLA TRUSTEE
	12.44	EATON TWP ACQUISITION LLC
	12.47	NORTH RIDGEVILLE SHOPPING CENTRE LLC
	12.51	NORTH RIDGEVILLE SHOPPING CENTRE LLC
	12.52	EATON TWP ACQUISITION LLC
	12.52	NORTH RIDGEVILLE SHOPPING CENTRE LLC
	12.59	NORTH RIDGEVILLE SHOPPING CENTRE LLC
	12.59	RUMPLER BEVERLY K
	12.60	CRIGGER CHARLES H
	12.65	NORTH RIDGEVILLE SHOPPING CENTRE LLC
	12.67	NORTH RIDGEVILLE SHOPPING CENTRE LLC
	12.67	NORTH RIDGEVILLE SHOPPING CENTRE LLC
	12.68	KOSOBUDZKI KRYSTYNA J
	12.69	OHIO STATE OF
	12.72	EMH REGIONAL MEDICAL CENTER
	12.72	LORAIN COUNTY BOARD OF COMMISSIONERS
	12.73	JUSTICE ALICE
	12.74	CHRISTO JASON B
	12.75	ATKINSON FRANCES C
	12.76	STEMMER TOM
	12.79	NORTHVIEW PROPERTIES
	12.83	MILLER BROTHER BUILDERS
	12.83	MILLER BROTHER BUILDERS
	12.83	MILLER BROTHER BUILDERS
	12.87	COLUMBIA GAS TRANSMISSION LLC
	12.89	SKLENAR RUTH A
	12.94	3M PARKWAY INC
	13.04	3M PARKWAY INC
	13.10	OHIO EDISON CO
	13.90	NOSTER IRENE M TRUSTEES & MEKKER GEORGE C ETAL
	13.93	ANDRE DE LA PORTE CHARLES A TRUSTEE
	14.01	CROMLING BILL II & MAUREEN M TRUSTEES
	14.02	RESAR PEGGY MARIE
	14.09	CROMLING BILL II & MAUREEN M TRUSTEES
	14.12	WUKIE THERESA M TRUSTEE
	14.17	WHARY KIM W & JUDITH L
	14.21	STANCEY JOHN & VIORICA TRUSTEES
	14.22	SPITZER HARDWARE & SUPPLY CO
	14.26	CARTER EDMUND A & ANGELA S
	14.27	SPITZER HARDWARE & SUPPLY CO

Route	Owner Name	Parcel Count

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	14.32	UNGER STEPHANIE KAY & VAJDA SHERYL LYNN
	14.35	CARTER EDMUND A & ANGELA S
	14.43	DAVIS BOBBY R & MAE ELAINE
	14.51	EATON TOWNSHIP
	14.55	HENDERSON ARTHUR R
	14.59	SPRINGVALE DEVELOPMENT COMPANY LTD
	15.11	FEES DOROTHY
	15.22	MORAHAN DAVID J & KIMBERLY S
	15.32	GIBBONS GARY L & TERRI
	15.33	SUNRISE DEVELOPMENT CO
	15.50	FIELDSTONE LAKES LTD
	15.76	FIELDSTONE LAKES LTD
	16.28	BURGESS CONSTANCE L
	16.63	JUMP GARY W & MARILYN S
	16.91	BORLING CHARLES J
	16.97	DEVO ENTERPRISES LLC
	17.11	HELFRICH MATTHIAS & JOANNE
	17.16	CONLIN GARY R & KATHLEEN M
	17.17	RYAN JOHN M & LAUREL V
	17.20	KRISHNAN NAGUREDDI & THERESA
	17.20	THORNE BRANDON T & MARY B
	17.23	TAYLOR BRENDA L & BERRY A
	17.27	KUBASAK ROBERT B & DEBRA J
	17.28	RYAN JOHN M & LAUREL V
	17.29	CARLISLE GOLF CLUB INC
	17.32	VONYA GEORGE & DEBRA
	17.33	THOMAS CHRISTOPHER S
	17.36	SEDIVEC VICTOR & LAVERNE V TRUSTEES
	17.37	LADD TIMOTHY C & ANIELA J
	17.40	PARSONS MICHAEL E & DIANNA L
	17.42	REED DOUGLAS L & LINDA G
	17.42	EATON TOWNSHIP TRUSTEES
	17.46	MYERS SCOTT W
	17.47	OCONNOR DAVID K & JULIE M
	17.52	NOSTER IRENE M TRUSTEES & MEKKER GEORGE C ETAL
	17.58	RITSKO ALFRED M & GAYLE R
	17.70	GATES JULIE L
	17.73	LILLY MARGIE L TRUSTEE
	17.75	BALOGH LINDA C TRUSTEE
	17.76	BALTIMORE & OHIO RR CSX SYSTEM

Route	Owner Name	Parcel Count

Appendix E
Property Owner and Parcel Info
Preferred Route 2

Route	MP	Owner Name
	17.76	WHEATLEY JOHN P & ANITA L
	17.78	BYRD TIMOTHY J
	17.81	WOODS CHRIS W & WOODS GLYNDAR O
	17.95	OHIO EDISON CO
	18.23	ELLIOTT JUDITH B
	18.35	BRANDYBERRY NANCY J & BRANDYBERRY PAUL A
	18.38	PLAS DONALD W & KELLY A
	18.40	FISHER CHERYL A & JALOWIEC JONATHAN
	18.43	ARNESEN JUNE B
	18.47	ARNESEN JUNE B
	18.49	SPRINGVALE DEVELOPMENT COMPANY LTD
	18.54	PATRICK JOHN L & DORIS R
	18.57	BECKER PAUL J & ROSEMARY E
	18.58	SPRINGVALE DEVELOPMENT COMPANY LTD
	18.67	WRIGHT JOHN A & ALICE W TRUSTEES
	18.75	DULL KENNETH F & ALLTOP KELLY S
	18.77	SCHAAL RICHARD B
	18.81	GUZAY SYLVIA & WILLIAM
	18.84	WOODS DORA G & WOODS DONALD D & DORA G
	18.85	SAYLES DAVID & DEBRA
	18.87	KISTNER MICHAEL A & LANA K
	18.91	MULLINS RALPH L & DEBORAH A
	18.97	RANDALL LINDA M & RANDALL TIMOTHY J
	19.03	BRENTWOOD GOLF CLUB INC
	19.09	GRISSOM JOHNNY W & FISCHER CANDACE M
	19.12	KANTOSKY HENRY ESTATE OF
	19.23	METRO PARKS LORAIN COUNTY
	19.35	METRO PARKS LORAIN COUNTY
	19.38	KANTOSKY HENRY ESTATE OF
	19.42	METRO PARKS LORAIN COUNTY
	19.45	GARWOLINSKI STEVE & KATHLEEN
	19.51	WALTER JOHN M & JENNA L
	19.58	WALTER DENNIS J & JAYNE E
	19.64	KONIARSKI MICHAEL C
	20.10	FOOR MICHAEL L BAIRD-FOOR STACIE

Route	Owner Name	Parcel Count

Appendix F

Example Cost Sheet

NRG - LORAIN COUNTY, AVON LAKE PIPELINE PROJECT

24-INCH DIAMETER STEEL GAS PIPELINE CONSTRUCTION

SCHEDULE OF VALUES

The following prices are for use in determining cost of workadded to, or deducted from the base bid. Said Prices include charges for labor, materials, installation, supervision, taxes, insurance, overhead and profit. All costs shall reflect in-place and installed Quantities below are an estimate for bid purposes only. The Contractor is responsible for verifying all estimated quantities.

ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED PRICE
I.	***Startup***				
A.	Mobilization/Demobilization	LS	1	$	$
B.	Temporary Erosion and Sedimentation Controls	LS	1	$	$
C.	Temporary Access Roads	LF		$	
D.	Contractor Staging Areas	LS	1	$	$
				Item I Subtotal	**$**
II.	***Materials***				
A.	Supply 24-inch Diameter Steel Pipe	LF		$	$
B.	Supply 24-inch Diameter Control/Isolation Valve Assemblies	EA		$	$
C.	Supply 24-inch Diameter Fittings and Ancillaries	LS	1	$	$
				Item II Subtotal	**$**
III.	***Pipeline Construction through Vegetated Areas***				
A.	Clearing and Grubbing	LF		$	$
B.	Strip and Stockpile Topsoil	LF		$	$
C.	Trenching, Bedding, Pipe Installation and Backfill (Agricultural Areas)	LF		$	$
D.	Trenching, Bedding, Pipe Installation and Backfill (Non-Agricultural Areas	LF		$	$
E.	Control/Isolation Valve Installation	EA		$	$
				Item III Subtotal	**$**
IV.	***Pipeline Construction through Paved Areas***				
A.	Asphalt Pavement (Roadway) Removal	LF		$	$
B.	Asphalt Pavement (Driveway) Removal	LF		$	$
C.	Gravel Pavement Removal	LF		$	$
D.	Trenching, Bedding, Pipe Installation and Backfill	LF		$	$
				Item IV Subtotal	**$**
V.	***Directional Pipe Bores***				
A.	Boring Beneath Railroads	LF		$	$
B.	Boring Beneath State Roads	LF		$	$
C.	Boring Beneath Federal (Interstate) Road	LF		$	$
D.	Boring Beneath Large Rivers	LF		$	$
				Item V Subtotal	**$**
VI.	***Pipeline Restoration***				
A.	Reinstallation of Topsoil (Vegetated Areas)	LF		$	$
B.	Seeding and Mulch (Vegetated Areas)	LF		$	$
C.	Asphalt Pavement Restoration (Roadways)	LF		$	$

NRG - LORAIN COUNTY, AVON LAKE PIPELINE PROJECT

24-INCH DIAMETER STEEL GAS PIPELINE CONSTRUCTION

SCHEDULE OF VALUES

The following prices are for use in determining cost of workadded to, or deducted from the base bid. Said Prices include charges for labor, materials, installation, supervision, taxes, insurance, overhead and profit. All costs shall reflect in-place and installed Quantities below are an estimate for bid purposes only. The Contractor is responsible for verifying all estimated quantities.

ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY		UNIT PRICE		EXTENDED PRICE
D.	Asphalt Pavement Restoration (Driveways)	LF		$		$	
E.	Gravel Pavement Restoration (Driveways)	LF		$		$	
					Item VI Subtotal	**$**	
VII.	***Connections and Other***						
A.	Connection to Existing Dominion and Columbia Pipeline	LS	1	$		$	
B.	Connection to Avon Lake Power Plant	LS	1	$		$	
C.	Utility Relocation/Repair	LS	1	$		$	
					Item VII subtotal	**$**	
VIII.	***Bonding Requirements***						
A.	Payment Bond	LS	1	$		$	
B.	Performance Bond	LS	1	$		$	
					Item VIII Subtotal	**$**	
					PROJECT TOTAL	**$**	

GRAND TOTAL WRITTEN

Authorized Representative Signature | Date | Print or Type Name and Company

Summary: Text Supplement to NRG Ohio Pipeline Company, LLC Letter of Notification electronically filed by Teresa Orahood on behalf of Thomas O'Brien