New York State Electric & Gas Corporation
And
Niagara Mohawk Power Corporation d/b/a National Grid

Auburn Transmission Project

Revised Exhibit 4

Environmental Impacts

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Exhibit 4, Attachment B: Wetland Delineation Report

Exhibit 4, Attachment C: Invasive Species Survey Report

Exhibit 4, Attachment D: Excerpts from NYSEG Long-Range ROW Management Plan

Exhibit 4, Attachment E: Electro-magnetic Field (EMF) Calculations

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EXHIBIT 4: ENVIRONMENTAL IMPACTS

4.1 Introduction

The Auburn Transmission Project (Project) will be designed, constructed and operated to avoid or minimize impacts to environmental resources in the vicinity of the Project. A combination of agency consultation (Attachment A – Agency Correspondence), literature reviews, GIS analysis, and field investigations were conducted to determine the existing conditions of the environment in the Project area in the following categories:

- Land Uses
- Visual and Aesthetic Resources
- Cultural Resources
- Terrestrial Ecology and Wetlands
- Wildlife and Threatened and Endangered Species
- Topography, Geology, and Soils
- Water Resources
- Noise
- Transmission Line Electric and Magnetic Fields (EMF)

This exhibit describes existing conditions, study methodologies, the anticipated impacts of the Project on environmental, visual, and socioeconomic resources, and appropriate measures to avoid impacts or to mitigate unavoidable impacts.

4.1.1 Project Description

The Project will be located primarily in NYSEG's Auburn service area (see Exhibit 2, Figure 2-2). The Project ROW is depicted in Revised Exhibit 2, Figure 2-1 and 2-3, and in detail on ROW cross-sections in Revised Exhibit 5, Figure 5-2. The Applicant proposes to construct the Proposed Line and Relocated Line 15 on double circuit structures supporting the Proposed Line; to modify National Grid's Elbridge Substation to accommodate the Proposed Line and Relocated Line 15 connections into the Elbridge Substation; to construct Bused Line 5; and to construct Rebuilt Line 972 , within a combination of Existing ROW and New ROW. Definitions

of capitalized terms used in this Exhibit 4 are set forth in Revised Exhibit 2, including: Proposed Line, Relocated Line 15, Bused Line 5, and Rebuilt Line 972. These lines are collectively referred to as the "Project Lines," and the construction of the Project Lines is referred to as the "Project." The Project is located in the Town and Village of Elbridge in Onondaga County, and the Town of Brutus, Town of Throop, and City of Auburn in Cayuga County. (See Revised Exhibit 2, Figure 2-1). The width of the existing National Grid ROW is 150 feet. The existing NYSEG ROW is 150 feet in width with 25-foot clearing rights on each side of the 150-foot ROW (see Revised Exhibit 2 for a detailed description of the Existing ROW).

4.1.2 Proposed Supplemental Property Rights

New property rights adjacent to the edge of the Existing ROW will be required as part of the Project. The additional ROW would be acquired as necessary through utility easements and rights to selectively clear danger trees (as defined in Revised Exhibit 2).

4.1.3 Proposed Overhead Transmission Line Construction

Construction of the Proposed Line, Relocated Line 15, Bused Line 5 and Rebuilt Line 972 will entail several distinct construction activities that will typically progress in a linear and orderly manner from one point to another along the entire length of the Project. The overall construction schedule will be based on outage constraints and the corresponding sequencing of construction activities aimed at maximizing work efficiency and minimizing environmental impacts and disturbance. The general construction activities that will occur are described in the following sections.

4.1.4 Clearing

Trees and shrubs within the Project ROW will be mowed or cleared to provide unimpeded and safe access to proposed structure work sites. In addition, Danger Trees will be side trimmed or removed. Shrubs and low growing vegetation, as well as buffers at streams or in visually sensitive areas, may be maintained if they do not interfere with the construction activities or operational integrity of the line.

The Existing ROW has been maintained by National Grid and NYSEG in accordance with the applicable long-range ROW management plans filed with the Commission and has well established herbaceous and shrub communities. These plans have been formulated to take into

account soil stability, protection of natural vegetation, and the protection of adjacent resources (including the protection of any natural habitat for wildlife). The areas adjacent to the Existing ROW are best described as predominantly a mix of sapling and brush interspersed with areas of larger diameter mature tree species. Upon the completion of construction, the New ROW will be maintained under the Applicant's Vegetation Management Plan, as may be amended from time to time, to allow the same herbaceous and shrub cover type that presently occurs on the Existing ROW. The clearing required for this Project is not anticipated to cause a significant overall change or have a noticeable overall effect on the vegetative communities presently occurring along the Project ROW. The specific clearing and vegetation management techniques as well as the slash disposal techniques to be used for the Project will be prescribed on a site-by-site basis in the Environmental Management and Construction Plan ("EM&CP"). The techniques to be used will be in accordance with National Grid's current "Best Management Practices for Article VII Electric Transmission Line Projects" or with NYSEG's current "EM&CP Best Management Practices, Environmental and Agricultural Land Protection" (hereafter referred to as "BMPs") as may be amended from time to time.

In addition, the measures to be used to prevent or control the transport of invasive plant species will be prescribed in the EM&CP in accordance with such BMPs. Particular consideration will be afforded to the handling and disposal of ash trees in accordance with the NYSDEC regulations and applicable quarantine orders relative to the Emerald Ash Borer.

4.1.5 Access Roads

Existing access roads or paths in the Project ROW will be utilized wherever possible and will be improved as required to provide safe and effective equipment access to each structure location. In some limited cases, it may become necessary to work with adjacent landowners to secure permission for off Project ROW access to support the reconstruction activities.

Significant environmental impacts to vegetation, water, and soil resources will be avoided by using existing access roads or paths to the maximum extent possible and by properly locating any new access roads that may be required. The use of existing access roads or paths and the siting of new access roads will be based on factors such as: The avoidance of environmentally sensitive features (e.g., wetlands and agricultural fields); facilitation of future maintenance work; minimization of potential erosion problems; and maximization of the use of existing roadways

and cleared existing ROWs. Where site conditions such as steep slopes, streams and wetlands, or agricultural operations present a concern on the Project ROW, off Project ROW access will be considered to avoid or minimize impacts. Permission for off Project ROW access will be obtained from landowners if existing rights do not already provide for such access. Whether on or off Project ROW, if it becomes necessary to cross environmentally sensitive areas, such as wetlands, streams or areas of active agriculture, protection and mitigation measures such as the use of tracked equipment and equipment mats will be prescribed and implemented in accordance with the EM&CP. All stream crossings identified in the EM&CP will be installed in accordance with NYSDEC's Standard Specifications for Temporary Access Waterway Crossing, unless otherwise noted in the EM&CP. In addition, all areas disturbed during construction will be restored and stabilized and all temporary protection measures will be removed following the completion of construction.

The details for the construction of new access roads, the use of existing roads, and the application of erosion and sediment control measures will be provided on a site-by-site basis in the EM&CP. Erosion and sediment control measures will be designed to maintain and protect soil and water resources both during and following construction activities. Factors considered when selecting the appropriate erosion and sediment control measures include, but are not limited to: Timing of construction; accessibility; movement and frequency of construction traffic within the Project ROW; wetland and stream crossings; type and limitations of heavy equipment; and the creation, stabilization and future maintenance of access roads (e.g., cut and fill, waterbar, bridge, and culvert installation). During operation of the transmission lines, similar erosion and control measures will be employed during maintenance activities. Typically, both on and off Project ROW access used for the construction of the Project will also be used to facilitate future maintenance activities.

The techniques and protection measures to be prescribed in the EM&CP will be in accordance with the applicable BMPs.

4.1.6 Construction Marshaling Yards or Staging Areas

Prior to construction, it will be necessary to establish areas that will serve as locations for construction-related facilities such as:

- Office trailers;
- Personnel parking, portable sanitary facilities, and telephones;
- Material, equipment and vehicle storage; and
- Minor equipment and vehicle maintenance.

These areas, referred to as construction marshaling yards or staging areas, will be strategically placed at selected locations along or adjacent to the Project ROW or at selected off-ROW locations. These sites will normally be located adjacent to existing public roads where material deliveries can be efficiently conducted.

These areas will be located to avoid environmentally sensitive features including wetlands, known archaeological sites, and habitats that support rare, threatened, and endangered plants and animals.

The location of construction marshaling yards or staging areas will be identified during final design and presented in the EM&CP. Each area will be of sufficient size to accommodate the materials to be delivered and will serve as a major storage yard for materials such as poles, hardware, and conductors delivered from outside the region. Arrangements may be made with landowners to use locally available and developed commercial properties thereby minimizing the amount of site preparation and improvement work that would be needed to use an undeveloped site. If such properties or sites are not available, the establishment of these areas could require vegetation clearing, removal and stockpiling of topsoil, site grading, spreading of gravel cover, fencing, and installation of temporary utilities. Additional vegetation clearing and grading for site access also may be required. After completion of construction, the marshaling yards and staging areas will be restored to conditions comparable to those that existed before construction unless an affected landowner desires otherwise.

4.1.7 Construction and Upland Installation

The primary construction activities at each new structure location will be foundation installation, structure fabrication and structure erection. The steel monopole structures constructed as part of the Project either will be direct embedded or will utilize a concrete caisson foundation, the determination of which will be made during detailed engineering. The wooden H-Frame structures constructed as part of the Project will be direct embedded. These major activities, as

well as all other minor activities associated with the erection of each structure, will take place within the Project ROW and other work areas specifically designated in the EM&CP.

Transmission line structures typically will be located as far from public road, stream, and river crossings as feasible to minimize construction related effects on these areas and to facilitate the establishment of vegetative buffer strips of compatible species at these locations. In addition, the placement of transmission line structures in wetland areas and on steep slopes will be avoided where possible. Transmission line structures will not be located within any identified archaeological sites or other sites sensitive to disturbance, such as locations supporting rare plants, where feasible. During construction and operation, the Applicant will comply with all applicable water quality standards for surface waters. Advance planning during this phase will assure that tree cutting and brush disposal are properly conducted; equipment operation and construction activities are limited to designated areas; the appropriate erosion control measures are applied; and tree marking and selective cutting in the natural vegetative buffers precedes structure placement.

4.1.8 Structure Installation in Wetland Areas

Structure locations will be determined in a manner that avoids wetland areas as much as possible. When it is necessary to locate structures within the limits of a wetland, special construction methods and environmental procedures will be employed to minimize adverse effects and protect the individual functions of the wetland. Wetlands will be individually reviewed to determine the best method of access to each structure and to prescribe the appropriate mitigation measures, such as the use of equipment mats and/or scheduling for dry or frozen conditions.

Typically, for structures in wetlands, temporary equipment mats will be utilized for access and work pads to minimize ruts and soil compaction and the potential for erosion and sedimentation impact, and to provide a level, stable work area to set up and operate the equipment necessary for the installation and erection of the steel and wood pole structures. As an alternative, a temporary gravel road or work pad may be placed on engineered soil fabric at each structure location or access road to provide a level, stable work area or roadway. The fabric prevents the gravel from sinking into the wetlands, stabilizes the area for heavy equipment loads, and facilitates removal of the gravel after construction. After the work area has been prepared to properly situate construction equipment, work will begin with excavating holes for the new pole structure using

an auger or an excavator. In wetland areas, topsoil, containing root and seed stock will be segregated from subsoil and stockpiled on construction matting or geo-textile fabric.

The steel monopoles (approximately two feet in diameter) and wooden H-frame structures will be installed by excavating a narrow hole approximately 8 to 10 feet deep. Segregated subsoil will be stockpiled adjacent to the excavation. After excavating a narrow hole, a corrugated "grounding" culvert (30 to 48 inches in diameter) will be lowered into the excavation with a crane or excavator and the area around the culvert will be backfilled with the excavated subsoil, as necessary. The steel pole will then be lowered into the culvert and backfilled between the pole and the vertical culvert with crushed stone.

The work area will be re-contoured to approximate pre-construction conditions, typically within the same day. Segregated wetland topsoil will be replaced over the grounding culvert and allowed to re-vegetate with wetland vegetation. Excess soil will be transferred to an upland area in the Project ROW or to an off-site, upland location.

Details regarding the size and location of each work area as well as the mitigation measures that will be used to minimize impacts on the wetland will be provided in the EM&CP.

4.1.9 Direct Embedded Pole Installation

Steel and wood pole structures supporting the Proposed Line will be installed by directly embedding the poles into the ground, requiring excavations ranging from 8 to 16 feet in depth and 3 to 5 feet in diameter. Typically, no concrete will be required for a directly-embedded tangent structure. Foundation backfill may be native earth, if suitable, or crushed stone. Excavated material not used for backfill will be placed in areas that do not interfere with established drainage patterns and will be stabilized by seeding.

Foundation design for dead-end and angle structures will consider site-specific soil bearing capacities and subsurface conditions through individual boring investigations at those locations. Where needed, steel angle or dead-end structures will be self-supporting and will require reinforced concrete (drilled caisson) foundations. Guyed wooden H-Frame angle or dead-end structures will be used according to the detailed design. Specific foundation requirements will be determined through geotechnical analysis conducted as part of the detailed design phase.

4.1.10 Concrete Foundation and Pole Installations

Use of concrete caisson foundations for steel pole structures will be determined during the detailed design phase. Concrete caisson foundations will include installation of an anchor bolt assembly to support the pole. The concrete foundation construction typically involves the excavation of an 8 to 12 foot diameter hole to accommodate a 6 to 10 foot diameter foundation. Holes are typically excavated to a depth of 20 to 40 feet. Foundations may be excavated with a large drilling machine, a tire-mounted backhoe, or track excavator. Erosion and sediment control measures will be prescribed in the EM&CP, to prevent runoff from reaching areas adjacent to the work site.

Where concrete foundations must be located in wetlands, excavated topsoil and subsoil will be segregated and temporarily stockpiled on construction matting or geo-textile fabric and a culvert form will be placed into the excavated hole. Native soil backfill will be placed around the foundation and the segregated topsoil will be spread over the disturbed areas and mulched. Excess soil will be permanently removed and spread in appropriate upland areas within the ROW, as far from the wetland as practical, and seeded and mulched to prevent erosion.

If it appears that the initial excavation or the pouring of concrete into the caisson form will result in a discharge of water, specific dewatering procedures will be employed. Water will be pumped from the excavation area into a containment area that will be situated in an upland location, as feasible. The containment area will be constructed of straw bales and geo-textile fabric and will be consistent with the EM&CP erosion and sediment control criteria. Prior to pumping, an energy dissipation device will be deployed at the discharge point to reduce the force of the water and thereby limit the potential for erosion of upland soils. The water will then be allowed to infiltrate back into the ground or filter through and/or overtop the straw bale dike.

After the concrete has been poured and cured and the steel poles have been set, disturbed areas will be finish-graded, seeded appropriately for summer or winter conditions, and mulched. In wetland areas where grades have the potential to cause erosion, annual rye seed will be cast over disturbed soils to provide rapid germination of vegetation and prevent the introduction of undesirable upland or invasive plant species in wetlands.

4.1.11 Conductor Stringing

After the structures are erected, insulators will be installed and conductor and lightning wire protection (shield wire) will be strung using a lead line and puller/tensioner machine. Lead lines can be walked through sensitive areas such as wetlands and vegetative buffer zones with minimum disruption. Conductors will be pulled through stringing blocks by the tensioning equipment that is staged at appropriate structure locations. During conductor stringing, temporary guard structures will be placed at all highway, railroad, hiking trail, and farm field access road, and near existing utility lines to ensure public safety and the continued operation of other utility equipment.

Conductor stringing sites will be designated at selected structure sites on the ROW and will be specified in the EM&CP. Such sites will involve set-up and operation of mechanized pulling equipment and conductor reels. Wetlands and other sensitive environmental sites will generally be avoided in locating such sites. If they cannot be avoided, temporary equipment mats or other appropriate protective measures will be implemented, as specified in the EM&CP.

4.1.12 Clean-up and Restoration

Clean-up and restoration activities will be conducted as required. Sites requiring restoration as a result of the construction work will be identified and the appropriate restoration measures applied in accordance with the EM&CP. This work may include re-grading, repair of stream banks, temporary and permanent seeding and mulching for erosion control, restoration of agricultural fields, and tree and shrub plantings in the vegetative buffer strips. All permanent seeding and tree and shrub planting work will be conducted during the growing season.

4.2 Land Use

This section examines the adjacent land uses traversed by and directly affected by the Project and evaluates whether the Project preserves the natural landscape and minimizes changes or excessive conflicts with any present or future planned land uses.

4.2.1 Existing Land Uses

Existing land uses adjacent to the proposed Project were identified from various sources, including field reconnaissance surveys performed in October 2012; aerial photography dated June 2011 (Bing Aerial Imagery Analyzer for OpenStreetMap - http://mvexel.dev.openstreetmap.org/bing/about.txt); U.S. Geological Survey (USGS) 1:24,000 topographic quadrangle maps; NYSDOT Planimetric maps; and Cayuga and Onondaga county-hosted Geographic Information Systems (GIS) interactive mapping.

The existing land uses surrounding the Project ROW are predominantly agricultural land and forested land, with the exception of the vicinity of NYSEG's State Street Substation in the City of Auburn, NY, which is located at the northern edge of an industrially developed area in the City.

Land Use along NYSEG ROW

NYSEG's existing State Street Station is located within the city limits and generally is bordered by public use/institutional and commercial/industrial land uses. Cayuga County has a garage south of the existing State Street substation, and Nucor Steel Auburn has a facility to the east. Commercial and residential land uses are located on the western side of State Street and south of the intersection of State Street and York Street. North of the State Street Substation, the Project ROW runs adjacent to the Cold Spring Cemetery. In the Town of Throop (south of Turnpike Road) the Project ROW traverses wetlands and forested areas. Residential land uses are located along the east side of the Project ROW in the vicinity of Turnpike Road, Potter Road, Butler Drive, and Butler Lane. The Project ROW crosses Potter Road north of Manrow Road. Residential land uses are on the east and west sides of Potter Road. South of its crossing at Highbridge Road, the Project ROW runs parallel to the north-south segments of Potter Road.

Immediately north of the Brutus/Throop town line the Project ROW leaves the NYSEG ROW and follows the National Grid ROW where it traverses a mix of wetlands, agricultural fields and forested lands.

Land Use Along National Grid ROW

In the Town of Brutus the Project ROW follows the National Grid ROW. Between the tie in with the NYSEG ROW to NYS Route 34 the corridor traverses agricultural and forested lands. In the vicinity of NYS Route 34 there are residential uses north and south of the ROW. Between NYS Route 34 and Baker Road the ROW traverses a mix of agriculture, wetlands and forested land cover. Residential land uses are located north and south of the ROW at Jericho Road. The Project ROW crosses NYS Route 5 less than 500 feet from an existing manufactured home community. Just west of the Brutus/Elbridge town line, the existing transmission lines run between State Route 2 and Rolling Wheels Raceway Park over the existing entrance drive. The Project ROW is located on the north side of the existing transmission lines and is over 600 feet from the existing race track. Between the Elbridge/Brutus town line and Jordan Road the ROW traverses agricultural fields and forested lands. East of Dodier Drive a golf course lies immediately to the north of the Project ROW. Between Jordan Road and Kingston Road, the Project ROW traverses forested areas and the Village of Elbridge. Along Kingston Road residential uses are located north and south of the Project ROW. South of NYS Route 5, the ROW traverses wetlands and agricultural fields. West of the Elbridge Substation, between Kester Road and NYS Route 5 the Project ROW traverses agricultural fields, undeveloped land and rural residential land uses. National Grid's existing Elbridge Substation is located in a relatively undeveloped area surrounded by vacant and agricultural lands.

Table 4-1 quantifies the land uses traversed by the Project ROW.

Table 4-1 Land Use

Land Use	Tap to State Street (miles)	Elbridge to Tap (miles)
Agricultural	1.2	3.1
Residential	0.7	0.3

Land Use	Tap to State Street (miles)	Elbridge to Tap (miles)
Commercial / Industrial	0.1	0.2
Vacant /Undeveloped Land	2.2	6.6
Other (road crossings)	>0.1	>0.1

Zoning Along Project ROW

Table 4-2 presents the relevant municipality's stated purpose and principal uses for each zoning district traversed by the proposed Project. Figure 4-1 presents a composite zoning map showing the zoning districts traversed by the proposed Project.

Table 4-2 Zoning Summary

MUNICIPALITY	ZONING DISTRICT	PURPOSE / PRINCIPAL USE
City of Auburn	I: General Industrial P: Public Use and Institutional	The I District is intended to provide locations for large-scale industrial activities, including manufacturing and uses that occur out of doors. All heavy industrial, light industrial and some commercial uses are permitted in the I District - except those associated with resource recovery are allowed. The Cemetery adjacent to the Project is located within the Public Use and Institutional District. The Public Uses and Institutions District (P) identifies on the Zoning Map those parcels of property devoted to public and quasi-public uses that are of a size sufficient to make such use or institution a major, even dominant, feature of the immediate area in which it is located. Those uses permitted by § 305-24D(20) "as appropriate public uses are permitted in the P District ".
Town of Throop	R – Residential A – Agricultural	Section 604 Essential Services includes electric transmission facilities as an Essential Service: The erection, construction, alternation or maintenance by public utilities or town or other government agencies of

MUNICIPALITY	ZONING DISTRICT	PURPOSE / PRINCIPAL USE
		underground or overhead gas, electrical, or water transmission or distribution systems, communication system, including poles, wires, mains, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, traffic signals, hydrants, and other similar equipment and accessories reasonably necessary for the furnishing of adequate service by such public utilities or town or other governmental agencies or for the public health or safety or general welfare, but not including buildings.
Town of Brutus	C Commercial A-R Agricultural - Residential	The Commercial District is designed to provide adequate and appropriate sites to accommodate certain facilities involved in retail trade and commerce or service type transactions within the municipality. Utility transmission facilities are not identified as permitted, special permit or prohibited uses in the Commercial District. The zoning code does not provide intent for the Agricultural – Residential District. The listed permitted uses include those related to 1 and 2-family residences, and a variety of agricultural, recreational, open space and government uses. Utility transmission facilities are not identified as permitted, special permit or prohibited uses in the A-R District. However, substations are allowed as special permit uses.
Town of Elbridge	Industrial Agricultural Residential – RR Residential – R-1 Business – B-1 Municipal	The existing transmission line appears to be coexistent with a linear portion of the Industrial District. The stated intent for the Industrial District is to allow “light industrial uses and certain commercial uses that are not appropriate for any either non-residential district”. The zoning code defines Public Services and Utilities as including distribution facilities, and therefore are allowed as permitted uses in the Industrial District. The portion of the Industrial District that

MUNICIPALITY	ZONING DISTRICT	PURPOSE / PRINCIPAL USE
		includes the existing transmission line crosses or is adjacent to several other corridors including: the business, residential, agricultural and municipal districts where Public Service and Utilities are allowed with Special Use Permits. Other Permitted Uses in the districts where the Proposed ROW is located include: • Agricultural: agriculture, single family dwelling, boarding of livestock • Rural Residential: single family dwelling, agriculture districts • Residential – 1: single family dwellings • Business - 1: indoor sales, indoor commercial entertainment, restaurants and taverns, indoor institutional, and personal and professional services • Municipal: public school, public library, emergency services, public benefit land trust, and other government owned lands
Village of Elbridge	R-1 Single Family Residential	It is the intent to maintain in an R-1 District the quality of environment that is usually found in areas occupied by larger single-family detached homes built on large lots to preserve the character, aesthetics and historical values of the existing prime residential neighborhoods of the Village of Elbridge.

Sources: Town of Elbridge Revised Zoning October 27, 2011, Chapter 30
Village of Elbridge Zoning, 1987, Chapter 137
Town of Brutus: Zoning: Article IV--District Use Regulations, December 12, 2011
Town of Throop Zoning Law, 2012
City of Auburn Zoning Ordinance, December 30, 1992, Chapter 305

4.2.2 New York State Open Space Conservation Plan

The 2009 *New York State Open Space Conservation Plan* (2009 Plan) contains comprehensive recommendations to help local governments and non-profit organizations undertake open space

planning at regional and community levels. New York State's open space conservation goals as listed in the 2009 Plan include:

- protect habitat for the diversity of plant and animal species;
- protect state water quality;
- combat climate change by encouraging compact community design patterns and sustaining state forests;
- combat climate change by protecting coastlines, riparian corridors, and wetlands and by increasing the tree canopy in urban areas;
- maintain an interconnected network of protected lands and waters;
- improve the quality of life and overall health in the state's communities;
- maintain critical natural resource industries;
- protect habitat to sustain the traditional pastimes of hunting, fishing, trapping, and wildlife viewing;
- provide accessible and quality outdoor recreation and open space;
- provide places for education and research; and
- protect and enhance scenic, historic, and cultural resources (NYSDEC 2009).

The 2009 Plan divides New York State into nine regions. The proposed Project is located entirely within Region 7: Central New York. The 2009 Plan includes a list of 135 regional priority conservation projects across the State, some of which are in the vicinity of the proposed Project, including:

- Project 94: Genny Green Trail/Link Trail: This project focuses on providing for major trail connections between existing trails and state-owned lands in Chenango, Madison, Cortland, and Onondaga Counties, including the Finger Lakes Trail, the North Country National Scenic Trail, the Old Erie Canal trail, the statewide snowmobile corridor trail route and other smaller trails in the area. The Genny Green Trail/Link Trail project encourages the development of more than 150 miles of continuous trails and trail loops by utilizing Bowman Lake State Park, state forests, and wildlife management lands in the area. As the Project ROW does not traverse either the Bowman Lake State Park, state forests or wildlife management areas, it is not in conflict with this policy nor is it in close enough proximity for inclusion to the Trail system.

Additionally, there are several statewide priority conservation projects that are in the vicinity or may apply to the Project, including:

- Project 129: State Forest, Unique Area & Wildlife Management Area Projection
- Project 130: New York State Canal System
- Project 131: Working Forest Lands
- Project 133: Statewide Farmland Protection
- Project 134: Long Distance Trail Corridors
- Project 135: Statewide Small Projects

The proposed Project will not affect the goals of the 2009 New York State Open Space Conservation Plan. The Project will be in conformance with the Plan, given that the Proposed Line will be constructed primarily within existing ROW. Therefore, the visual character of the corridor will remain relatively similar as a result of the Project.

Additionally, the 2009 Plan recognizes that energy production and distribution capacity are important to New York State and the Northeast as a whole. Because the future planning for and siting of electrical generation and transmission facilities has the potential to affect open space, the 2009 Plan supports the use of a statewide planning and siting process that takes into consideration the sustainable development of energy generation and transmission facilities.

4.2.3 Local Land Use Planning and Policies

Local land use planning and policies, including comprehensive plans and zoning codes, are utilized to guide and regulate land uses. In New York State, many municipal zoning codes are based upon local planning documents, such as comprehensive or master plans. A review of the available local planning documents was undertaken to confirm that the Project is consistent with the long-term land use goals of each municipality along the Project ROW.

A summary of the relevant key findings of such review of municipal planning documents follows.

City of Auburn – Comprehensive Plan

The City of Auburn City Council formally adopted "Building a Sustainable Auburn: City of Auburn, New York Comprehensive Plan" (Comprehensive Plan) on January 21, 2010. The Office of Planning and Economic Development facilitates the Plan's implementation in coordination with other departments and organizations, as outlined in the implementation strategy. The Comprehensive Plan provides a guide to the physical development/redevelopment of the City of Auburn. The Project would not be inconsistent with the Comprehensive Plan based on the following policy findings:

- The existing Auburn State Street Substation and Project ROW are located in an area that the Comprehensive Plan maps continue to identify as industrial.
- The plan calls for a shift in zoning regulation from a conventional code to a form-based code in the urban core. Under this regulatory style, form takes precedent over function and land use designations are secondary to design guidelines. This shift should have little effect on the Project.
- The plan calls for initiation of Auburn hydropower projects through the Auburn Public Power Authority.
- The Project ROW is not located in an area of mapped important gateways and therefore will not conflict with those plan recommendations.
- The Project ROW is not located in any of the identified development opportunity nodes along the Owasco River and therefore will not conflict with those plan recommendations.

Town of Throop

The Town Throop has a Comprehensive Plan adopted in 2008. Throop has residential development pressure as a result of residents who work in Auburn. The Town Vision Statement indicates a goal of preserving the Town's rural character and natural resources, while encouraging compatible development to accommodate anticipated growth.

The Proposed Land Use Map prepared as part of the Comprehensive Plan identifies all the lands from Potter Road east (including the Project ROW) for Agricultural Residential uses in the future. The Comprehensive Plan also called for a new zoning district located in the eastern portion of the Town (including the Project ROW). The main purpose of this District would be to

provide a rural residential atmosphere within the Town while still allowing farming practices to continue. The Project would not be inconsistent with the envisioned land use and proposed zoning because development in this area could still be encouraged by using clustering or other techniques to preserve open space and the scenic character of the area.

Town of Brutus

The Town of Brutus does not have an adopted comprehensive plan in place at this time. According to information available on the Town of Brutus website (http://townofbrutus.org/content/Boards/View/6#documents), the Town (along with Village of Weedsport) has begun to prepare a Joint Comprehensive Plan to guide their community's future development. At the time of this analysis, the Town of Brutus does not have an adopted planning document.

Town of Elbridge

The Town of Elbridge does not have an adopted planning document upon which the zoning is based (November 19, 2012 telephone conversation with Robert Herrmann, Town Code Enforcement Officer).

Village of Elbridge

The Village of Elbridge has an adopted planning document – Village of Elbridge Land Use Plan, June 1976. However, according to telephone conversations with Robert Herrmann, Village Code Enforcement Officer, and Jennifer Loomis, Deputy Village Clerk on November 19, 2012 the planning document is not up to date and not relied on as a basis for zoning decisions. The 1976 proposed land use map called for single family residential north and south of the then existing Niagara Mohawk transmission lines. Because the existing land use patterns are established and stable in the area along the existing transmission lines, it is not anticipated that the Proposed Line will result in changes to the land use or impact the recommendations of the Land Use Plan.

The Village's September 2003 Main Street Corridor Study focuses on a corridor approximately 1,000 feet on either side of New York State Route 5. The Proposed Line is located south of the Village of Elbridge Main Street Corridor and the Future Land Use map for the Main Street

Corridor Study does not include the area where the Proposed Line is located. The Proposed Line is not inconsistent with the recommendations of the Main Street Corridor Study.

Cayuga County

Cayuga County does not have an active master plan or comprehensive plan which guides land use or planning policy throughout the County (November 20, 2012 telephone conversation with a staff member of the Cayuga County Department of Planning and Economic Development). However, while not a land use plan, the March 2009 Comprehensive Sustainable Energy and Development Plan prepared by the City of Auburn and Cayuga County is a policy document that guides energy management and sustainability practices of the agencies, towns and villages.

"The purpose of (the) plan is to provide a comprehensive holistic approach to address the diverse range of issues and policies, which lead to integrated solutions for further sustainable economic, energy, and environmental performance enhancements for the City of Auburn and Cayuga County."

While the Comprehensive Sustainable Energy and Development Plan does not include land use-specific policies that would apply to the route of the Proposed Line, it does include the following initiative recommendation:

> "The State of New York undertake an assessment of the capacity and condition of power Transmission lines to transport increased loads of wind power."

The Proposed Line is not inconsistent with the recommendations of the Comprehensive Sustainable Energy and Development Plan.

Onondaga County

In Onondaga County there are three planning documents relevant to future land uses along the proposed Project ROW:

- Onondaga County 2010 Development Guide, 1998
- Onondaga County Sustainable Development Plan, Draft June, 2012
- Framework for Growth in Onondaga County, 1998

The 2010 Development Guide (prepared in 1998) includes a Land Use Vision map to illustrate the County's land use strategies and policies. The Vision Map indicates the Project ROW is in a designated area of farms, forests and countryside. The plan calls for the preservation of agriculture. The Project's co-location along the existing ROW will minimize impact to the existing agricultural land use.

The Onondaga County Sustainable Development Plan (draft June 2012) is comprised of nine topic areas of interest (i.e., Elements) derived from the direction provided by the public, the results of modeling development scenarios, and recognized best practices relating to land use development. The following elements best relate to the Project:

- The Rural Communities & Open Space element examines the impact of development in rural areas where agriculture and natural resources are highly valued by Onondaga County residents. The Project does not encourage low-density suburban or rural development and thus is not inconsistent with the plan policies.

- The Transportation & Land Use element evaluates relationships between the provision of transportation infrastructure and land use development patterns. The plan links provision of transportation facilities and services to development through smart growth policies. Since the Project will not encourage additional growth, it is not inconsistent with the plan policies.

The Sustainable Development Plan also establishes Character Areas that identify areas of common character and qualities and provide guidance on issues relevant to development. The Project ROW traverses areas designated by the plan as rural landscapes and protected lands (regulated wetlands). A review of the corridor indicates that wetlands are located within the corridor; however, there are no state forests, wildlife management areas, state parks, county parks, trails, wildlife preserves, local parks or other public lands located within the Project ROW.

The Framework for Growth in Onondaga County (prepared in 1998) analyzes historical and current trends in population growth and characteristics, economic development, labor markets, housing trends, and land use through the year 2010. The framework calls for sustainable development of residential growth and compatible land use development. The framework does not encourage future low-density suburban or rural development. The framework acknowledges

that agricultural land is "under the most pressure to be converted to other uses," but also concedes that agricultural land is on "historic decline due to economic and demographic factors beyond the control of the local government." Additionally, the framework also states that County will allow for development of areas without adequate existing infrastructure. Since the Project is a transmission project, it does not encourage future land development and is not inconsistent with the framework's objectives.

4.2.4 Floodplains

Figure 4-2 depicts the Federal Emergency Management Agency (FEMA) mapped 100-year floodplains in relation to the proposed Project. The digital floodplain data was extracted from FEMA digital Q3 Flood Data, a digital representation of certain features on FEMA's Flood Insurance Rate Map (FIRM). Flood risk information presented on FIRMs are based on historic, meteorological, hydrologic, and hydraulic data, as well as open-space conditions, flood control works, and development (FEMA 2012).

According to FEMA's published FIRM for each community, the Project ROW traverses the 100-year floodplain at eleven locations. Approximately 7,900 linear feet (1.5 miles) of the Project ROW is located in Zone A or Zone AE of the 100-year floodplain. Zone A areas are special flood hazard areas subject to inundation by the 1% annual chance flood (also as referred to as the 100-year flood or base flood). Zone A areas have no base flood elevations determined. Zone AE areas have base flood elevations determined.

In Cayuga County, the Project ROW traverses approximately 5,400 linear feet of land determined to be in Zone A or Zone AE of the 100-year floodplain. In the Town of Brutus, the Project ROW crosses FEMA designated special flood hazard areas at Putnam Brook Tributary No. 1, Putnam Brook Tributary No. 3, and Putnam Brook Tributary No. 4. The crossings at the Putnam Brook Tributaries have been determined to be in Zone AE of the 100-year floodplain. In the Town of Throop, the Project ROW crosses FEMA designated special flood hazard areas at North Brook in one location, and Cold Spring Brook in one location. The Project ROW within the City of Auburn does not cross any FEMA designated special flood hazard areas.

In Onondaga County, the Project ROW traverses approximately 2,500 linear feet of land determined to be in Zone A of the 100-year floodplain. The Project ROW within the Town of

Elbridge crosses FEMA designated special flood hazard areas at Carpenters Brook (five locations) and Skaneateles Creek (one location). The Project ROW within the Village of Elbridge limits does not cross any flood hazard areas.

The Project would have only minor impacts on the floodplain due to the minimal footprint of the proposed pole structures. The new structures will not appreciably change the elevation and will be designed in accordance with any applicable flood zone requirements such as hydrodynamic forces. Environmental protection measures such as the use of temporary equipment mats will be used as necessary during construction to protect floodplain areas.

4.2.5 Agricultural Districts

Article 25-AA of the Agriculture and Markets Law provides a locally-initiated means for the conservation, protection, and continued use of agricultural land for food and other agricultural products. Individual landowners may submit a request to the legislative body for the inclusion of a parcel of land to the agricultural district. Agricultural districts provide land-owners with incentives and protections from private nuisance lawsuits and restrictive local ordinances to help the land-owner prevent the conversion of agricultural land to non-agricultural uses. According to the New York State Department of Agriculture and Markets, an additional benefit of the Agricultural Districts Program is the opportunity for farmland owners to receive property assessments based on the value of their land for agricultural production rather than on its development value.

Mapping of the Agricultural Districts in Cayuga County and Onondaga County is provided on Figure 4-3. Based on mapping provided by the New York State Department of Agriculture and Markets, the Project ROW crosses three agricultural districts. In Onondaga County, the Project ROW crosses Agricultural District No. 3. In Cayuga County, the Project ROW crosses Agricultural District No. 4 and Agricultural District No. 5.

4.2.6 Environmental Effects and Mitigation

The proposed Project traverses active agricultural lands and designated New York Agricultural Districts. This represents an expansion of an existing impact where the ROW is being modified to accommodate the Project. Easements between local farm operators and the Applicant will allow for the co-existence of active farmland and transmission lines. During construction,

agricultural operations may be disrupted within the ROW but the disruptions will be limited in area and duration. Additionally, construction sequencing may allow for structures in agricultural fields to be erected before or after the active growing times. If possible, heavy machinery will be limited on agricultural fields for drier periods or periods where the ground is frozen to limit rutting. Equipment mats will be used where practical or desirable; in other instances, topsoil may be removed and stockpiled during construction and replaced after construction. If rutting does occur within agricultural fields, the site will be graded and restored to the farm operator's satisfaction following construction. Restoration measures may include rehabilitation of drain tiles in fields, deep tilling of heavily compacted areas, and thorough removal of all construction debris. The only lasting impact will be from the loss of land at the structure base which will be limited in area.

The Applicant does not anticipate any significant overall changes to existing land use. Impacts to land use have been minimized by locating the project facilities within existing ROW throughout its length. Pursuant to the Commission's regulations, the proposed ROW preserves the natural landscape and minimizes conflict with any present or future planned land use.

4.3 Visual Resources

This section examines the visual and aesthetic impacts on scenic, recreational, and historical areas from the construction and operation of the Project and identifies and examines the visual resources and the visual qualities of the landscape within a five-mile radius of the Project ROW.

4.3.1 Existing Landscape Quality

The Project ROW is located in an area of moderate relief dominated by glacial drumlins. Wetland areas, as well as relatively level areas of more well-drained soils, are interspersed between the drumlins. The land surrounding the Project is largely rural residential, forested lands, open land, and agricultural fields and pastures. The landscape has occasional stream crossings and associated wetlands. Some urban land uses are present near the Project within the City of Auburn. The utilization of existing corridors minimizes the impacts on both the visual and natural environments, as opposed to the alternative of constructing a new transmission line corridor in the area.

4.3.2 Visual Resource Inventory of Historic Areas, Parks, and Preserves

Visual resources are landscape areas and features that are significant because of either their inherent visual quality or their cultural importance, including: naturally occurring landscapes; natural features; manmade features; designated recreational and scenic areas; and landscapes that demonstrate historical significance.

The NYSDEC's Program Policy, Assessing and Mitigating Visual Impacts, identifies 15 categories of aesthetic resources of statewide significance which have been recognized through either national or state designations (NYSDEC 2012). The 15 categories are described below and were inventoried within a radius of five miles of the Project ROW. Of the 15 categories of visual resources, only four were found within five miles of the Project ROW:

- Historic Resources;
- The National Park System, Recreation Areas, Seashores, Forests;
- State Forest Preserve; and
- State or Federally Designated Trail.

Categories

1) Historic Resources. A property listed on or eligible for inclusion in the National or State Register of Historic Places [16 U.S.C. § 470a et seq., Parks, Recreation and Historic Preservation Law Section 14.07]

A review of the National Park Service (NPS) National Register of Historic Places (NRHP) database and the files maintained by the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) identified a total of 143 known (previously evaluated) historic properties within five miles of the Project ROW (see Table 4-3). Thirty-four (34) of the known historic properties are listed in either the State Register of Historic Places (State Register) or the NRHP, and 109 of the known historic properties have been determined eligible for listing in the NRHP. Sixteen (16) of the known historic properties are located within one mile of the Project; they are:

- Elbridge Historic District, Elbridge, Onondaga County (01NR01770);
- John Munro House (NY 5 at Jordan Road), Elbridge, Onondaga County (06705.000001);
- 8181 NY 5, Sennett, Cayuga County (01117.000035);
- 8187 NY 5, Sennett, Cayuga County (01117.000036);
- 123 Perrine Street, Auburn, Cayuga County (01140.001599);
- 28 Peacock Street, Auburn, Cayuga County (01140.001600);
- 230 State Street, Auburn, Cayuga County (01140.000820);
- Maneri Residence (236 State Street), Auburn, Cayuga County (01140.000822);
- Marlella Sobus Residence (255 State Street), Auburn, Cayuga County (01140.000854);
- Dechick Residence (139 North Street), Auburn, Cayuga County (01140.000749);
- Haight Residence (149 North Street), Auburn, Cayuga County (01140.000751);
- 157 North Street, Auburn, Cayuga County (01140.000753);
- Newcomb Residence (161 North Street), Auburn, Cayuga County (01140.000754);
- Lecher Residence (165 North Street), Auburn, Cayuga County (01140.000756);
- Stevens Residence (175 North Street), Auburn, Cayuga County (01140.000760); and
- Myrtle Residence (185 North Street), Auburn, Cayuga County (01140.000763).

The proposed Project will run immediately adjacent to two NRHP-eligible properties: 8181 NY 5 in Sennett, Cayuga County (01117.000035); and 8187 NY 5 in Sennett, Cayuga County (01117.000036). Based on a windshield survey conducted in November 2012, these resources may require re-evaluation for NRHP eligibility. Previous survey forms for these properties were not available from OPRHP; however, the resources appear to have lost integrity since the previous determination was made.

The proposed Project is not likely to have significant visual impacts on the remaining 14 historic properties. Impacts will be minimized by construction within and immediately adjacent to existing transmission line ROWs, as well as distance, existing vegetation, and existing development. The Elbridge Historic District (01NR01770) is located approximately 0.25 mile north of the Project ROW at its closest point, and vegetation obscures views to the Project ROW. All other historic properties are located over 0.5 mile from the Project ROW, and views are not anticipated.

A total of 143 historic resources were identified within the five-mile radius of the Project and are listed in Table 4-3. The locations of these historic resources are also shown on Figure 2-1.

Table 4-3 Historic Resources, Including National Register of Historic Places within Five Miles of the Project*

Map Reference	Figure	Name	Location	Category
1	2-1.4	Jordan Village Historic District	Jordan	NRHP-Listed
117	2-1.3	Erie Canal Lock #52 Complex	Port Byron	NRHP-Listed
2	2-1.3	Centreport Aqueduct	Weedsport vicinity	NRHP-Listed
3	2-1.3	First Baptist Church of Weedsport	Weedsport	NRHP-Listed
4	2-1.3	Orrin W. Burritt House	Weedsport	NRHP-Listed

Map Reference	Figure	Name	Location	Category
5	2.1-4	Elbridge Historic District	Elbridge	NRHP-Listed
118	2-1.3	Mentz Church	Mentz Corners	NRHP-Listed
120	2-1.4	Camillus Union Free School	Camillus	NRHP-Listed
121	2-1.4	First Baptist Church of Camillus	Camillus	NRHP-Listed
6	2-1.4	Martisco Railroad Station	Martisco	NRHP-Listed
7	2-1.2	Sennett Federated Church and Parsonage	Sennett	NRHP-Listed
8	2-1.2	Community Place	Skaneateles	NRHP-Listed
119	2-1.2	Kelsey-Davey Farm	Skaneateles	NRHP-Listed
122	2-1.2	Tefft-Steadman House	Marcellus	NRHP-Listed
9	2-1.1	Wall Street Methodist Episcopal Church	Auburn	NRHP-Listed
10	2-1.1	William and Mary Hosmer House	Auburn	NRHP-Listed
11	2-1.1	Dr. Sylvester Willard Mansion	Auburn	NRHP-Listed
12	2-1.1	Harriet Tubman Grave	Auburn	NRHP-Listed
13	2-1.1	Thompson AME Zion Church	Auburn	NRHP-Listed
14	2-1.1	Belt-Gaskin House	Auburn	NRHP-Listed
15	2-1.1	Case Memorial-Seymour Library	Auburn	NRHP-Listed

Map Reference	Figure	Name	Location	Category
16	2-1.1	St. Peter's Episcopal Church Complex	Auburn	NRHP-Listed
17	2-1.1	Former US Post Office and Federal Courthouse	Auburn	NRHP-Listed
18	2-1.1	Cayuga County Courthouse and Clerk's Office	Auburn	NRHP-Listed
19	2-1.1	Schine's Auburn Theatre	Auburn	NRHP-Listed
20	2-1.1	William H. Seward House	Auburn	NRHP-Listed
21	2-1.1	Auburn Button Works and Logan Silk Mills	Auburn	NRHP-Listed
22	2-1.1	South Street Area Historic District	Auburn	NRHP-Listed
23	2-1.1	Willard Memorial Chapel-Welch Memorial Building	Auburn	NRHP-Listed
24	2-1.1	Harriet Tubman Home for the Aged	Auburn	NRHP-Listed
25	2-1.1	Harriet Tubman House	Auburn vicinity	NRHP-Listed
116	2-1.1	Sand Beach Church	Auburn	NRHP-Listed
115	2-1.1	Lakeside Park	Owasco	NRHP-Listed
114	2-1.2	Shepard Settlement Cemetery	Skaneateles	NRHP-Listed
26	2-1.1	2 Adams Street	Auburn	NRHP-Eligible
27	2-1.1	1 Alden Avenue	Auburn	NRHP-Eligible
28	2-1.1	10 Capitol Street	Auburn	NRHP-Eligible

Map Reference	Figure	Name	Location	Category
29	2-1.1	18 Capitol Street	Auburn	NRHP-Eligible
30	2-1.1	27 Capitol Street	Auburn	NRHP-Eligible
31	2-1.1	61 Capitol Street	Auburn	NRHP-Eligible
32	2-1.1	14 Cayuga Street	Auburn	NRHP-Eligible
33	2-1.1	24 Chedell Place	Auburn	NRHP-Eligible
34	2-1.1	28 Chedell Place	Auburn	NRHP-Eligible
112	2-1.1	60 Clark Street	Auburn	NRHP-Eligible
35	2-1.1	176 East Genesee Street	Auburn	NRHP-Eligible
36	2-1.1	179 East Genesee Street	Auburn	NRHP-Eligible
37	2-1.1	229 East Genesee Street	Auburn	NRHP-Eligible
38	2-1.1	6 Fort Street	Auburn	NRHP-Eligible
39	2-1.1	East Middle School	Auburn	NRHP-Eligible
40	2-1.1	97 Franklin Street	Auburn	NRHP-Eligible
41	2-1.1	19 Gaylord Street	Auburn	NRHP-Eligible
42	2-1.1	Auburn Floor Covering Co.	Auburn	NRHP-Eligible
43	2-1.1	Norstar Bank	Auburn	NRHP-Eligible
44	2-1.1	PBY Building	Auburn	NRHP-Eligible

Map Reference	Figure	Name	Location	Category
45	2-1.1	PVR Coventry Building (Piccirillo's Restaurant)	Auburn	NRHP-Eligible
46	2-1.1	West Middle School	Auburn	NRHP-Eligible
47	2-1.1	Nolan's Family Shoe Store	Auburn	NRHP-Eligible
48	2-1.1	Auburn Savings Bank	Auburn	NRHP-Eligible
49	2-1.1	H.R. Wait Co.	Auburn	NRHP-Eligible
50	2-1.1	2 Grant Avenue	Auburn	NRHP-Eligible
51	2-1.1	Lattimore Residence	Auburn	NRHP-Eligible
52	2-1.1	3-3 ½ Hulbert Street	Auburn	NRHP-Eligible
53	2-1.1	11 James Street	Auburn	NRHP-Eligible
54	2-1.1	Auburn Police & Fire Department Headquarters	Auburn	NRHP-Eligible
55	2-1.1	1 McMaster Street	Auburn	NRHP-Eligible
56	2-1.1	Deyo Residence	Auburn	NRHP-Eligible
57	2-1.1	10 Nelson Street	Auburn	NRHP-Eligible
58	2-1.1	87 Nelson Street	Auburn	NRHP-Eligible
59	2-1.1	Herman Avenue Elementary	Auburn	NRHP-Eligible
60	2-1.1	113 North Street	Auburn	NRHP-Eligible
113	2-1.1	129 North Street	Auburn	NRHP-Eligible

Map Reference	Figure	Name	Location	Category
61	2-1.1	Dechick Residence	Auburn	NRHP-Eligible
62	2-1.1	Haight Residence	Auburn	NRHP-Eligible
63	2-1.1	157 North Street	Auburn	NRHP-Eligible
64	2-1.1	Newcomb Residence	Auburn	NRHP-Eligible
65	2-1.1	Lecher Residence	Auburn	NRHP-Eligible
66	2-1.1	Stevens Residence	Auburn	NRHP-Eligible
67	2-1.1	Myrtle Residence	Auburn	NRHP-Eligible
68	2-1.1	Holy Family Rectory	Auburn	NRHP-Eligible
69	2-1.1	Holy Family Roman Catholic Church	Auburn	NRHP-Eligible
70	2-1.1	Holy Family School	Auburn	NRHP-Eligible
71	2-1.1	28 Peacock Street	Auburn	NRHP-Eligible
72	2-1.1	123 Perrine Street	Auburn	NRHP-Eligible
73	2-1.1	11 Sherman Street	Auburn	NRHP-Eligible
74	2-1.1	Masonic Temple	Auburn	NRHP-Eligible
75	2-1.1	Nash's Art Material & Frames	Auburn	NRHP-Eligible
76	2-1.1	Auburn Correctional Facility/Prison	Auburn	NRHP-Eligible

Map Reference	Figure	Name	Location	Category
77	2-1.1	2 State Street	Auburn	NRHP-Eligible
78	2-1.1	230 State Street	Auburn	NRHP-Eligible
79	2-1.1	Maneri Residence	Auburn	NRHP-Eligible
80	2-1.1	Marlella Sobus Residence	Auburn	NRHP-Eligible
111	2-1.1	8-12 State Street	Auburn	NRHP-Eligible
81	2-1.1	180-182 West Genesee Street	Auburn	NRHP-Eligible
82	2-1.1	Desmond Residence	Auburn	NRHP-Eligible
83	2-1.1	Tarby Residence/Studio	Auburn	NRHP-Eligible
84	2-1.1	194 West Genesee Street	Auburn	NRHP-Eligible
85	2-1.1	Mattes Residence	Auburn	NRHP-Eligible
86	2-1.1	Auburn Medical Apts. Office Building	Auburn	NRHP-Eligible
87	2-1.1	Herron Residence	Auburn	NRHP-Eligible
88	2-1.1	199 West Genesee Street	Auburn	NRHP-Eligible
89	2-1.1	Hewitt Residence	Auburn	NRHP-Eligible
90	2-1.1	208 West Genesee Street	Auburn	NRHP-Eligible
91	2-1.1	Iaia Residence	Auburn	NRHP-Eligible

Map Reference	Figure	Name	Location	Category
92	2-1.1	Bandas Residence	Auburn	NRHP-Eligible
93	2-1.3	2714 Franklin Street	Weedsport	NRHP-Eligible
94	2-1.3	2722 Franklin Street	Weedsport	NRHP-Eligible
95	2-1.3	2733 Franklin Street	Weedsport	NRHP-Eligible
96	2-1.3	8919 Jackson Street	Weedsport	NRHP-Eligible
97	2-1.3	8925 Jackson Street	Weedsport	NRHP-Eligible
98	2-1.3	8852 South Seneca Street	Weedsport	NRHP-Eligible
99	2-1.4	Wright House	Elbridge	NRHP-Eligible
100	2-1.4	John Munro House	Elbridge	NRHP-Eligible
101	2-1.3	Cobblestone Farmhouse	Brutus	NRHP-Eligible
102	2-1.1	Potter Farmstead	Sennett	NRHP-Eligible
103	2-1.3	8181 NY 5	Sennett	NRHP-Eligible
104	2-1.3	8187 NY 5	Sennett	NRHP-Eligible
105	2-1.2	Weedsport-Sennett Road/Structure #5	Sennett	NRHP-Eligible
140	2-1.1	Captain Trowbridge Allen House & Webster Poultry Barn	Aurelius	NRHP-Eligible

Map Reference	Figure	Name	Location	Category
106	2-1.1	2009 West Genesee Street	Aurelius	NRHP-Eligible
107	2-1.3	Port Byron Hotel	Port Byron	NRHP-Eligible
139	2-1.3	Power House	Port Byron	NRHP-Eligible
108	2-1.3	155 Main Street	Port Byron	NRHP-Eligible
109	2-1.3	84 Main Street	Port Byron	NRHP-Eligible
141	2-1.4	Ramsdell Elementary & Middle School	Jordan	NRHP-Eligible
110	2-1.4	33 Elbridge Street	Jordan	NRHP-Eligible
123	2-1.4	District School No. 1	Camillus	NRHP-Eligible
126	2-1.4	Original Erie Canal Camillus Feeder/Nine Mile Creek Millrace	Camillus	NRHP-Eligible
127	2-1.4	Original Erie Canal Camillus Feeder/Nine Mile Creek Millrace	Camillus	NRHP-Eligible
124	2-1.4	Camillus Cutlery Complex	Camillus	NRHP-Eligible
125	2-1.4	113 Maple Drive	Camillus	NRHP-Eligible
133	2-1.2	First Presbyterian Church	Marcellus	NRHP-Eligible
134	2-1.2	Marcellus Town Hall	Marcellus	NRHP-Eligible
128	2-1.2	Crown Mill (Lower Crown Mill)	Marcellus	NRHP-Eligible

Map Reference	Figure	Name	Location	Category
135	2-1.2	1 North Street	Marcellus	NRHP-Eligible
136	2-1.2	Machan House	Marcellus	NRHP-Eligible
131	2-1.2	24 North Street	Marcellus	NRHP-Eligible
132	2-1.2	Hiram Reed House	Marcellus	NRHP-Eligible
129	2-1.2	H.M. Stone House (Shelter Valley Farm)	Marcellus	NRHP-Eligible
130	2-1.2	C.S. Driver Middle School	Marcellus	NRHP-Eligible
138	2-1.2	Alford Lamb House	Skaneateles	NRHP-Eligible
137	2-1.2	3932 Highland Avenue	Skaneateles	NRHP-Eligible

*Note that two National Register Eligible resources that were located within five miles of the Project ROW have been demolished. They are the Joseph North Log Cabin (Orchard Ave at Washington Street), Auburn, Cayuga County (01140.001556) and Former Hitchcock Electroplating Facility (58 Green Street), Port Byron, Cayuga County (01147.000037).

2) State Parks [Parks, Recreation and Historic Preservation Law Section 3.09]

No State Parks have been designated within five miles of the Project.

3) Urban Cultural Parks [Parks, Recreation and Historic Preservation Law Section 35.15]

The Urban Cultural Parks program was developed by the New York State Legislature in 1982 and was revised and amended to become the State Heritage Areas program in 1994. No State Heritage Areas have been designated within five miles of the Project.

4) State Forest Preserve [NYS Constitution Article XIV];

The Camillus Forest Unique Area is located within five miles of the Project in the Town of Camillus, Onondaga County [see Figure 2- 1]. The Camillus Forest Unique Area encompasses 350 acres of open fields and forest. The park is located approximately 5.0 miles from the Elbridge Substation, and the Project does not traverse this forest area. There are no additional state forest preserves located within five miles of the Project.

5) National Wildlife Refuges [16 U.S.C. 668dd], and State Game Refuges and State Wildlife Management Areas [New York State Environmental Conservation Law (ECL) 11-2105]

There are no national wildlife refuges located within five miles of the Project. There are no state game refuges or state wildlife management areas located within five miles of the Project.

6*) National Natural Landmarks [36 CFR Part 62]*

There are no National Natural Landmarks located within five miles of the Project.

7) The National Park System, Recreation Areas, Seashores, Forests [16 U.S.C. 1c]

The Camillus Erie Canal Park in the Town of Camillus, Onondaga County [see Figure 2- 1] is located within five miles of the Project and is designated as part of the Erie Canalway National Heritage Corridor. The park is located approximately 3.5 miles from the Elbridge Substation. The Project does not traverse the park or the Canalway. There are no national recreation areas, national seashores or national forests located within five miles of the Project.

8*) Rivers designated as National or State Wild, Scenic or Recreational [16 U.S.C. Chapter 28, ECL 15-2701 et seq.]*

There are no designated Wild, Scenic and Recreational Rivers within five miles of the Project.

9*) A site, area, lake, reservoir or highway designated or eligible for designation as scenic [ECL Article 49 or DOT equivalent and APA Designated State Highway Roadside];*

There are no New York State Scenic Roads, National Scenic Byways, or other scenic areas designated within five miles of the Project.

10) Scenic Areas of Statewide Significance [Article 42 of Executive Law]

The New York Department of State (NYSDOS) in 1993 designated "Scenic Areas of Statewide Significance." A review of these areas determined there are no designated areas within five miles of the Project.

11) A state or federally designated trail, or one proposed for designation [16 U.S.C. Chapter 27 or equivalent]

State Bicycle Route 5 (Albany - Buffalo) is located within five miles of the Project. The bicycle trail follows the Erie Canalway Trail/Jordan Level Trail within the National Heritage Corridor north of the Project. The Project does not traverse this bicycle route. Designated trails are located within the Camillus Forest Unique Area which is located within five miles of the Project as described above. There are no federal designated trails within five miles of the Project.

12) Adirondack Park Scenic Vistas; [Adirondack Park Land Use and Development Map]

There are no Adirondack Park Scenic Vistas located within five miles of the Project.

13) State Nature and Historic Preserve Areas [Section 4 of Article XIV of the State Constitution]

There are no state nature and historic preserve areas located within five miles of the Project.

14) Palisades Park; [Palisades Interstate Park Commission]

Palisades Park is not located within five miles of the Project.

15) Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space category

Based on on-line research, no Bond Act Properties were located within the Project.

4.3.3 Local Recreation Sites

There are numerous municipal recreation areas found within five miles of the Project ROW. These local recreation areas include municipal parks (Veterans Memorial Park in the Town of Camillus, Casey Park in the City of Auburn), and school playgrounds. The Project ROW does not traverse any municipal recreation areas.

In addition, privately owned recreational areas such as golf courses (Millstone Golf Course, Highland Park Golf Club, Camillus Country Club), and the Rolling Wheels Raceway Park are

located within five miles of the proposed Project. The Project ROW traverses the racetrack property in the Town of Brutus south of NYS Route 5, but does not affect track operations (refer to Figure 2-3). The Project runs parallel to Millstone Golf Course in the Town of Elbridge south of NYS Route 5. The impact of the Project ROW has been minimized on these properties, because the new transmission line will be built in an existing corridor with minimal additional ROW.

4.3.4 Environmental Effects and Mitigation

The Project was reviewed through a landscape character analysis process to analyze the potential visibility and visual impact of the Project.

Visual character encompasses the patterns of landform (topography), land cover (vegetation and buildings), land use (agricultural, forested), and aquatic resources (lakes, streams, and wetlands). The visual character is influenced both by natural systems, as well as by the interactions and use of land. In natural settings, the visual character attributes are natural elements, whereas in rural or pastoral/agricultural settings, they may include man-made elements such as fences, walls, barns and outbuildings, roads, utility poles, electric lines, and occasional farmsteads and individual residences. In a more developed setting, the visual character may include residential and commercial buildings, lawn areas and landscaping, pavement, and utility infrastructure.

Many factors influence the visual impact of the Project. The viewer is one of these factors; not only who is viewing the line, but their expectations, activities, and frequency of viewing the line. Four types of viewers were considered:

<u>Local residents</u>

Local residents are those people who live in the area of the Project. Residents may view the line from their yards or homes, while driving on local roads, or during other activities in their daily lives. The sensitivity of local residents to the visual impact of the line may be mitigated by exposure to existing transmission lines and other developed features already within the viewshed, such as roads, railroads, utility lines, and industrial sites. Local residents can be highly sensitive to changes in the landscape that can be viewed from their homes and neighborhoods.

Commuters and travelers

Commuters and travelers are people who may travel by the Project on their way to other destinations. They may view the line on a regular basis or only occasionally. Typically, drivers will have limited views of the transmission line where gaps in vegetation or buildings provide views and where the line is running high above the road surface. The visual perception of the line for commuters and travelers is anticipated to be relatively low because they are typically moving and have a relatively short duration of visual exposure to the line. Drivers tend to be occupied with traffic and navigation and are concerned with off-road views to a much lesser degree than local residents. The exception to this assessment is scenic roads and byways which are considered to provide scenic value as part of the driving experience. As stated in Section 4.3.2, there are no New York State Scenic Roads, National Scenic Byways, or other scenic areas designated within five miles of the Project area.

Employees

Employees who work at local businesses, primarily in commercial areas, will experience the proposed Project as they commute to and from work, and also potentially from their place of business or from within the building. Workers may not have views to the outside and will be focused on their work rather than views of the landscape. Due to limited views and focus, employees are not anticipated to have high sensitivity to the proposed transmission line near their place of work.

Recreational Users and Tourists

Recreational users include local residents and tourists involved in recreational activities at state and local parks; on local trails; at golf courses; and in natural areas, as well as visitors to the historic parks and sites in the area. For recreational users, scenery may be an important part of their experience as their activities may include attentiveness to views of the landscape for a long period of time. Such viewers also may have a high appreciation for visual quality and high sensitivity to visual change.

The effects of the proposed Project on these resources and viewers are discussed in detail below.

Some landscapes have a greater ability to absorb alterations with limited reduction in scenic integrity. The character and complexity of the landscape, as well as environmental factors, influence the ability of a landscape to absorb changes. The contrast with the existing landscape elements is a key issue in absorption. A new transmission line next to an existing line has less contrast and can be absorbed into that landscape better than a new transmission line in an undeveloped area. The Project accomplishes this by following the existing National Grid east-west and NYSEG north-south corridors for the majority of the total Project length. Additionally, the clearing for the additional ROW will be limited to only that which is necessary, which will increase the ability of the Project to be absorbed into the landscape. As a result, the Project is not likely to be a defining landscape characteristic in the background range.

Visual impacts are greatest when the viewer sensitivity is high, the scenic integrity of the landscape is high and the visual absorption of the landscape is low. This combination of factors is likely where the corridor runs parallel to the Millstone Golf Course in the Town of Elbridge south of NYS Route 5. The existing National Grid corridor already exists south of the golf course, however, it is likely that open areas in the south side of the golf course will experience some view of the ROW clearing and an expanded view of the transmission facilities.

The corridor traverses the Rolling Wheels Raceway Park property in the Town of Brutus south of NYS Route 5. The existing National Grid corridor already crosses an open area and their private drive located between the state highway and racetrack facilities. The visual impact will be minimal because the existing circuit is already a prominent feature in this cleared portion of the viewshed.

The expansion of the Existing ROW will add a transmission line closer to scattered residences and commercial properties adjacent to the Project. These residences and commercial properties are already in the viewshed of the Existing ROW. In the Town of Elbridge, commercial properties at the corner of NYS Route 5 and Fikes Road, residential properties north of the line on Kingston Road, Hamilton Road, and on Dodier Drive may be impacted. One or more properties in the immediate vicinity of the Elbridge Substation also may be impacted, due to the expansion of the substation that is necessary to accommodate the Proposed Line and Relocated Line 15 connections to the substation. The Applicant will work with DPS Staff and the affected

property owner(s) to provide appropriate landscaping to screen the view of the expanded substation, consistent with the plan previously approved by the Commission in Case 26251.

In the Town of Brutus, the residences north of NYS Route 5, and residences north of the line on Stevens Road, Shepherd Road, and NYS Route 34 may be visually impacted. The expansion of the Existing ROW line will also reduce the forested buffer area between the corridor and the residences on Tanner Road which runs parallel to the Project ROW in the Town of Brutus. In the Town of Throop, the expansion of the Existing ROW will also move the transmission line closer to numerous residences on Potter Road near Manrow Road and Reyes Road, and Butler Drive.

Residences on Jericho Road in the Town of Sennett and Carpenter Road, Potter Road, Turnpike Road, Butler Drive in the Town of Throop will likely have visual impacts from the Project ROW. These residences and commercial properties are already in the viewshed of the existing transmission lines, so overall the additional impacts will be minimal.

The remaining visual resources within 3 miles of the Project identified in this section are not anticipated to have significant additional views of the Project, thus the Applicant does not anticipate any significant affects to the visual and aesthetic character of scenic, recreational and historical areas. Existing corridors take advantage of existing forested areas and topography to effectively screen most views and minimize the visual impacts to local roadways and residences. Impacts have been minimized by co-locating the project within existing ROW throughout its length. Pursuant to the Commission's regulations, the Project ROW preserves the visual and aesthetic nature of the existing scenic, recreational and historical areas.

4.3.5 Digital Simulations

The digital simulations presented in this Exhibit were developed from selected observation points as a method of gaining a better understanding of the visual impacts of the Rebuilt Line 972, Proposed Line, and Relocated Line 15. These simulations are based on preliminary engineering for the alignment of the proposed transmission lines. The selected viewpoints chosen for simulations were based on several factors; the potential visibility of the proposed transmission lines, the historical or cultural significance, or the regionally representative environmental and geographic qualities of the viewshed.

The photos used for the simulations were taken during the fall of 2012 and captured with a GPS enabled camera, allowing for the accurate location and direction of each viewpoint. Both the photo points and the alignment of the Proposed Line were inserted into Google Earth Professional to accurately understand the scale of the proposed line structures in relationship to the viewpoints. In order to better understand the visual impacts with respect to topography, The Google Earth software incorporates a Digital Elevation Model (DEM) based on USGS data.

The Project ROW is located within existing utility corridors. Because of this previous cultural modification, the visual impact of the new structures supporting the Proposed Line, and (in the National Grid ROW) also supporting Relocated Line 15, is greatly reduced. While the simulations capture the Project Lines in the context of the existing environment, they also capture other incidental impacts, such as clearing and grubbing within the expansion of the Existing ROW. It should be noted that several of the simulations were completed with photos taken during a leaf-off condition. Simulations utilizing leaf-off condition represent the worst case scenario for visual impacts. In many cases the visual impacts will be greatly reduced or possibly eliminated during the seasons in which foliage is present.

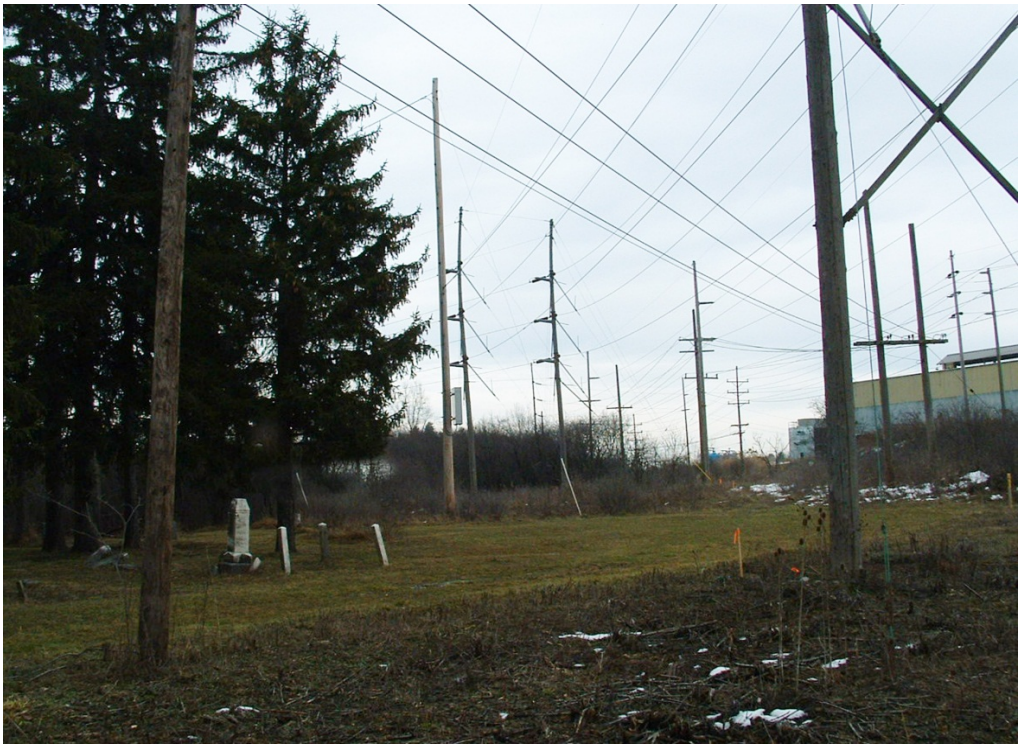

Figure 4-4 Existing NYSEG ROW looking northwest from State Street Substation toward the Cold Springs Cemetery

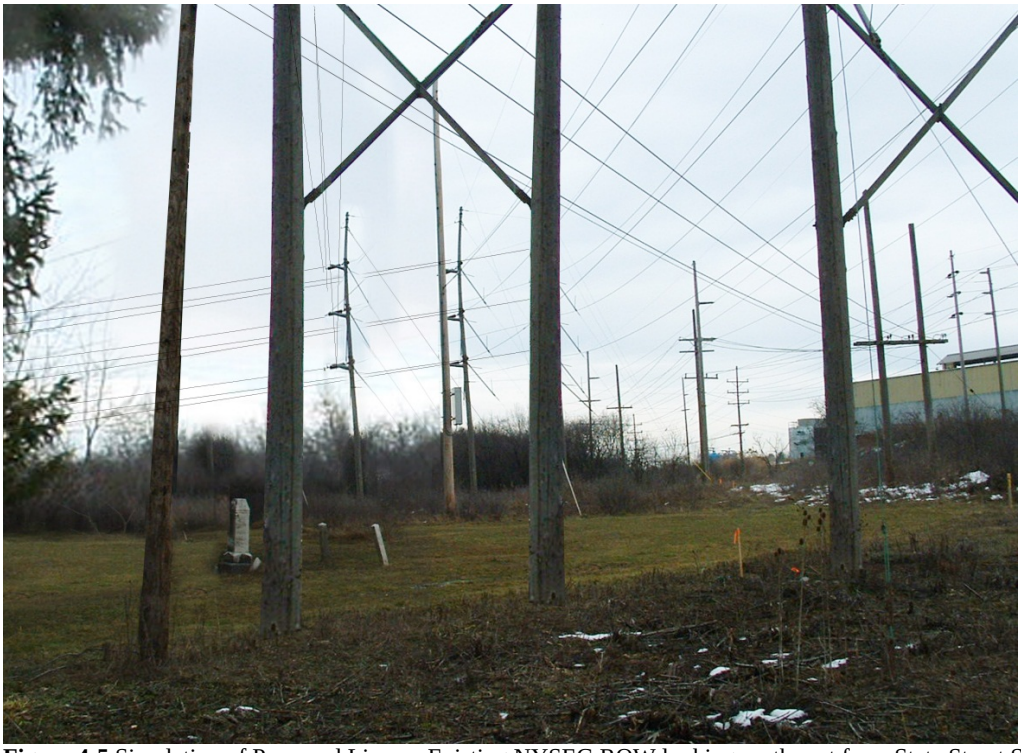

Figure 4-5 Simulation of Proposed Line on Existing NYSEG ROW looking northwest from State Street Substation toward the Cold Springs Cemetery

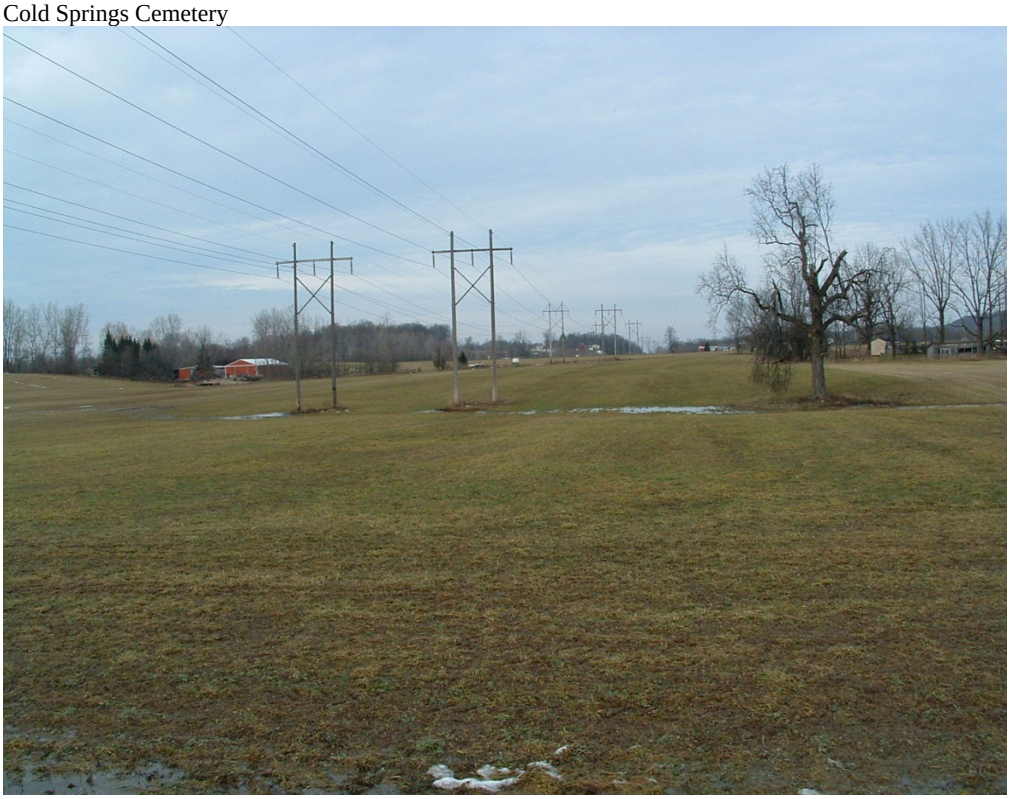

Figure 4-6 Existing NYSEG ROW looking north at Reyer Road

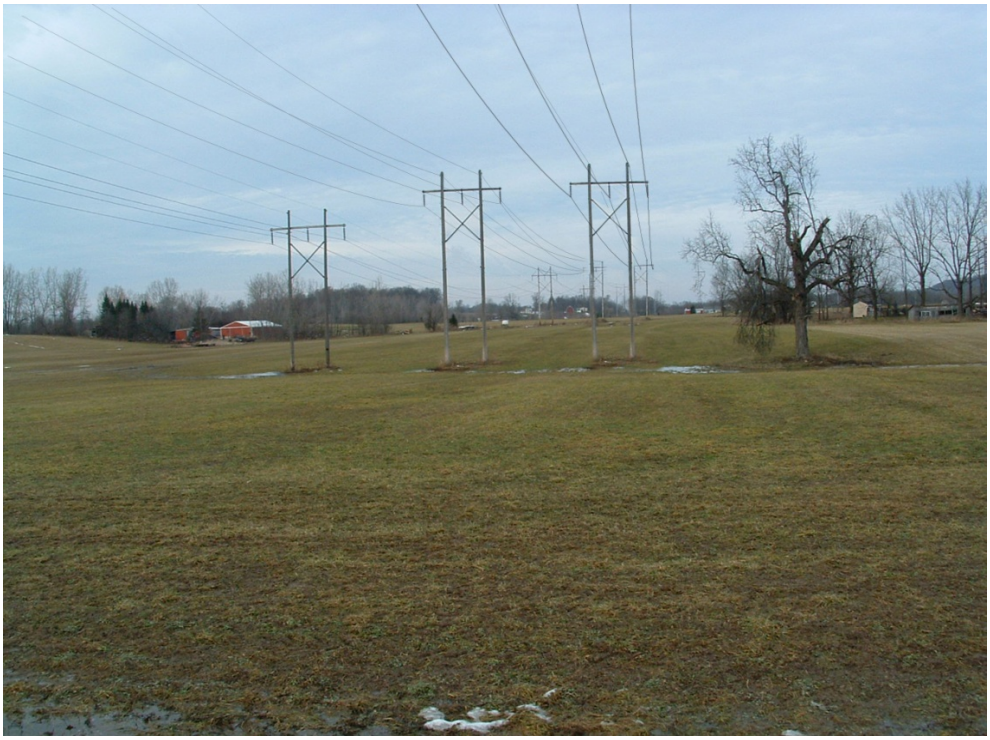

Figure 4-7 Simulation of Proposed Line on Existing NYSEG ROW looking north at Reyer Road

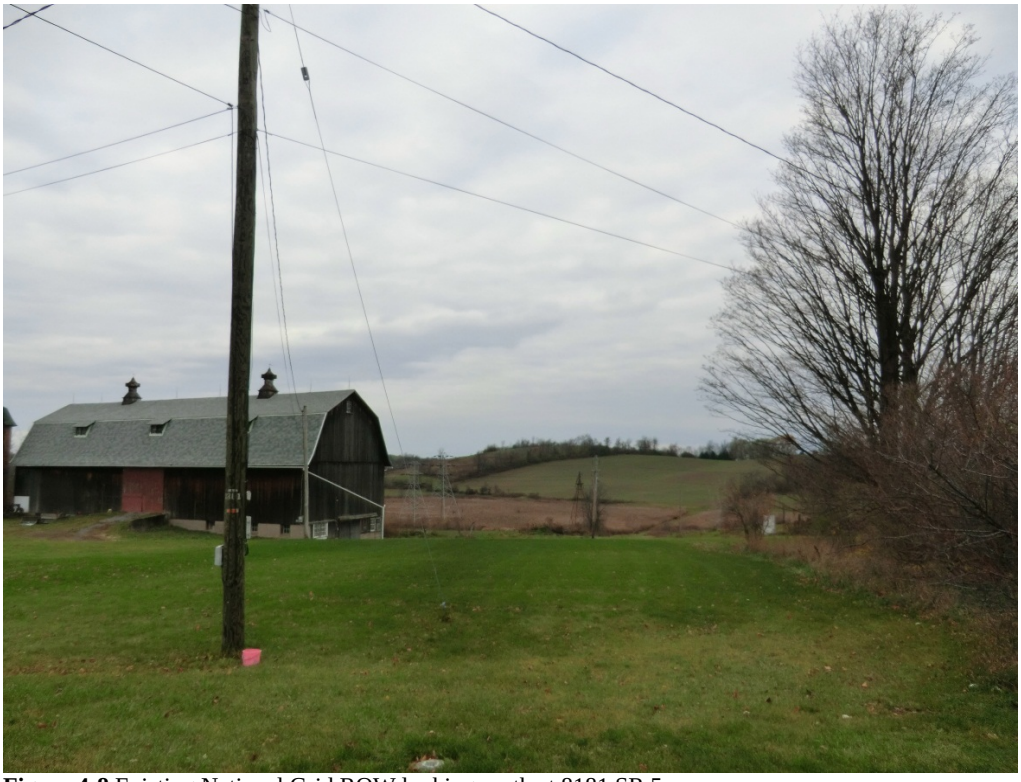

Figure 4-8 Existing National Grid ROW looking north at 8181 SR 5

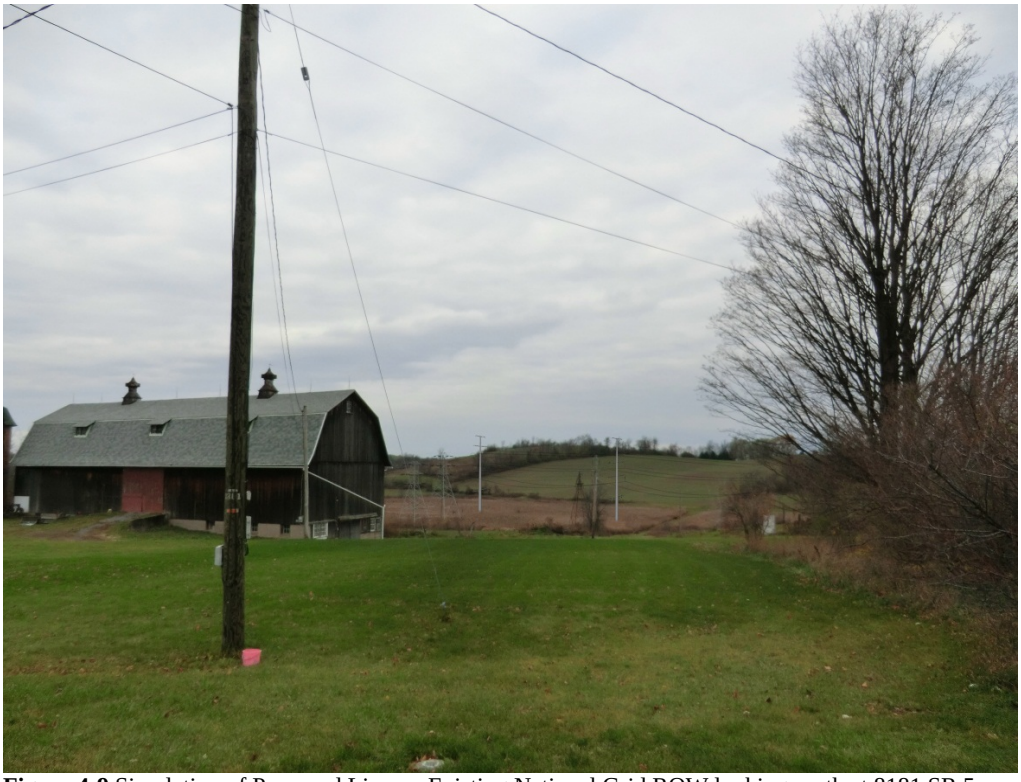

Figure 4-9 Simulation of Proposed Line on Existing National Grid ROW looking north at 8181 SR 5

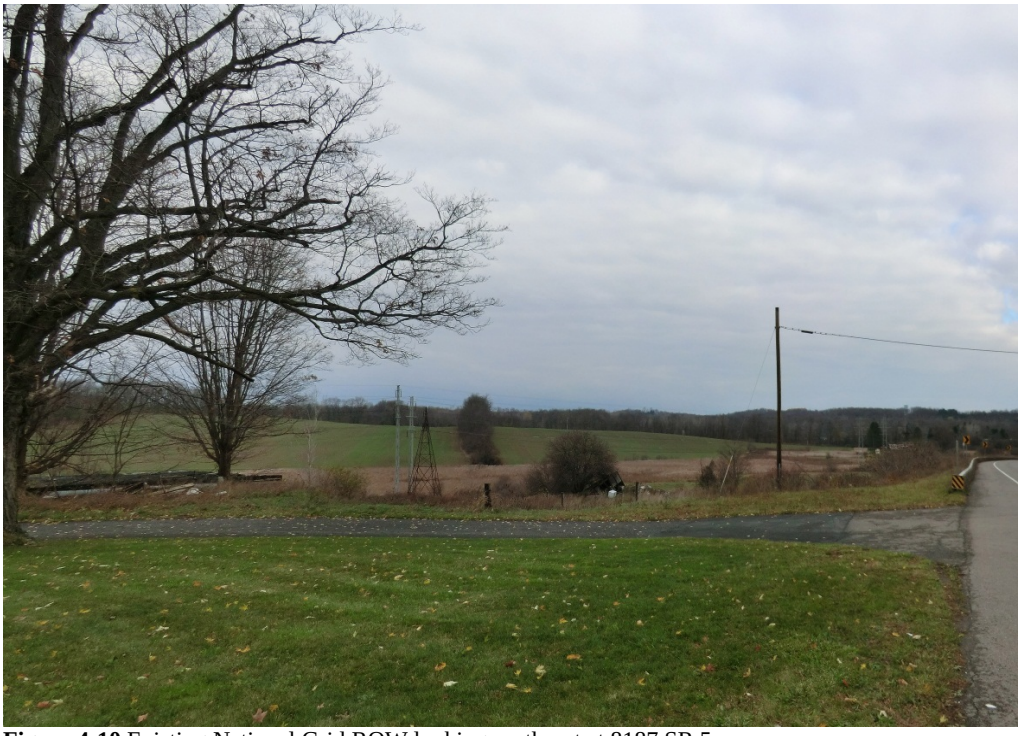

Figure 4-10 Existing National Grid ROW looking northeast at 8187 SR 5

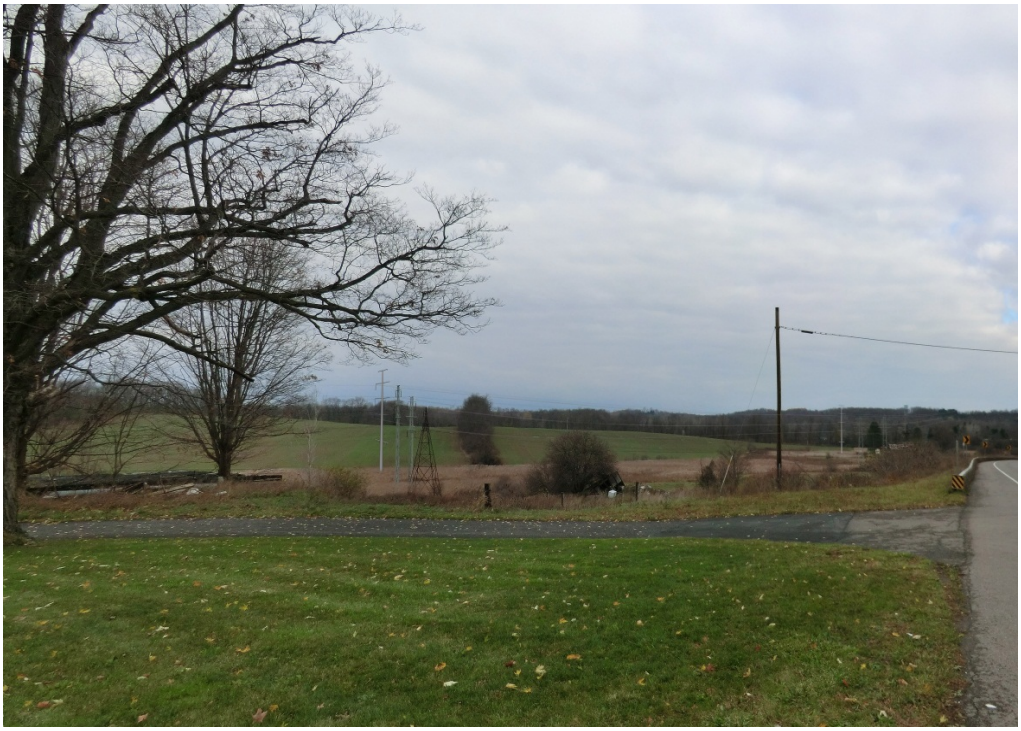

Figure 4-11 Simulation of Proposed Line on Existing National Grid ROW looking northeast at 8187 SR 5

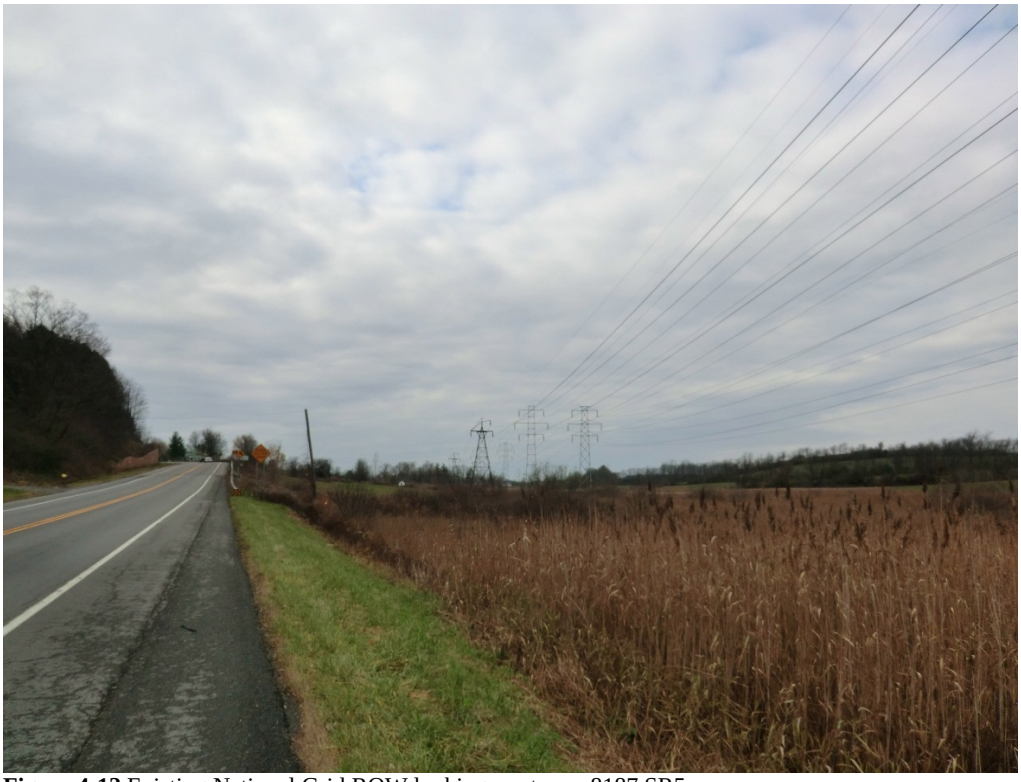

Figure 4-12 Existing National Grid ROW looking west near 8187 SR5

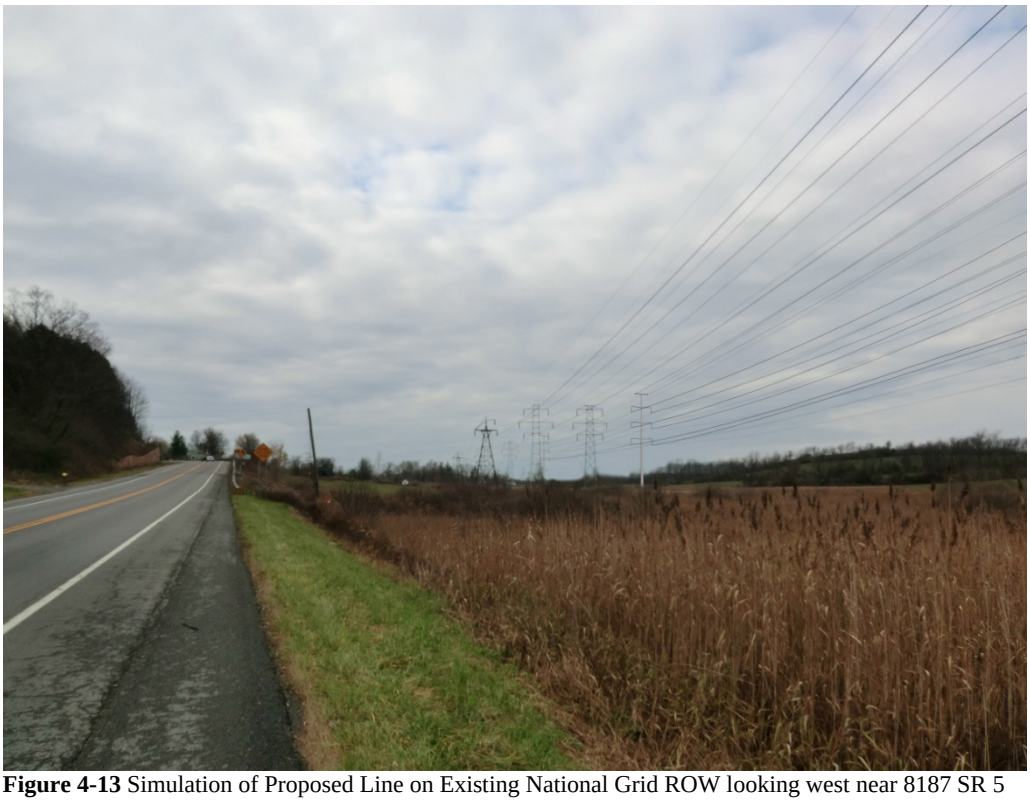

Figure 4-13 Simulation of Proposed Line on Existing National Grid ROW looking west near 8187 SR 5

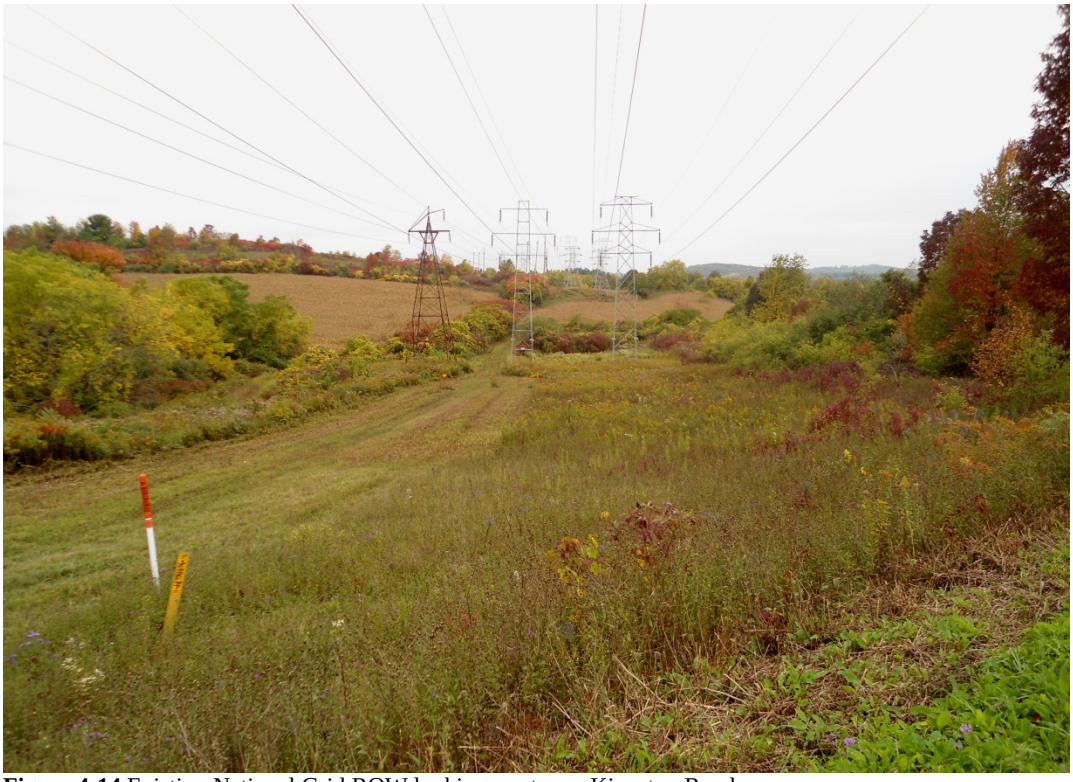

Figure 4-14 Existing National Grid ROW looking west near Kingston Road

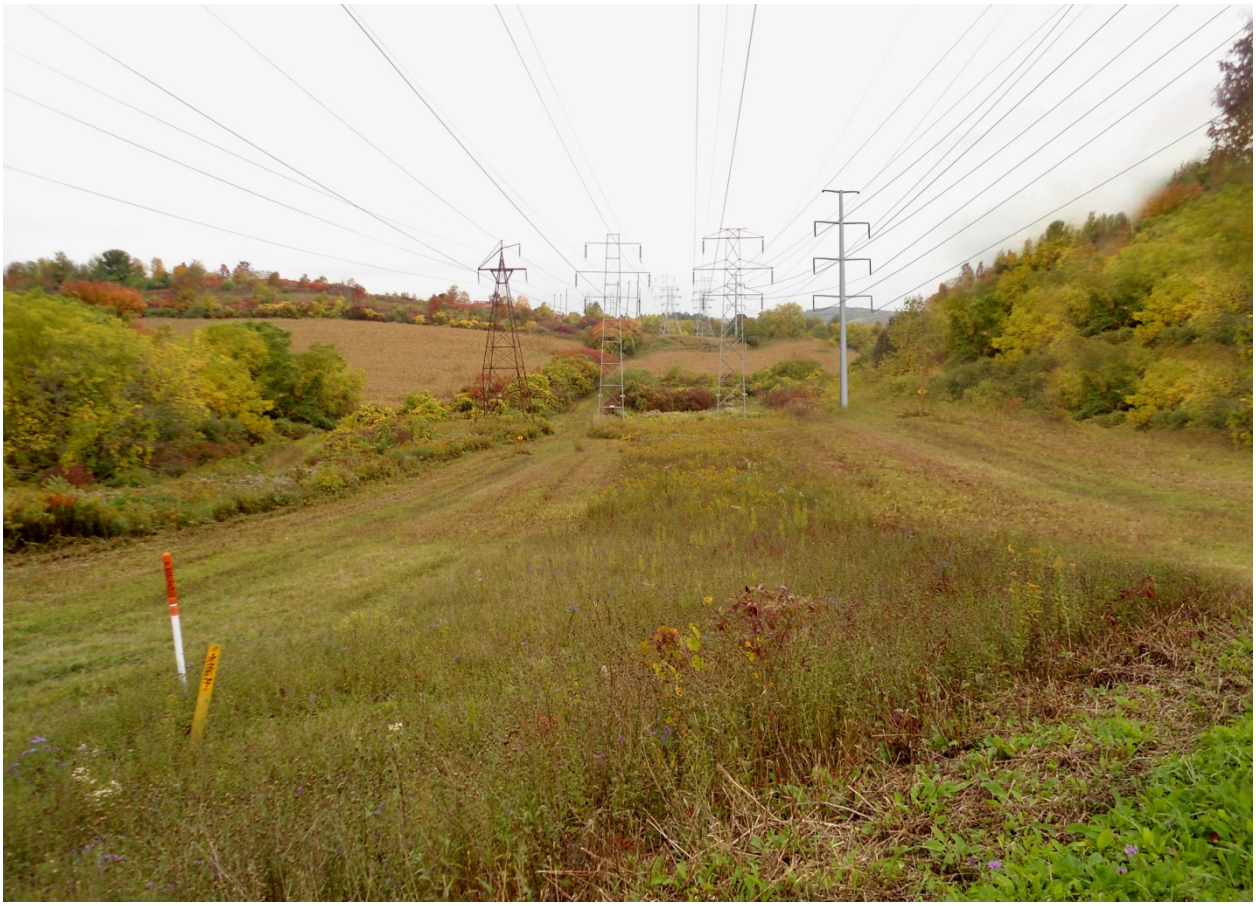

Figure 4-15 Simulation of Proposed Line on Existing National Grid ROW looking west near Kingston Road

4.4 Cultural Resources

As used in this exhibit, the term "cultural resources" includes archaeological sites and objects, historic buildings, structures, and archaeological and historic districts. This section tabulates and discusses known, previously recorded cultural resources in the area affected by the Project, including the direct effect the Project may have on these resources.

4.4.1 Existing Setting

4.4.1.1 Archaeological Sites

A site file search and review was conducted using the online databases, primarily the SPHINX system of the OPRHP and the NRHP FOCUS database. The primary information concerning the archaeological sites was obtained during a visit to the OPRHP's research center at Peebles Island, Cohoes, New York. Information on all recorded cultural resources (archaeological resources and historic structures) within three miles of the Project ROW was obtained. Cultural resources recorded on the NRHP or considered eligible for inclusion were identified.

A total of 38 archaeological sites were identified in a three-mile buffer around the Project ROW. Twenty-nine of these sites result from Native American occupation during the prehistoric and early historic periods (Table 4-4), and nine were associated with historic Euro-American occupation after circa 1800 A.D. (Table 4-5). Site numbers beginning with "A" were assigned by the OPRHP. Four digit site numbers were assigned by the New York State Museum (NYSM).

The 29 Native American archaeological sites include 18 sites which do not have information regarding their dates of occupation; these sites were provisionally characterized as prehistoric in age. Nine of the sites are listed as Late Woodland (circa 1000 to 1600 A.D.) or Contact period (circa 1600 to 1700 A.D.) villages, both with and without associated earthworks. One of the sites (NYSM # 2904) is listed as a possible Woodland period (circa 1000 B.C. to 1600 A.D.) village, and another (NYSM # 5497) is listed as Late Archaic (circa 3000 B.C. to 1000 B.C.); however, the site type is unknown. Two sites (NYSM #s 2939, 8182) are listed as a Native American cemetery and a burial mound, respectively. A note appended to the database entry for NYSM Site # 8182, however, suggests that its categorization as a burial mound may be spurious. Two sites (A06705.000053, NYSM # 5498) are listed as "Isolated Finds." Database records for the remaining 15 Native American sites provide no data on site type other than the notations "traces of occupation" or "camp," which indicates that very little is known about these sites other than their Native American affiliation. Historic Euro-American sites include house lots in Auburn and farmsteads in rural areas. A few are associated with extant structures, but most are located in former yard areas. One industrial site (A01140.001761) is located in Auburn.

The OPRHP has made formal NRHP eligibility determinations on four of the historic archaeological sites located within three miles of the Project ROW (Table 4-6). Sites A01117.000037 (Sheldon I site) and A01117.000038 (Sheldon II site) were determined eligible for listing in the NRHP, while sites A00121.000046 (McMaster-White site) and A00121.000047 (McMasters Corners site) were determined not eligible for listing in the NRHP. The NRHP eligibility of the remaining 34 archaeological sites has not been formally determined by the OPRHP.

None of the documented archaeological sites were mapped within the Project ROW. Seven were located within 1,000 feet of the Project ROW (Table 4-4), and four of these were mapped within

500 feet of the Project ROW. Two of the four, noted in the preceding paragraph, are Sites A01117.000037 (Sheldon I site) and A01117.000038 (Sheldon II site) and were determined eligible for listing in the NRHP. The two other sites within 500 feet of the Project ROW are A06705.000022 (Kelso site) and A06705.000053 (No site name). Site A06705.000053 is listed as an isolated find of a single artifact and is unlikely to be NRHP-eligible. Site A06705.000022 (Kelso site), however, consists of two overlapping, palisaded Native American villages dating to the 14th century A.D. While the NRHP status of this site is currently unevaluated, it would almost certainly be NRHP-eligible if a formal determination were made.

Table 4-4 Native American Prehistoric Archaeological Sites within Three Miles of the Project

Site Number	Site Name	Description	NRHP Status
Sites Within 1,000 Feet			
A01121.000008	Blaisdell	Prehistoric: Time period unknown-Site type unknown	No Determination
A06705.000022	Kelso	Prehistoric: Late Woodland-Village	No Determination
A06705.000053	No Data	Prehistoric: Time period unknown-Isolated Find	No Determination
4244	No Data	Prehistoric: Late Woodland-Earthworks and Village	No Determination
Sites More Than 1,000 Feet Away to 3-Miles			
A01117.000014	Wilmot	Prehistoric: Time period unknown-Site type unknown	No Determination
A01121.000006	Whiting I	Prehistoric: Time period unknown-Site Type Unknown	No Determination
A01121.000007	Whiting II	Prehistoric: Time period unknown-Site Type Unknown	No Determination
1378	Chamberlain B	Prehistoric: Late Woodland-Village	No Determination
1379	Hunter	Prehistoric: Time period unknown-Site type unknown	No Determination
1382	No Data	Prehistoric: Time period unknown-Site type unknown	No Determination
2904	No Data	Prehistoric: Late Woodland-Earthwork village w/ burials	No Determination
2905	No Data	Prehistoric: Woodland-Village?	No Determination
2906	Fort Hill	Historic: Contact Period-Earthwork village	No Determination

Site Number	Site Name	Description	NRHP Status
2907	No Data	Prehistoric: Late Woodland-Earthwork village	No Determination
2939	No Data	Prehistoric: Time period unknown-Cemetery	No Determination
4241	No Data	Prehistoric: Late Woodland-Earthwork village	No Determination
4242	No Data	Prehistoric: Late Woodland-Earthwork and Village	No Determination
4243	No Data	Prehistoric/Historic: Blacksmith shop located within "Ancient circular fort"	No Determination
4271	No data	Prehistoric: Time period unknown-"Traces of occupation"	No Determination
4273	No Data	Prehistoric: Time period unknown-"Traces of occupation"	No Determination
5380	No Data	Prehistoric: Time period unknown-Village	No Determination
5381	No Data	Prehistoric: Time period unknown-"Camp"	No Determination
5384	No Data	Prehistoric: Time period unknown-"Traces of occupation"	No Determination
5494	MacDonald	Prehistoric: Time period unknown-Site type unknown	No Determination
5497	Delaney	Prehistoric: Late Archaic-Site type unknown	No Determination
5498	Brown	Prehistoric: Time period unknown-Isolated find	No Determination
6888	No Data	Prehistoric: Time period unknown-"Traces of occupation	No Determination
8182	No Data	Prehistoric: Time period unknown-"Mound, burials filled with skeletons…probably natural"	No Determination
8183	No Data	Prehistoric: Time period unknown-"Traces of occupation"	No Determination

Table 4-5 Historic Euro-American Archaeological Sites within Three Miles of the Project

Site Number	Site Name	Description	NRHP Status
Sites Within 1,000 Feet			
A01117.000037	Sheldon I	Historic: Early 19th Century to Present-Domestic	Eligible
A01117.000038	Sheldon II	Early to Mid-19th Century Domestic	Eligible
A01121.00017	Throop	Early 19th to mid-20th Century: Artifact Scatter	No Determination
Sites More Than 1,000 Feet Away to Three Miles			
A01117.000018	Munson Estate	Historic: Mid-19th Century-Domestic	No Determination
A00121.000046	McMaster-White	Historic: Early 19th to Early 20th Century-Artifact Scatter	Not Eligible
A00121.000047	McMasters Corners	Historic: Early 19th to Early 20th Century-Artifact Scatter	Not Eligible
A01140.001760	Greenhouse	Historic: Mid-20th Century-Domestic	No Determination
A01140.001761	Paint Shop/Erie Press	Historic: Mid-19th Century-Industrial	No Determination
1380	Old Monroe	No Data, probably Historic	No Determination

4.1.1.2 National Register of Historic Places

There are 143 previously evaluated historic architectural properties (properties listed in or determined eligible for listing in the NRHP) situated within five miles of the Project ROW (Table 4-3). Thirty-four (34) of the 143 historic properties are listed in the State Register and/or the NRHP; the remaining 109 have been determined eligible for listing in the NRHP. The following 16 of the 143 historic properties are located within one mile of the Project ROW:

- Elbridge Historic District, Elbridge, Onondaga County (01NR01770);
- John Munro House (NY 5 at Jordan Road), Elbridge, Onondaga County (06705.000001);

- 8181 NY 5, Sennett, Cayuga County (01117.000035);
- 8187 NY 5, Sennett, Cayuga County (01117.000036);
- 123 Perrine Street, Auburn, Cayuga County (01140.001599);
- 28 Peacock Street, Auburn, Cayuga County (01140.001600);
- 230 State Street, Auburn, Cayuga County (01140.000820);
- Maneri Residence (236 State Street), Auburn, Cayuga County (01140.000822);
- Marlella Sobus Residence (255 State Street), Auburn, Cayuga County (01140.000854);
- Dechick Residence (139 North Street), Auburn, Cayuga County (01140.000749);
- Haight Residence (149 North Street), Auburn, Cayuga County (01140.000751);
- 157 North Street, Auburn, Cayuga County (01140.000753);
- Newcomb Residence (161 North Street), Auburn, Cayuga County (01140.000754);
- Lecher Residence (165 North Street), Auburn, Cayuga County (01140.000756);
- Stevens Residence (175 North Street), Auburn, Cayuga County (01140.000760); and
- Myrtle Residence (185 North Street), Auburn, Cayuga County (01140.000763).

Table 4-6 New York State and National Register of Historic Places Properties*

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	**Resource Name**	**Municipality**	**County**	**NRHP Category**
90NR02133	2.1-4	Jordan Village Historic District	Jordan	Onondaga	Listed
98NR01363	N/A	Erie Canal Lock #52 Complex	Port Byron	Cayuga	Listed
00NR01571	2.1-3	Centreport Aqueduct	Weedsport vicinity	Cayuga	Listed
02NR05005	2.1-3	First Baptist Church of Weedsport	Weedsport	Cayuga	Listed

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
07NR05740	2.1-3	Orrin W. Burritt House	Weedsport	Cayuga	Listed
01NR01770	2.1-4	Elbridge Historic District	Elbridge	Onondaga	Listed
04NR05253	N/A	Mentz Church	Mentz Corners	Cayuga	Listed
91NR03345	N/A	Camillus Union Free School	Camillus	Onondaga	Listed
01NR01753	N/A	First Baptist Church of Camillus	Camillus	Onondaga	Listed
06NR05623	2.1-4	Martisco Railroad Station	Martisco	Onondaga	Listed
05NR05476	2.1-2	Sennett Federated Church and Parsonage	Sennett	Cayuga	Listed
90NR02094	2.1-2	Community Place	Skaneateles	Onondaga	Listed
90NR02095	N/A	Kelsey-Davey Farm	Skaneateles	Onondaga	Listed
07NR05720	N/A	Tefft-Steadman House	Marcellus	Onondaga	Listed
98NR01424	2.1-1	Wall Street Methodist Episcopal Church	Auburn	Cayuga	Listed
05NR05531	2.1-1	William and Mary Hosmer House	Auburn	Cayuga	Listed

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
90NR03285	2.1-1	Dr. Sylvester Willard Mansion	Auburn	Cayuga	Listed
98NR01423	2.1-1	Harriet Tubman Grave	Auburn	Cayuga	Listed
98NR01422	2.1-1	Thompson AME Zion Church	Auburn	Cayuga	Listed
05NR05478	2.1-1	Belt-Gaskin House	Auburn	Cayuga	Listed
90NR00101	2.1-1	Case Memorial-Seymour Library	Auburn	Cayuga	Listed
01NR01826	2.1-1	St. Peter's Episcopal Church Complex	Auburn	Cayuga	Listed
91NR00009	2.1-1	Former US Post Office and Federal Courthouse	Auburn	Cayuga	Listed
91NR00008	2.1-1	Cayuga County Courthouse and Clerk's Office	Auburn	Cayuga	Listed
94NR00741	2.1-1	Schine's Auburn Theatre	Auburn	Cayuga	Listed
90NR00103	2.1-1	William H. Seward House	Auburn	Cayuga	Listed
07NR05739	2.1-1	Auburn Button Works and Logan Silk Mills	Auburn	Cayuga	Listed
90NR03293	2.1-1	South Street Area Historic District	Auburn	Cayuga	Listed

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
90NR02888	2.1-1	Willard Memorial Chapel-Welch Memorial Building	Auburn	Cayuga	Listed
90NR00102	2.1-1	Harriet Tubman Home for the Aged	Auburn	Cayuga	Listed
98NR01420	2.1-1	Harriet Tubman House	Auburn vicinity	Cayuga	Listed
90NR00098	N/A	Sand Beach Church	Auburn	Cayuga	Listed
90NR02887	N/A	Lakeside Park	Owasco	Cayuga	Listed
10NR06144	2.1-2	Shepard Settlement Cemetery	Skaneateles	Onondaga	Listed
01140.001695	2.1-1	2 Adams Street	Auburn	Cayuga	Eligible
01140.001696	2.1-1	1 Alden Avenue	Auburn	Cayuga	Eligible
01140.001380	2.1-1	10 Capitol Street	Auburn	Cayuga	Eligible
01140.001381	2.1-1	18 Capitol Street	Auburn	Cayuga	Eligible
01140.001697	2.1-1	27 Capitol Street	Auburn	Cayuga	Eligible
01140.001698	2.1-1	61 Capitol Street	Auburn	Cayuga	Eligible
01140.001699	2.1-1	14 Cayuga Street	Auburn	Cayuga	Eligible
01140.001700	2.1-1	24 Chedell Place	Auburn	Cayuga	Eligible
01140.001701	2.1-1	28 Chedell Place	Auburn	Cayuga	Eligible
01140.000089	2.1-1	60 Clark Street	Auburn	Cayuga	Eligible
01140.001711	2.1-1	176 East Genesee Street	Auburn	Cayuga	Eligible

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
01140.001710	2.1-1	179 East Genesee Street	Auburn	Cayuga	Eligible
01140.001709	2.1-1	229 East Genesee Street	Auburn	Cayuga	Eligible
01140.000407	2.1-1	6 Fort Street	Auburn	Cayuga	Eligible
01140.000294	2.1-1	East Middle School	Auburn	Cayuga	Eligible
01140.001766	2.1-1	97 Franklin Street	Auburn	Cayuga	Eligible
01140.001439	2.1-1	19 Gaylord Street	Auburn	Cayuga	Eligible
01140.000683	2.1-1	Auburn Floor Covering Co.	Auburn	Cayuga	Eligible
01140.001347	2.1-1	Norstar Bank	Auburn	Cayuga	Eligible
01140.001352	2.1-1	PBY Building	Auburn	Cayuga	Eligible
01140.000682	2.1-1	PVR Coventry Building (Piccirillo's Restaurant)	Auburn	Cayuga	Eligible
01140.001046	2.1-1	West Middle School	Auburn	Cayuga	Eligible
01140.001349	2.1-1	Nolan's Family Shoe Store	Auburn	Cayuga	Eligible
01140.000020	2.1-1	Auburn Savings Bank	Auburn	Cayuga	Eligible
01140.001348	2.1-1	H.R. Wait Co.	Auburn	Cayuga	Eligible
01140.000472	2.1-1	2 Grant Avenue	Auburn	Cayuga	Eligible
01140.000522	2.1-1	Lattimore Residence	Auburn	Cayuga	Eligible
01140.001251	2.1-1	3-3 ½ Hulbert Street	Auburn	Cayuga	Eligible

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
01140.000567	2.1-1	11 James Street	Auburn	Cayuga	Eligible
01140.000674	2.1-1	Auburn Police & Fire Department Headquarters	Auburn	Cayuga	Eligible
01140.001250	2.1-1	1 McMaster Street	Auburn	Cayuga	Eligible
01140.000693	2.1-1	Deyo Residence	Auburn	Cayuga	Eligible
01140.001343	2.1-1	10 Nelson Street	Auburn	Cayuga	Eligible
01140.001589	2.1-1	87 Nelson Street	Auburn	Cayuga	Eligible
01140.001746	2.1-1	Herman Avenue Elementary	Auburn	Cayuga	Eligible
01140.000739	2.1-1	113 North Street	Auburn	Cayuga	Eligible
01140.000745	2.1-1	129 North Street	Auburn	Cayuga	Eligible
01140.000749	2.1-1	Dechick Residence	Auburn	Cayuga	Eligible
01140.000751	2.1-1	Haight Residence	Auburn	Cayuga	Eligible
01140.000753	2.1-1	157 North Street	Auburn	Cayuga	Eligible
01140.000754	2.1-1	Newcomb Residence	Auburn	Cayuga	Eligible
01140.000756	2.1-1	Lecher Residence	Auburn	Cayuga	Eligible
01140.000760	2.1-1	Stevens Residence	Auburn	Cayuga	Eligible
01140.000763	2.1-1	Myrtle Residence	Auburn	Cayuga	Eligible
01140.000734	2.1-1	Holy Family Rectory	Auburn	Cayuga	Eligible

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
01140.000735	2.1-1	Holy Family Roman Catholic Church	Auburn	Cayuga	Eligible
01140.000736	2.1-1	Holy Family School	Auburn	Cayuga	Eligible
01140.001600	2.1-1	28 Peacock Street	Auburn	Cayuga	Eligible
01140.001599	2.1-1	123 Perrine Street	Auburn	Cayuga	Eligible
01140.001429	2.1-1	11 Sherman Street	Auburn	Cayuga	Eligible
01140.000994	2.1-1	Masonic Temple	Auburn	Cayuga	Eligible
01140.000833	2.1-1	12-14 State Street	Auburn	Cayuga	Eligible
01140.001651	2.1-1	Auburn Correctional Facility/Prison	Auburn	Cayuga	Eligible
01140.001629	2.1-1	2 State Street	Auburn	Cayuga	Eligible
01140.000820	2.1-1	230 State Street	Auburn	Cayuga	Eligible
01140.000822	2.1-1	Maneri Residence	Auburn	Cayuga	Eligible
01140.000854	2.1-1	Marlella Sobus Residence	Auburn	Cayuga	Eligible
01140.001351	2.1-1	8-12 State Street	Auburn	Cayuga	Eligible
01140.000277	2.1-1	180-182 West Genesee Street	Auburn	Cayuga	Eligible
01140.000256	2.1-1	Desmond Residence	Auburn	Cayuga	Eligible
01140.000279	2.1-1	Tarby Residence/Studio	Auburn	Cayuga	Eligible

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
01140.000281	2.1-1	194 West Genesee Street	Auburn	Cayuga	Eligible
01140.000263	2.1-1	Mattes Residence	Auburn	Cayuga	Eligible
01140.000264	2.1-1	Auburn Medical Apts. Office Building	Auburn	Cayuga	Eligible
01140.000283	2.1-1	Herron Residence	Auburn	Cayuga	Eligible
01140.000265	2.1-1	199 West Genesee Street	Auburn	Cayuga	Eligible
01140.000266	2-1.1	Hewitt Residence	Auburn	Cayuga	Eligible
01140.000288	2-1.1	208 West Genesee Street	Auburn	Cayuga	Eligible
01140.000270	2-1.1	Iaia Residence	Auburn	Cayuga	Eligible
01140.000289	2-1.1	Bandas Residence	Auburn	Cayuga	Eligible
01140.001175	2-1.1	309 West Genesee Street	Auburn	Cayuga	Eligible
01149.000051	2-1.3	2714 Franklin Street	Weedsport	Cayuga	Eligible
01149.000052	2-1.3	2722 Franklin Street	Weedsport	Cayuga	Eligible
01149.000053	2-1.3	2733 Franklin Street	Weedsport	Cayuga	Eligible
01149.000049	2-1.3	8919 Jackson Street	Weedsport	Cayuga	Eligible
01149.000050	2-1.3	8925 Jackson Street	Weedsport	Cayuga	Eligible

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
01149.000034	2-1.3	8852 South Seneca Street	Weedsport	Cayuga	Eligible
06705.000031	2-1.4	Wright House	Elbridge	Onondaga	Eligible
06705.000001	2-1.4	John Munro House	Elbridge	Onondaga	Eligible
01102.000005	2-1.3	Cobblestone Farmhouse	Brutus	Cayuga	Eligible
01117.000113	2-1.1	Potter Farmstead	Sennett	Cayuga	Eligible
01117.000035	2-1.3	8181 NY 5	Sennett	Cayuga	Eligible
01117.000036	2-1.3	8187 NY 5	Sennett	Cayuga	Eligible
01117.000022	2-1.2	Weedsport-Sennett Road/Structure #5	Sennett	Cayuga	Eligible
01101.000001	N/A	Captain Trowbridge Allen House & Webster Poultry Barn	Aurelius	Cayuga	Eligible
01101.000022	2-1.1	2009 West Genesee Street	Aurelius	Cayuga	Eligible
01147.000029	2-1.3	Port Byron Hotel	Port Byron	Cayuga	Eligible
01147.000039	N/A	Power House	Port Byron	Cayuga	Eligible
01147.000020	2-1.3	155 Main Street	Port Byron	Cayuga	Eligible
01147.000023	2-1.3	84 Main Street	Port Byron	Cayuga	Eligible

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
06751.000135	N/A	Ramsdell Elementary & Middle School	Jordan	Onondaga	Eligible
06751.000136	2-1.4	33 Elbridge Street	Jordan	Onondaga	Eligible
06701.000080	N/A	District School No. 1	Camillus	Onondaga	Eligible
06701.000074	N/A	Original Erie Canal Camillus Feeder/Nine Mile Creek Millrace	Camillus	Onondaga	Eligible
06748.000043	N/A	Original Erie Canal Camillus Feeder/Nine Mile Creek Millrace	Camillus	Onondaga	Eligible
06748.000050	N/A	Camillus Cutlery Complex	Camillus	Onondaga	Eligible
06748.000019	N/A	113 Maple Drive	Camillus	Onondaga	Eligible
06753.000001	N/A	First Presbyterian Church	Marcellus	Onondaga	Eligible
06753.000044	N/A	Marcellus Town Hall	Marcellus	Onondaga	Eligible
06753.000042	N/A	Crown Mill (Lower Crown Mill)	Marcellus	Onondaga	Eligible
06753.000035	N/A	1 North Street	Marcellus	Onondaga	Eligible
06753.000036	N/A	Machan House	Marcellus	Onondaga	Eligible
06753.000038	N/A	24 North Street	Marcellus	Onondaga	Eligible
06753.000022	N/A	Hiram Reed House	Marcellus	Onondaga	Eligible

NYSHPO NR Number / SPHINX USN	Map Reference Figure 2-1	Resource Name	Municipality	County	NRHP Category
06753.000039	N/A	H.M. Stone House (Shelter Valley Farm)	Marcellus	Onondaga	Eligible
06753.000041	N/A	C.S. Driver Middle School	Marcellus	Onondaga	Eligible
06716.000003	N/A	Alford Lamb House	Skaneateles	Onondaga	Eligible
06716.000081	N/A	3932 Highland Avenue	Skaneateles	Onondaga	Eligible
01114.000034	N/A	Broadway Road Farm Complex	Owasco	Cayuga	Eligible

*Please note that two National Register Eligible resources that were located within five miles of the Project ROW have been demolished. They are the Joseph North Log Cabin (Orchard Ave at Washington Street), Auburn, Cayuga County (01140.001556) and Former Hitchcock Electroplating Facility (58 Green Street), Port Byron, Cayuga County (01147.000037).

4.4.2 Cultural Resources Assessment Methodology

The cultural resources investigation conducted for this exhibit included a review of documents and online resources maintained by the OPRHP, as well as a preliminary archaeological sensitivity assessment. Archaeological sites were identified within a three-mile buffer around the Project, respectively while aboveground historic properties were identified within five miles.

The goal of the preliminary archaeological sensitivity assessment was to identify areas of moderate and high potential for containing archaeological sites within the Project ROW. For Native American sites, the distribution of known archaeological sites with respect to landforms, perennial water sources, and wetlands was characterized for sites lying within three miles of the Project. A similar approach was used for characterizing the locations of historic Euro-American archaeological sites; however available historic maps and other documents were also utilized.

4.4.3 Area of Potential Effect

An area of potential effect (APE) is defined as "… the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, should any such properties exist" (36 CFR 800.16(d)). The APE is defined based on the Project's potential for altering the character and significant qualities of known or anticipated

historic properties, and potentially their settings. The potential effects of the Project include ground disturbances due to new construction activities, as well as possible alterations to the visual setting in the vicinity of the Project. APEs are defined differently for varying types of cultural resources. The APE for archaeological sites is typically the footprint of ground disturbance for a given project. For the proposed Project, the archaeological APE consists of areas where Project-related ground disturbance could result in the destruction of significant archaeological sites. These areas include the Project ROW, transmission line structures, new or expanded access roads, as well as new or expanded laydown, staging, and storage areas. Anticipated ground-disturbance within the Project's archaeological APE may include grubbing and clearing of vegetation, grading, and excavation. For above-ground historic resources, there is also a potential for visual effects, which may result from the erection of new transmission structures or from the replacement of existing structures with those of different size or design.

4.4.4 Environmental Effects and Mitigation

Based on the background review presented in Section 4.4.1, there are no known archaeological sites within the Project ROW. Thirty-eight archaeological sites were identified within the three-mile measured from the Project ROW. Twenty-nine of these sites were Native American and primarily prehistoric in age. Nine of the sites were affiliated with historic Euro-Americans. A preliminary archaeological sensitivity assessment was based on a sample of archaeological sites located within three miles of the Project ROW. For Native American sites, the distribution of known archaeological sites with respect to landforms, perennial water sources, and wetlands was assessed to identify general areas of moderate to high archaeological sensitivity within the Project ROW.

Recorded Native American sites within three miles of the Project ROW display a bimodal distribution with respect to landforms and distance to water. Approximately half of the sites are located on floodplains, terraces, or relatively level landforms within 300 feet of both large and small streams and wetlands. The remaining sites also occupy relatively level ground, but they occur on landforms elevated as much as 100 feet above streams and wetlands. Sites in this grouping are also located at greater distances from mapped water sources, with some lying up to 700 feet from a mapped stream or wetland.

A preliminary assessment of this distribution suggests that it may be related to changing Native American settlement patterns through time. The majority of sites in the second category, those located at greater elevations above and greater distances from water, primarily date to the later Late Woodland period circa 1200 to 1600 A.D. During this time interval, Native Americans who had formerly lived in small, relatively isolated hamlets and farmsteads supported by the cultivation of corn, beans, and squash appear to have come together in larger fortified (palisaded) villages. Increased conflict between groups at this time is indicated throughout northeastern North America by the widespread construction of palisades around villages and by placement of these palisaded villages on elevated, easily defended landforms. Although information on the dating of sites in the first group (those located on floodplains, terraces, or relatively level landforms within 300 feet of water) is sparse, these sites may date to earlier periods of prehistory when hunter-gatherers and early farming groups were more closely tied to areas of high natural resource productivity and diversity.

This preliminary model of land use, based on the location of recorded Native American sites within three miles of the Project, provided a definition of moderate to high probability of archaeological sensitivity of the Project. Specifically, relatively level areas within 700 feet of a stream or wetland within the Project ROW and other areas of Project-related ground disturbance have a moderate to high probability for containing Native American archaeological sites if they have not been previously disturbed.

The majority of recorded historic archaeological sites within three miles of the Project are related to domestic occupations. These primarily include house lots in towns and farmsteads in rural areas. Although one industrial site is recorded within Auburn, this archaeological site type is not expected within the Project. All of the recorded historic archaeological sites are located in close proximity to roads that were created in the 19th century. A brief review of county and town histories suggests that the earliest settlements (circa 1790 through 1810 A.D.) in the City of Auburn and the Towns of Throop, Brutus, and Elbridge were established in close proximity to major waterways, both for transportation and for the construction of mills. A review of available 19th century maps supports the inference that the majority of potential historic archaeological sites (indicated by structure locations on late 19th century maps) will be located in close proximity to roadways established in the 19th century.

Nineteenth century structures are mapped in close proximity to the Project ROW at three locations: 1) at the crossing of Potter Road in Throop, 2) at the crossing of NYS Route 34 in Brutus, and 3) at the crossing of Hamilton Road in Elbridge. Based on the background research conducted to date, areas with moderate to high sensitivity for 19th century historic archaeological sites extend 300 feet along the Project ROW where it will cross roads established in the 19th century. Because earlier historic settlements (circa 1790 through 1810 A.D.) were more frequently located along watercourses rather than established roadways, areas of moderate to high archaeological sensitivity for sites of this age overlap entirely with areas of moderate to high archaeological sensitivity for Native American sites.

When design efforts for the Project have sufficiently identified areas of proposed ground disturbance, a Phase I archaeological survey may be requested by the OPRHP for areas of moderate to high archaeological sensitivity to determine whether archaeological sites are present within the New ROW. This investigation will be coordinated with the OPRHP Field Services Bureau, in conjunction with EM&CP preparation activities. If sites are present and cannot be avoided, their NRHP eligibility will be assessed using data obtained during the Phase I survey, or by subsequent Phase II archaeological investigations if they are deemed necessary. Project-related adverse effects to sites determined to be NRHP-eligible and which cannot be avoided will be mitigated through a Phase III archaeological investigation (data recovery excavation) or through a research program designed through consultation with Department of Public Service ("DPS") Staff and the OPRHP.

The visual impacts for this Project to cultural resources are limited, primarily due to the proposed construction within or immediately adjacent to existing ROW. In many portions of the Project ROW, areas of existing vegetation and development further screen the Project ROW. In open agricultural areas, the transmission lines may be viewed intermittently across open fields. As shown on Figure 2-1, most known NRHP-listed or eligible resources are located 0.25 miles or further from the Project ROW, with two notable exceptions. The proposed Project will run adjacent to two NRHP-eligible properties: 8181 NY 5 in Sennett, Cayuga County (01117.000035); and 8187 NY 5 in Sennett, Cayuga County (01117.000036). Based on a windshield survey conducted in November 2012, these resources may require re-evaluation for NRHP eligibility. Previous survey forms for these properties were not available from OPRHP; however, the resources appear to have lost integrity since the previous determination was made.

The Elbridge Historic District (01NR01770) is located approximately 0.25 mile north of the Project ROW at its closest point. Vegetation obscures views to the Existing ROW. All other known historic properties are located over 0.5 mile from the Project ROW, and views are not anticipated.

4.5 Terrestrial Ecology and Wetlands

This section summarizes the potential effects to ecological and wetland resources which are anticipated as a result of the construction, operation and maintenance of the proposed Project and identifies measures to avoid or minimize these potential impacts when implemented. A desktop analysis was completed based on an overlay of Project facilities using existing information from federal and state agency databases, and state agency correspondence to ascertain the presence of biological and natural resources likely to occur in the vicinity of the Project.

Predominant vegetation communities were characterized during site visits by biologists and ecological classifications as described in *Ecological Communities of New York State* (Edinger, et al, 2002).

The presence of potentially jurisdictional wetlands and other waters of the United States were determined based on a review of existing information from the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) wetland maps (Auburn, Skaneateles, Weedsport, and Jordan quadrangles) (USFWS 2009) and the New York Department of Environmental Conservation (NYSDEC) Freshwater Wetland maps (NYSDEC 2007). The NWI database indicates potential wetland areas based on the interpretation of remotely-sensed imagery with limited field verification which often coincides with state-regulated wetlands and surface water features. Current aerial imagery (dated June 2011 and copyrighted by Microsoft Corporation, 2012), the USGS National Hydrography Dataset (NHD USGS, 2010), and the Natural Resources Conservation Service (NRCS) soil surveys for Onondaga County, NY (USDA-NRCS 2010) and Cayuga County, NY (USDA-NRCS 2011) were used to supplement the review of wetland maps to determine wetland areas.

A literature review was conducted to determine the status and distribution of resident and transient wildlife species which may occur within the Project area. Information sources included published literature, and NYSDEC databases searches. The USFWS Federally-listed Threatened and Endangered Species and Candidate Species County List was evaluated, and data request letters were submitted to the New York Department of Environmental Conservation - Natural Heritage Program (NYNHP) to assess potential impacts to documented species and sensitive or unique ecological habitats potentially occurring within the Project ROW (USFWS 2012; NYNHP 2012).

Potential Project-related effects to ecological communities and wetlands were evaluated using the above-referenced spatial data in conjunction with the preliminary Project design. The proposed limit of the expanded transmission line ROW defines the area where potential impacts from vegetation clearing and other construction activities may occur.

4.5.1 Vegetation

The distribution of ecological communities within the Project ROW and adjacent areas are consistent with development within the agricultural, rural residential, and urban landscapes found within the Towns of Elbridge, Brutus, Throop, the Village of Elbridge and the City of Auburn. Wetland communities such as palustrine shallow emergent marsh and palustrine scrub-shrub communities are scattered throughout the Project ROW. Upland communities such as old field and successional shrubland communities are also commonly found throughout the entire Project ROW. Upland northern deciduous forested areas and palustrine forested wetland communities are also found scattered along the National Grid ROW west of Elbridge to the point where the Project turns south on the NYSEG ROW to the State Street Substation in the City of Auburn (tap point). In the north-south oriented portion of the Project ROW north of the City of Auburn and in the Town of Throop, successional old field and shrubland and shallow emergent wetland communities dominate the cover type profile, while both upland and wetland forested communities are scattered along the eastern and western edges of the Existing ROW; primarily at the southern end of the ROW, north of the State Street Substation.

Table 4-7 provides a cumulative summary of ecological communities along the Project ROW.

Table 4-7 Community Cover Types Intersecting the Project ROW

Vegetation Community Classification	Description	Community within New ROW*		Community within Existing National Grid ROW		Community within Existing NYSEG ROW	
		Acres	%	Acres	%	Acres	%
Urban, vacant land	Roads and other infrastructure	1.0	1.2	3.6	1.9	1.7	1.7
Mowed Lawn	Mowed lawns and ROWs	4.1	4.9	5.2	2.8	6.2	6.1
Successional old field	OF communities	4.4	5.3	36.6	19.5	10.6	10.5
Successional shrubland	SS communities	10.6	12.8	63.3	33.8	22.0	21.7
Northern Deciduous Forest (NDF)	NDF communities	23.1	27.8	0	0	0	0
Palustrine forested wetlands	PFO wetland	3.2	3.9	0	0	0	0
Palustrine shrub swamp wetlands	PSS wetland	0.2	0.2	2.0	1.1	1.8	1.8
Palustrine shallow emergent marsh wetlands	PEM wetland	7.3	8.8	28.7	15.3	13.0	12.8
Cropland/Field Crops	Active row and field crops	28.5	34.3	47.8	25.5	43.5	43
Pastureland	Active or reverting pastureland	0.6	0.8	0.1	0.1	2.4	2.4
TOTALS		**83.1**	**100**	**187.3**	**100**	**101.2**	**100**

*Area calculations are limited to proposed New ROW.

All wetland calculations are based upon field wetland delineation conducted in October 2012. Refer to Attachment B – Wetland Delineation Report: Figure 5.

Urban vacant land

Urban vacant land is characterized as open sites in developed, urban areas that have been cleared either for construction or following the demolition of a building. Vegetation may be sparse, with large areas of exposed soil, and often with rubble or other debris.

Characteristic trees are often naturalized exotic species such as Norway maple (*Acer platanoides*), and a wide variety of ornamental plantings. Urban, vacant land accounts for 1.0 acres, or 1.2 percent, of total cover along the New ROW, 3.6 acres, or 1.9 percent, of total cover along the Existing National Grid ROW, and 1.7 acres, or 1.7 percent, of the total cover along the Existing NYSEG ROW.

Mowed Lawn

Residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and there is less than 30% cover of trees makes up 4.1 acres, or 4.9 percent, of total cover along the New ROW, 5.2 acres, or 2.8 percent, of total cover along the Existing National Grid ROW, and 6.2 acres, or 6.1 percent, of the total cover along the Existing NYSEG ROW. Ornamental and/or native shrubs may be present, usually with less than 50% cover. The groundcover is maintained by mowing.

Successional Old Field

Upland successional old field communities are commonly encountered along the Project ROW and make up 4.4 acres, or 5.3 percent, of total cover along the New ROW, 36.6 acres, or 19.5 percent, of total cover along the Existing National Grid ROW, and 10.6 acres, or 10.5 percent, of the total cover along the Existing NYSEG ROW. Successional old field communities can be characterized as meadows dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming or development), and then abandoned.

Characteristic herbaceous species observed within the Project ROW included Canada goldenrod (*Solidago Canadensis*), timothy (*Phleum pratense*), bluegrasse (*Poa pratensis*), orchard grass (*Dactylis glomerata*), ragweed (*Ambrosia artemisiifolia*), common chickweed (*Cerastium arvense*), quackgrass (*Agropyron repens*), common evening primrose (*Oenothera biennis*), old field cinquefoil (*Potentilla simplex*), New England aster (*Aster novae-angliae*), wild strawberry

(*Fragaria virginiana*), Queen-Anne's lace (*Daucus corota*), hawkweeds (*Hieracium* spp.), dandelion (*Taraxacum officinale*), and ox-tongue (*Picris hieracioides*).

Shrubs were also noted within the successional old field communities along the Project ROW, but collectively they comprised less than 50% cover in the community. Characteristic shrubs observed included gray dogwood (*Cornus foemina*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum recognitum*), raspberries (*Rubus* spp.), common buckthorn (*Rhamnus cartharica*), staghorn sumac (*Rhus typhina*), hawthorne (*Crataegus* spp.), and multiflora rose (*Rosa multiflora*).

Successional Shrubland

Upland successional shrubland communities are commonly found along the Project ROW, and represent 10.6 acres, or 12.8 percent, of total cover along the New ROW, 63.3 acres, or 33.8 percent, of total cover along the Existing National Grid ROW, and 22.0 acres, or 21.7 percent, of the total cover along the Existing NYSEG ROW. A successional shrubland community typically occurs on sites that have been cleared (for farming, logging, development, etc.) or otherwise disturbed. This community has at least 50% cover of shrubs.

This community was dominated by at least 50% cover of shrub species, including gray dogwood, raspberries, hawthorne, serviceberries (*Amelanchier* spp.), choke-cherry (*Prunus virginiana*), saplings of cottonwood (*Populus deltoids*) and red maple (*Acer rubrum*), common buckthorn, staghorn sumac, arrowwood, and multiflora rose.

Northern Deciduous Forest

Two distinct upland forest ecological communities dominate the upland northern deciduous forested (NDF) portions of the Project Area located immediately adjacent to the Project ROW. Since the Project utilizes existing maintained utility line ROWs, no NDF communities exist within the existing ROW. The only impacts to NDF communities anticipated include the forested areas converted to the widened, maintained ROW along the route. These NDF communities include the Rich Mesophytic Forest and the Beech-Maple Mesic Forest. A description of each of these significant ecological communities follows. Collectively, NDF

communities comprise 23.1 acres, or 27.8 percent, of total cover along the New Project ROW, and since maintenance activities selectively eliminate forested lands within the Existing National Grid ROW or NYSEG ROW, none exist there.

Rich Mesophytic Forest

One of the co-dominant upland forest types observed along the edges of the Project ROW is the Rich Mesophytic Forest. This community can be described as a hardwood or mixed hardwood/conifer forest that occurs on the rich, fine-textured, well-drained soils, and one that typically occurs on mid– and upper level side slopes between pine-northern hardwood forests and wetland communities which occupy the lower slopes and ravines along the Project ROW.

Canopy vegetation co-dominant species noted in the rich mesophytic forest lands adjacent to the Project ROW include the following species: red oak (*Quercus rubra*), red maple (*Acer rubrum*), white ash (*Fraxinus americana),* American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), and black cherry (*Prunus serotina*). Less common in the canopy and sub-canopy are white oak (*Quercus alba),* white pine (*Pinus strobus*), basswood (*Tilia americana*), Eastern hop hornbeam (*Ostrya virginiana*), and striped maple (*Acer pensylvanicum*).

This forest has a well-developed shrub layer with a variety of characteristic species including musclewood (*Carpinus caroliniana*), arrow-wood (*Viburnum acerifolium*), alternate-leaved dogwood (*C. alternifolia*), and blueberry (*Vaccinium pallidum*).

The groundlayer within the rich mesophytic forest lands is fairly rich in species such as interrupted fern (*Osmunda claytoniana*), jack-in-the-pulpit (*Arisaema triphyllum*), and partridge berry (*Mitchella repens*),

Beech-Maple Mesic Forest

Another of the co-dominant upland forest communities found along the Project ROW boundary is the Beech-Maple Mesic Forest. This community can be described as a hardwood forest with sugar maple and American beech co-dominating the overstory layer. These forests occur on moist, well-drained, usually acid soils on the higher slopes and ridges of hills. Common associate tree species noted along the Project ROW boundary included yellow birch (*Betula alleghaniensis*), white ash, Eastern hop hornbeam, and red maple.

The shrub and herbaceous layers in this community is typically very sparsely populated. However, some striped maple and gray dogwood were noted in this community type along the route. Though the field work associated with this Project was conducted in the late fall of the year, it can be expected that many spring wildflowers may bloom in the Beech-Maple Mesic Forest community before the canopy trees leaf out.

Palustrine Forested Wetlands

Three distinct forested wetland ecological communities dominate the portions of the Project area located immediately adjacent to the Project ROW. Since the Project utilizes existing maintained utility line ROWs, no forested wetland communities exist within the existing ROW. The only impacts to forested wetland communities anticipated include the forested areas converted to the widened, maintained ROW along the route. These communities include the Red Maple-Hardwood Swamp, the Silver Maple-Ash Swamp, and the Hemlock-Hardwood Swamp. Collectively, forested wetland communities comprise 3.2 acres, or 3.9 percent, of total cover along the New ROW, and as stated above no cover along the Existing National Grid ROW and the Existing NYSEG ROW.

Red Maple-Hardwood Swamp

One of the co-dominant forested wetland communities identified along the boundary of the Project ROW is the Red Maple-Hardwood Swamp community. This community can be described as a hardwood swamp that occurs in poorly drained depressions, usually on inorganic soils. This is a broadly defined community with many regional variants. In any one stand, red maple is either the only canopy dominant, or it is co-dominant with one or more hardwoods including green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), yellow birch, and swamp white oak (*Quercus bicolor*). Other trees with low percent cover noted in this community along the ROW include bitternut hickory (*Carya cordiformis*), ironwood (*Carpinus carolinianus*), and white pine.

The shrublayer was particularly well-developed and quite dense in certain areas. The shrub layer was dominated primarily by speckled alder (*Alnus rugosa*), common elderberry (*Sambucus canadensis*), spicebush (*Lindera benzoin*), silky dogwood (*Cornus amomum*), and red osier dogwood (*Cornus sericea*).

The herbaceous layer was also found to be quite diverse and dominated by ferns, including sensitive fern, cinnamon fern (*Osmunda cinnamomea*), and royal fern (*O. regalis*), with much lesser amounts of crested wood fern (*Dryopteris cristata*), and spinulose wood fern (*Dryopteris carthusiana*) noted.

Characteristic herbs noted included skunk cabbage (*Symplocarpus foetidus*), spotted jewelweed (*Impatiens capensis*), white hellebore (*Veratrum viride*), various sedges (*Carex spp.*), arrow arum (*Peltandra virginica*), and tall meadow rue (*Thalictrum pubescens*). Open patches within the swamp may contain other herbs characteristic of shallow emergent marsh including the invasive species purple loosestrife (*Lythrum salicaria*).

Silver Maple-Ash Swamp

Another forested wetland community type encountered along the boundary of the Project ROW is the Silver Maple-Ash Swamp community. This community can be described as a hardwood basin swamp that typically occurs in poorly-drained depressions. These communities are characterized by uniformly wet conditions with minimal seasonal fluctuations in water levels.

The dominant trees found in this community adjacent to the Project ROW included silver maple (*Acer saccharinum*) and green ash (*Fraxinus pennsylvanica*). Other trees noted, but to a lesser degree of coverage included American Elm, white ash, swamp white oak, and red maple.

The shrub layer was dominated primarily by shrubs including silky dogwood, red osier dogwood, speckled alder, spicebush, Northern arrowwood (*Viburnum recognitum*) and sapling canopy trees.

The diverse herbaceous layer included sensitive fern, skunk cabbage, false nettle (*Boehmeria cylindrica*), wood-nettle (*Laportea canadensis*), cinnamon fern, royal fern, spotted jewelweed, manna grasses (*Glyceris spp.*), reed canary grass (*Phalaris arundinacea*), purple loosestrife, common reed (*Phragmites australis*) and various sedges.

Hemlock-Hardwood Swamp

The third forested wetland community encountered along the boundary of the Project ROW is the Hemlock-Hardwood Swamp community. This community can be described as a mixed swamp that occurs on mineral soils and deep muck in depressions which receive groundwater

discharge. These swamps were found to have a fairly dense canopy (80 to 100% cover), a sparse shrub and herbaceous layer, and generally-speaking, a low species diversity.

The overstory layer is typically dominated by hemlock (*Tsuga canadensis*), and co-dominated by red maple and yellow birch. Other less frequently encountered tree species include green ash and white pine.

The shrub layer, though sparsely populated, included primarily saplings of the dominant canopy trees.

As with the shrub layer, the herbaceous layer was very limited as well. Where present, common herbs in this community included cinnamon fern, sensitive fern, and various sedges (*Carex spp.*).

Palustrine Shrub Swamp Wetlands

Shrub Swamp Wetlands though typically very common wetland community types along utility line corridors, were noticeably sparse throughout the Project ROW and surrounding region. Shrub swamp communities comprised only 0.2 acres, or 0.2 percent, of total cover along the New ROW, 2.0 acres, or 1.1 percent, of total cover along the Existing National Grid ROW, and 1.8 acres, or 1.8 percent, of the total cover along the Existing NYSEG ROW. This community can be described as wetland dominated by tall shrubs that occur in a wet depression or valleys not associated with lakes, or as a transition zone between a marsh, swamp or upland community. Shrub Swamp Wetlands are also typically commonly encountered in areas of previous disturbances such as pastureland reverting to a wetland condition and utility line ROWs. This is consistent with what was found during field assessments conducted for the Auburn Transmission Project, though on a limited basis.

The shrub layer was co-dominated within the Project ROW by speckled alder, red osier dogwood, silky dogwood (*C. amomum*), meadow-sweet (*Spiraea alba*), and pussy willow species (*Salix discolor*).

Other shrubs found in the Shrub Swamp communities within the Project ROW included gray dogwood, smooth alder (*Alnus serrulata*), spicebush, and Northern arrowwood.

Palustrine Shallow Emergent Marsh

The most common wetland community encountered along the Project ROW is the Shallow Emergent Marsh Wetland community, which comprises 7.3 acres, or 8.8 percent, of total cover along the New ROW, 28.7 acres, or 15.3 percent, of total cover along the Existing National Grid ROW, and 13.0 acres, or 12.8 percent, of the total cover along the Existing NYSEG ROW. This community can be described as a marsh meadow community that occurs on mineral soil or deep muck soils that are permanently saturated and seasonally flooded. The vegetative overstory and shrub layers are minimal or non-existent (<50% coverage) as the vegetative strata is primarily dominated by the herbaceous layer.

Most abundant herbaceous plants noted along the Project ROW included common cattail (*Typha latifolia*), thin leaf cattail (*Typha angustifolia*), various sedges (*Carex spp.*), manna grasses, green bulrush (*Scirpus cyperinus*), marsh bedstraw (*Galium palustre*), spotted jewelweed, reed canary grass, purple loosestrife, common reed, tussock sedge (*Carex stricta*). Other herbaceous plants noted along the Project ROW, but not considered dominant include, blue flag iris (*Iris versicolor*), sensitive fern, beggerticks (*Bidens* spp.), swamp milkweed (*Asclepias incarnata*), asters (*Aster spp.*), royal and cinnamon ferns, and soft rush (*Juncus effusus*).

The shallow emergent marsh communities along the Project ROW did have scattered shrubs throughout, which included silky and red osier dogwoods, various willow shrubs (*Salix* spp.), meadow sweet, and buttonbush (*Cephalanthus occidentalis*).

Cropland/Field Crops/Hedgerow

The most commonly encountered ecological community observed along the Project ROW is the Cropland/Field Crop community. This community can be described as agricultural fields planted in field crops (such as alfalfa, wheat, timothy (hay), and oats), and row crops (such as corn and soybeans). This community includes hayfields that are rotated to pasture. Crop vegetation accounts for 28.5, or 34.3 percent, of total cover along the New ROW, 47.8 acres, or 25.5 percent, of total cover along the Existing National Grid ROW, and 43.5 acres, or 43.0 percent, of the total cover along the Existing NYSEG ROW. This vegetative class also includes all land being actively tilled and areas where this year's crops had been recently harvested (i.e., cut corn, mowed hay fields, etc.).

Pastureland

Pastureland is agricultural land permanently maintained (or recently abandoned) as a pasture area for livestock such as cattle, sheep and horses. These areas are typically planted with grasses, legumes, or grass/legume mixtures for livestock grazing. Pastureland accounts for 0.6 acres, or 0.8 percent, of total cover along the New ROW, 0.1 acres, or 0.1 percent, of total cover along the Existing National Grid ROW, and 2.4 acres, or 2.4 percent, of the total cover along the Existing NYSEG ROW.

4.5.1.1 Invasive Species

The presence of invasive plant species is generally a common occurrence along transmission line ROWs and other utility and transportation corridors. Table 3-1 of Attachment C hereof (Invasive Species Survey Report) shows the NYSDEC "Interim List" (according to habitat) and identifies the invasiveness ranking of each invasive plant species as determined by the New York State Invasive Species Council.

In October 2012, a URS staff biologist conducted field surveys throughout the Project Corridor identifying and documenting areas where invasive plant species were prevalent. GPS positions were recorded and photos were taken at each location. In forested areas, the edges of the Existing ROW were investigated to look for evidence of invasive insects (pitted bark, exit holes, serpentine galleries, bark splitting, epicormic shoots and canopy die-back). Results of the field studies confirmed that the presence of invasive plant species along the Project ROW. Commonly observed invasive plant species within the Project ROW included multi-flora rose (*Rosa multiflora*), common reed (*Phragmites australis*), bush honeysuckles (*Lonicera sp.*), reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and common buckthorn (*Rhamnus cathartica*). The specific locations of invasive plant species populations identified within the Project Corridor are documented on the accompanying figures and photos of these locations can be viewed in the attached photographic log (see Attachment C).

Invasive insect species are also documented as existing in New York State, and Table 3-2 in Attachment C lists two insect species of primary interest. Results of the field investigations conducted by a URS Biologist in October 2012 indicated that no evidence (pitted bark, exit holes, serpentine galleries, bark splitting, epicormic shoots and canopy die-back) of either the

Emerald Ash Borer (*Agrilus planipennis*) or the Asian Longhorned Beetle (*Anoplophora glabripennis)* existed within the Project corridor.

4.5.1.2 Environmental Effects

The long-term conversion of existing forested communities to managed grassland or shrubland would occur as a result of construction and maintenance of the Project. Widening of the Existing ROW will require the permanent removal of forest cover, while improved road access and other construction activities will require the selective clearing of undesirable woody species and/or saplings. The extent of direct impacts will vary depending on the quality of vegetation and soils, the type of proposed Project activity, and the methods used to facilitate construction. Based on the results of field review, the estimated acreage of forest cover types that would be removed as a result of the Project is 26.3 acres.

Construction and improvements will occur along existing transmission line ROW and along New ROW within forested areas and actively cultivated agricultural lands. The methods employed to widen and maintain the Project ROW will be comparable to current ROW management practices**.**

Mechanical or chemical clearing methods or a combination of both will be used for the removal of unwanted vegetation in accordance with the Applicant's Long-Range ROW Management Plan as may be amended from time to time. The current Long-Range ROW Management Plan generally include the following goals:

1. Maintain the transmission system free from tree-caused outages by managing vegetation so that is it is not a limiting factor in the continuous operation of the transmission system.
    a. Carry out a regular maintenance and patrol routine that will identify and correct vegetation conditions that could potentially lead to line outages.
2. Minimize long-term vegetation management costs by encouraging the development of naturally occurring, relatively stable, low-growing plant communities that are capable of effectively inhibiting invasion by tall-growing, undesirable trees, thereby reducing the density of undesirable tall-growing species over time.

a. Site-specific prescriptions for attaining system reliability will be done in a manner that retains as much low-growing desirable vegetation as is physically and economically practical while removing undesirable tall-growing vegetation.
b. In sites where the conductor height ensures that a mature tree will not intrude into the Minimum Clearance Achieved At the Time of Maintenance distances or be able to fall into the Minimum Clearance Zone, tall-growing tree species may be retained on the ROW as long as there is no undesirable effect on access, construction, reliability, or public safety.

3. Maintain the ROW in a manner that does not compromise the quality of the environment.
    a. Company ROW management practices will be implemented in such a way that appropriate measures are taken to minimize adverse impacts on the environment.
4. Manage the ROW in harmony with existing land uses.
    a. The vegetation management program will recognize and permit multiple uses of ROWs which are compatible with the reliable and safe operation of the transmission facilities and which allow for full compliance with all regulatory requirements.
5. Minimize long-term vegetation management costs by selecting the most economical, site-specific vegetation management techniques that will meet all other goals.
6. Minimize herbicide use by prescribing herbicides and methods of application that will effectively control undesirable species, maximizing retention of desirable species and also minimizing herbicide usage during future treatments.

The relevant sections of the NYSEG Long-Range ROW Management Plan that pertain to chemical control methods (including ground applications of New York State-approved herbicides to target vegetation species) are included in Attachment D hereof. Section 2.9 of the National Grid BMPs contains the company's procedures and specifications for New York State-approved herbicide application. The EM&CP will describe the herbicide use plan for vegetation clearing during construction of the Project.

4.5.2 Wetlands

One of the primary functions of wetland communities is to provide critical habitat to numerous flora and fauna that depend upon the characteristic attributes of wetland ecosystems. These attributes include providing food and essential cover for a variety of species during courtship and breeding seasons, during young rearing, as a loafing/resting area during spring and fall migration periods, and by providing shelter. In addition to wildlife value, wetlands provide hydrological benefits including stormwater retention, water quality improvement, and erosion control. During flood periods, wetlands alleviate rising storm waters by acting as temporary storage areas and protecting downstream areas from flood damage. Water quality is improved through the removal of nutrients, the reduction of sediment load, and the processing of organic and chemical wastes. Additionally, wetlands have a recreational significance as they provide habitat to numerous game species and contribute to the aesthetic value of the landscape.

Federal and state agencies, including the U.S. Army Corps of Engineers (USACE) and NYSDEC, protect wetlands and other waters through regulation and permitting activities. The USFWS employs the Cowardin (1979) hierarchy to classify wetland cover types, which are assigned based on the most abundant cover type in the wetland. A wetland is assigned multiple cover types if the constituent cover types compose at least 30 percent of the area.

Wetlands shown on New York's freshwater wetlands map are classified according to their ability to perform specific wetland functions and provide wetland benefits. Class I wetlands have the highest rank, and the ranking decreases from Classes II through IV. New York State assigns a cover class based on the cover type that constitutes at least 50 percent of the wetland area (NYSDEC Environmental Mapper 2012). However, this information is not included in the wetland database maintained by NYSDEC and therefore, wetlands identified on New York's freshwater wetland map were assigned cover types based on NWI mapped wetlands that correspond with the NYSDEC mapped wetlands.

4.5.2.1 NYSDEC-Regulated Wetlands

New York State's freshwater wetlands are protected under Article 24 of the Environmental Conservation Law, commonly referred to as the Freshwater Wetlands Act. Pursuant to Article 24, New York regulates wetlands greater than 12.4 acres or wetlands of any size that possess

unique qualities. Additionally, New York also regulates a wetland's adjacent area or those areas of land or water that are outside a wetland and within 100 feet of the wetland boundary.

Six NYSDEC-regulated wetlands (Wetlands A-4, A-7, JOR-15, JOR-16, JOR-17, and W-35) that total approximately 4.8 acres (based upon the NYSDEC mapped boundaries) exist within the New ROW, and approximately 16.6 acres exist within the Existing ROW. Figure 4-16 shows the location of NYSDEC-regulated wetlands within the Project Corridor.

Table 4-8 provides a summary of NYSDEC-regulated wetlands traversed by the Project ROW. All six of these NYSDEC-regulated wetlands are NYSDEC Class II wetlands (per NYCRR Part 664, §664.5) that have shallow emergent marsh (PEM) wetland community characteristics within the Existing maintained Project ROW, and have various degrees of PEM and palustrine forested (PFO) wetland community characteristics in the New ROW.

4.5.2.2 USACE-Regulated Wetlands

The U.S. Army Corps of Engineers (USACE) has regulatory jurisdiction over wetlands and other waters of the United States according to Section 404 of the Clean Water Act. USFWS National Wetland Inventory (NWI) maps were used to identify existing wetlands within the Project ROW and adjacent areas (USFWS 1985). Wetlands identified as palustrine scrub-shrub (PSS) and palustrine shallow emergent marsh (PEM) were identified within the Project ROW and adjacent areas, Palustrine forested wetland communities were also identified, not currently within the Existing ROW, but in the New ROW along the boundaries of the Existing ROW. See Figure 4-16 for the location of these NWI wetlands.

Table 4-8 NYSDEC-Regulated Wetlands within the Project ROW

Wetland ID	USFWS Classification Code/Cowardin Class	Area within New ROW (Acres)	Area within the Existing ROW (Acres)
A-4	Class II/PEM/PFO	0.4	2.3
A-7	Class II/PEM/PFO	2.2	5.7
JOR-15	Class II/PEM/PFO	0.2	0.5
JOR-16	Class II/PEM/PFO	0.8	4.1
JOR-17	Class II/PEM/PFO	0.2	1.2
W-35	Class II/PEM/PFO	0.8	2.7
Total		**4.8**	**16.6**

Wetland calculations are based upon NYSDEC Freshwater Wetland Mapping

Field Delineated Wetlands during October 2012, a URS Biologist conducted a field investigation of the Project ROW and adjacent areas to evaluate the area for potentially jurisdictional wetland and stream resources. Results of that investigation indicated the presence of 67.23 acres of wetlands, distributed among 30 wetland areas and 11 associated streams. Specific locations of wetlands are shown on mapping in Attachment B (Wetland Delineation Report): Figure 5 and photos in the photographic log of Attachment B.

Table 4-9 summarizes the results of the individual wetlands identified in the Project ROW and adjacent areas.

Table 4-9: Delineated Wetlands Within the Project ROW and Adjacent Areas

Wetland ID	Wetland Type	Acreage Within Project ROW and Adjacent Areas
A	PEM	0.11
B	PEM/PFO	B1 = 3.18 B2 = 1.94 B3 = 4.31 B4 = 2.00 Total B = 11.43
C	PEM/PFO	C1 = 0.76 C2 = 3.12 C3 = 4.51 Total C = 8.39
D	PEM/PSS	0.09
E	PEM/PUB	0.01
F	PEM	0.14
G	PEM	0.24
H	PEM/PFO	5.09
I	PEM/PFO	1.02
J	PEM/PFO	1.32
K	PEM	0.89
L	PEM/PFO	1.48
M	PEM/PFO	5.44
N	PEM/PSS/PFO	0.43
O	PEM/PSS	0.38
P	PEM	0.02
Q	PEM/PSS	0.92
R	PEM/PSS	0.84
S	PEM	13.98
T	PEM	2.56
U	PEM/PFO	2.12
V	PEM/PSS	0.72
W	PEM	0.92
X	PEM/PSS	0.31

Wetland ID	Wetland Type	Acreage Within Project ROW and Adjacent Areas
Y	PEM	0.01
Z	PEM/PFO	5.58
AA	PEM	1.23
BB	PEM	1.26
CC	PEM	0.17
DD	PEM	0.13

4.5.2.3 Environmental Effects and Mitigation

Potential effects to wetland areas may occur directly or indirectly during Project construction and operation. Every practical attempt will be made to avoid wetlands and minimize the area of permanent disturbance. The long-term or permanent loss of wetlands and wetland functions during construction are not anticipated, although the conversion of forested wetland communities to shallow emergent marsh and/or scrub-shrub wetland communities is anticipated as a result of the widening of the Existing ROW.

Mitigation strategies will be utilized to address short-term (temporary) wetland impacts during construction. Sediment and erosion control methods will also be implemented, which may include silt fencing, use of water bars, and planting/seeding/mulching of exposed soils to prevent soil erosion and sedimentation in nearby wetlands and surface waters due to runoff. Wetland disturbance will be minimized by scheduling construction activities during drier periods of the year, staging construction materials outside of wetlands and utilizing equipment mats when moving equipment in wetlands and agricultural areas when possible. Use of existing access roads will be exercised whenever possible. When not an option, access roads will generally be temporary, and the area will be restored to pre-construction condition following completion of work in the area. All mitigation strategies, erosion & sediment control techniques, and temporary and permanent access roads will be identified during final design, and will be included in the EM&CP.

4.6 Wildlife

Wildlife habitats in Cayuga and Onondaga Counties are largely associated with the primary land uses including active agricultural, rural residential, urban, upland forests, and wetland/riparian areas. As previously described, the Project ROW and adjacent areas is dominated by a variety of ecological community types. The value of these communities to various wildlife species is summarized below, and a summary of representative wildlife reasonably expected to occur in the Project ROW and adjacent areas is shown on Table 4-10 below.

Mature Upland Forest and Forested Wetland Communities

Results of on-site surveys conducted in Fall 2012 indicate that upland and wetland forest communities within the New ROW provide habitat for wildlife species that require forest interior conditions, such as warblers (ie., common yellowthroat and wood warblers), orchard and northern orioles, black-capped chickadee, and several woodpecker species (hairy, downy, red breasted, and pileated). The forested wetlands located throughout the Project ROW provide habitat for waterfowl, including Canada goose, great blue heron, and a variety of duck species (i.e., mallards, green wing teal, and wood duck). Common mammals that utilize forested habitats and likely occur within the Project ROW include gray squirrel, red squirrel, eastern chipmunk, whitetail deer, and opossum. Although not specifically seen, evidence of fairly recent and old beaver activity was commonly observed in some of the larger wetland communities as well.

Successional Communities

Successional community types, such as successional old field and shrubland, provide nesting and escape cover for a variety of wildlife species. Various songbirds, such as gray catbird, American goldfinch, northern cardinal, cedar waxwing, and field sparrows, require low brushy vegetation for nesting, rearing young, and for escape cover. Common mammals typically found in these types of brushy successional habitat include whitetail deer and eastern cottontail rabbit. Raccoon and striped skunk are especially expected in this type of successional forest due to its proximity to wetland/riparian areas where their primary forage occurs. Common reptiles and amphibians that may occur in successional habitats include a variety of newts, salamanders, and snakes. In

addition, some of the shrub species found in these areas produce berries, which provide a quality food source for many birds and mammal species.

Shallow Emergent Marsh/Riparian Wetland Community

In combination with the numerous shallow emergent marsh wetlands and riparian wetlands associated with streams within the Project ROW, significant wetland/aquatic habitats exist. These areas provide a source of food, water, and cover to a variety of waterfowl and many of the upland species mentioned previously. These communities also may support fishes, amphibians, and a diversity of insects and aquatic invertebrates. They are preferred foraging areas for aerial insectivores, including songbirds and bats. In addition, these communities provide habitat for various wetland/aquatic wildlife species, such as Canada goose, great blue heron, belted kingfisher, mallard, wood duck, and reptiles such as painted turtle, green frog, spring peepers, bullfrog, and American toad. Numerous whitetail deer were observed along the Project ROW during field work in the fall of 2012, especially in shrubland communities and in transitional areas between community types (i.e., forest and active agriculture field edges). This provides further evidence that well used wildlife migratory corridors link the different ecological communities within the Project ROW.

Vegetation cover types include active agricultural land, two upland forest communities, three forested wetland communities, shallow emergent marsh and shrub wetland communities, and maintained lands (mowed lawns, urban/vacant land). Land use practices, including livestock grazing, agricultural cultivation, road and utility corridor maintenance, and rural and residential development, have extensively modified and/or fragmented existing wildlife habitats within the Project ROW. Wildlife species composition and abundance within the Project ROW varies based on factors such as habitat size and adjacent land use. A greater diversity and number of animal species often reside in transition areas between different ecological communities, such as shrubby corridors between agricultural land and established forest, edges of maintained utility line ROWs, etc. Amphibians and reptiles likely to occur in transition areas include the eastern American toad, eastern garter snake, the eastern milk snake and the black rat snake.

Birds commonly found in these types of habitat include red-winged blackbird, European starling, and field sparrow.

Active Agricultural Land

Open area communities, such as those found in actively cultivated or grazed areas, provide grazing habitat for a wide variety of wildlife species such as white-tailed deer, wild turkey, raccoon, gray and red squirrel, cottontail rabbit, and Eastern chipmunk. Intact riparian and wetland areas provide habitat for most wildlife species listed above and provide breeding habitats for numerous reptiles and amphibians. Many of the smaller wildlife species migrate between cover types, often using riparian corridors for movement.

Table 4-10 Summary of Representative Wildlife Reasonably Expected to Occur in the Project ROW and Adjacent Areas

Common Name	Scientific Name	Common Name	Scientific Name
Amphibians			
American toad	*Bufo americanus*	Northern leopard frog	*Lithobates pipiens*
Pickerel frog	*Lithobates palustris*	Bullfrog	*Lithobates catesbeiana*
Eastern red-spotted newt	*Notophthalmus viridescens*	Green frog	*Rana clamitans melanota*
Jefferson salamander	*Ambystoma jeffersonianum*	Wood frog	*Lithobates sylvatica*
Reptiles			
Midland painted turtle	*Chrysemys picta marginata*	Northern black racer	*Coluber constrictor*
Common snapping turtle	*Chelydra serpentina*	Black rat snake	*Elaphe obsoleta*
Northern water snake	*Natrix sipedon*	Northern brown snake	*Storeria dekayi*
Eastern garter snake	*Thamnophia sirtalis*	Northern redbelly snake	*Storeria occipitomaculata*
Eastern milk snake	*Lampropeltis triangulum*	Northern ringneck snake	*Diadophis punctatus edwardsi*
Birds			
American crow	*Corvus brachyrhynchos*	Red tailed hawk	*Buteo jamaicensis*

Table 4-10 Summary of Representative Wildlife Reasonably Expected to Occur in the Project ROW and Adjacent Areas

Turkey vulture	*Cathartes aura*	Red-shouldered hawk	*Buteo lineatus*
American robin	*Turdus migratorius*	Wild turkey	*Meleagris gallopavo*
Great Blue Heron	*Ardea herodias*	Canada goose	*Branta canadensis*
Mammals			
Raccoon	*Procyon lotor*	Red fox	*Vulpes vulpes*
Coyote	*Canis latrans*	Eastern cottontail rabbit	*Sylvilagus floridanus*
White-tailed deer	*Odocoileus virginianus*	Deer mouse	*Peromyscus maniculatus*
Opossum	*Didelphis virginiana*	Eastern mole	*Scalopus aquaticus*
Striped skunk	*Mephitis mephitis*	Gray fox	*Urocyon cinereoargenteus*
Eastern chipmunk	*Tamias striatus*	Eastern gray squirrel	*Sciurus carolinensis*
Little brown myotis	*Myotis lucifugus*	Red squirrel	*Tamiasciurus hudsonicus*

Sources: New York Natural Heritage Program (NYNHP) 2012, WNY Wildlife, 2012.

4.6.1 Environmental Effects and Mitigation

Those wildlife species and habitat occurring within the Project ROW are common throughout Cayuga and Onondaga Counties. Since the Project is located in an existing utility ROW, the level of impacts associated with the expansion of the Existing ROW is expected to result in a minimal change in the structure and function of wildlife habitat within the Project ROW.

While field crops may provide forage opportunities for some mammals and birds, cultivating, planting and harvesting activities often prevent breeding, nesting, and young rearing opportunities for the majority of resident wildlife species. Species often found within pastureland and row crop fields are often transient; temporarily using these areas for bedding and forage opportunities. It is expected that these species may be temporarily displaced during

Project construction and are expected to return upon the completion of construction and restoration activities.

Removal of woody vegetation during Project construction and maintenance will likely require wildlife species to temporarily seek suitable habitat in adjacent areas. Those species preferring edge and early successional habitats are expected to return following construction and restoration activities. The greatest impact to wildlife is expected to occur in those areas where forested communities will be permanently converted to other community types (i.e., old field, shrubland, shallow emergent marsh, etc.). Although some species would benefit from an increase in early successional and edge habitats, species that require forest cover types for food, shelter, and nesting may be adversely affected. It is also possible that early successional habitat would provide new foraging corridors for predatory species.

4.7 Threatened and Endangered Species

Section 7(a) of the Endangered Species Act (ESA) establishes a national program, headed by the USFWS, for the conservation of threatened and endangered species and their respective habitats. The USFWS New York field office publishes Federally-listed Threatened and Endangered Species and Candidate Species County Lists regarding the occurrence of federally protected species. For Cayuga County, the list includes the threatened bog turtle (*Clemmys [=Glyptemys] muhlenbergii*), the endangered Indiana bat (*Myotis sodalis*), and the Bald Eagle (de-listed in 2009). For Onondaga County, the list includes the threatened American Hart's-tongue fern (*Asplenium scolopendrium* var. *americanum*), the threatened eastern prairie fringed orchid (*Platanthera leucophaea*), the threatened small whorled pogonia (*Isotria medeoloides*), the de-listed bald eagle, the threatened bog turtle, the candidate species eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*), and the endangered Indiana bat (*Myotis sodalis*). A brief summary of habitat use requirements for each federally-listed species is presented below.

A letter request was submitted to the New York Natural Heritage Program (NYNHP) for information regarding the presence of threatened and endangered species and unique natural communities in the Project area. In a letter dated November 15, 2012, the NYNHP responded that they had no records of rare or state listed animals or plants, or significant natural communities, on or in the immediate vicinity of the Project. Copies of the foregoing correspondence are provided in Attachment A.

4.7.1 Protected Species

Bald Eagle

The Bald eagle (*Haliaeetus leucocephalus*) is not federally listed but is still protected under the Bald and Golden Eagle Protection Act. Bald eagles typically nest in large trees near large bodies of water. The Project is not expected to affect this species, as Skaneateles Lake, the largest body of water near the Project, is located more than four miles south of the Project. During 2012, a URS biologist walked the Project ROW and did not observe any Bald or Golden Eagles or evidence of nesting locations along the Project ROW and adjacent areas.

Bog Turtle

According to the NYSDEC fact sheet, "the bog turtle (*Glyptemys muhlenbergii*) is a semi-aquatic species, preferring habitat with cool, shallow, slow-moving water, deep soft muck soils, and tussock-forming herbaceous vegetation. In New York, the bog turtle is generally found in open, early successional types of habitats such as wet meadows or open calcareous boggy areas generally dominated by sedges or sphagnum moss. Like other cold-blooded or ectothermic species, it requires habitats with a good deal of solar penetration for basking and nesting. Plants such as purple loosestrife and common reed can quickly invade such areas resulting in the loss of basking and nesting habitat". During 2012, a URS biologist walked the Project ROW and did not observe any bog turtles or potential bog turtle habitat along the Project ROW.

Indiana Bat

The Indiana bat (*Myotis Sodalis*) is a very social species where large numbers cluster together during hibernation. Male and female Indiana bats hibernate in mines and caves during the colder months and roost in crevices and under loose tree bark during warmer months. Groups of female bats form nursery colonies and give birth and raise their young in these tree roosts. According to the NYSDEC fact sheet, "In New York, knowledge of its distribution is limited to known wintering locations-caves and mines in which they hibernate. There are eight hibernacula currently known in Albany, Essex, Warren, Jefferson, Onondaga and Ulster Counties. It is certain that the summer range of this species extends well beyond these counties since the animals disperse to breeding areas and other habitats to feed and raise their young." During 2012, a URS biologist walked the Project ROW in October and did not observe Indiana Bats or their habitat. Follow-up consultation with USFWS in Cortland, New York verified that the Onondaga County hibernacula location is not in the immediate vicinity of the Project. The specific location of the Indiana Bat hibernacula site is very sensitive, therefore, not available for public disclosure. It is known, however, that this site is in excess of 10.0 miles from the Project ROW. A copy of that Telecon Memo that details the nature of that call with USFWS is included in Attachment A.

Eastern Massasauga Rattlesnake

According to the NYSDEC fact sheet, the eastern Massasauga rattlesnake (*Sistrurus catenatus*) is strongly associated with wetlands across most of its range. The preferred habitat is bogs and swamps in New York. Massasaugas frequent other wet, lowland habitats, including marshes and floodplains. Locations that provide open sunny areas with elevated hummocks for basking as well as shaded areas for retreat are ideal. The hummocks are also used as a place for bearing young and, most importantly, for hibernation during winter months. In the summer, the massasauga often moves to drier, upland areas.

Throughout most of its range, the distribution is decidedly disjunctive, with many miles separating populations. Currently, there are only two known populations remaining in New York, one in the Byron-Bergen Swamp of Genesee County, NY (approximately 100 miles west of the Project), and one in Montezuma National Wildlife Refuge (approximately 8-9 miles west of the Project). Both of which occur in boggy, forested wetlands with open areas of low vegetation. During October 2012, a URS biologist walked the Project ROW and did not observe any Eastern Massasauga Rattlesnakes. Follow-up consultation with USFWS in Cortland, NY verified that the known population of the Massasauga Rattlesnake in the Montezuma NWR is not in the immediate vicinity of the Project. A copy of that Telecon Memo that details the nature of that call with USFWS is included in Attachment A.

American Hart's-Tongue Fern

American hart's-tongue fern (*Asplenium scolpendrium var. americanum*) populations require deep shade, continuous high humidity, moist soil, and the presence of dolomitic limestone high in magnesium. According to a 1990 USFWS publication, two of the 10 populations in Onondaga County are located in a State park, four other populations in Onondaga remain small and vulnerable, and the remaining four populations in Onondaga County appear to have been destroyed. During site walkovers by a URS Biologist in 2012, no observations of the plant or its required habitat were observed along the Project ROW. Follow-up consultation with USFWS in Cortland, NY verified that the known populations of American Hart's-Tongue Fern in Onondaga County are not in the immediate vicinity of the Project. A copy of that Telecon Memo that details the nature of that call with USFWS is included in Attachment A.

Eastern Prairie Fringed Orchid

According to a USFWS fact sheet, the eastern prairie fringed orchid (*Platanthera leucophaea*) occurs in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, and bogs. It requires full sun for optimum growth and flowering and a grassy habitat with little or no woody encroachment. This species was not observed along the Project ROW during site walkovers by a URS biologist in October 2012.

Small Whorled Pogonia

According to a USFWS fact sheet, the Small Whorled Pogonia (*Isotria medeoloides*) is an orchid that grows in older hardwood stands of beech, birch, maple, oak, and hickory that have an open understory. Sometimes it grows in stands of softwoods such as hemlock. It prefers acidic soils with a thick layer of dead leaves, often on slopes near small streams. This species was not observed along the Project ROW during site walkovers by a URS biologist in October 2012. According to the USFWS fact sheet, the Small Whorled Pogonia is considered extirpated from New York State.

4.7.2 Environmental Effects and Mitigation

An assessment along the Project ROW and adjacent areas for suitable habitat for the federally listed species discussed above and none were noted except for prairie fringed orchid. No individuals or populations of prairie fringed orchid were noted in the suitable habitat. If construction efforts discover the presence of any of the federally listed species discussed above, NYPSC notification and consultation with the USFWS will be initiated.

4.8 Topography and Soils

4.8.1 Topography

The Project is located in the Finger Lakes Region of Central New York. The landscape in the Project area has largely been shaped by the retreat of the Wisconsin ice sheet about 10,000 years ago. When the glaciers finally receded, they left behind deposits of rocks and dirt, filling many valleys with rich, fertile soil. These deposits are visible throughout the Project area as drumlins. The topography along the Project ROW consists of hills (drumlins), valleys and lowlands bisected by south to north flowing streams. Elevations range from about 500 feet in the valleys to approximately 750 feet in the drumlins.

The Applicant carefully considered the route alternatives and, to the maximum extent practicable, sited the Proposed Line to minimize impacts to heavily timbered areas, high points, ridge lines and steep slopes. The Applicant determined that the most environmentally effective manner of achieving minimizing impacts to these concerns was to co-locate the Proposed Line in Existing ROW. Field observations did not identify any areas heavily managed for timber along the Project ROW. The Project ROW does not cross or follow any significant ridge lines. The highest point along the ROW is located approximately 0.1 mile east of mile marker 4.4 and is at an elevation of approximately 747 feet amsl. There are two areas where the Project ROW crosses areas of steep slope. One area is located just east of the highest point near mile 4.5 and is approximately 26 percent and another is located 0.6 miles east of mile 6 and is approximately 27 percent. The steepest slope the Project ROW crosses is a hillside with approximate slope of 28%, for approximately 350 feet. This area of steep slope is located approximately 1,000 feet south west of NYSEG's existing Hamilton Road Substation.

4.8.2 Geology

Bedrock underlying the Project ROW is from the Middle Devonian Period and includes the Hamilton Group and the Onondaga Formation. The Hamilton Group consists of black or gray calcareous shale or siltstone divided by three thin persistent limestone beds. The Onondaga Formation consists of coarse-grained limestone with shaly partings and bentonite interbeds.

According to the NRCS Web Soil Survey, depth to bedrock along the Project ROW averaged greater than 80 inches except for Camillus silt loam (CaB 20 – 40 inches) and Ontario silt loam (OrB 20 – 40 inches) (See Figure 4-17).

No gravel pits, mines or gas/oil wells are located along the Project ROW.

4.8.3 Soils

A review of USDA-NRCS Soil Surveys of Cayuga and Onondaga Counties was completed to document the soil types/associations mapped along the Project ROW. Soil survey data for soils mapped along the Project ROW in both Cayuga and Onondaga Counties are shown on Table 4-11. In general, soils identified within the Project range from very poorly drained soils and mucks in wetland areas to somewhat excessively drained soils in uplands. Evaluation of soils data contained in Table 4-11 includes depth to bedrock (Figure 4-17), depth to the water table, drainage characteristics, hydric soils (Figure 4-18), prime farmland (Figure 4-19) and soils of statewide importance.

Of the soils mapped along the Project ROW in Cayuga County, 10 are classified as Prime Farmland, four are classified as Prime Farmland if drained, and two are classified as Farmland of Statewide Importance as defined by the USDA-NRCS (see Table 4-11). In Onondaga County, 10 are classified as Prime Farmland, three are classified as Prime Farmland if drained, and five are classified as Farmland of Statewide Importance. These soils do not necessarily correspond to active agricultural areas. The soils meet certain physical and chemical criteria including soil properties, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed according to acceptable farming methods (USDA-NRCS 2000).

Table 4-11 NRCS Mapped Soils along Project ROW in Cayuga & Onondaga Counties

Soil Series	Depth to Bedrock (inches)	Depth to Water Table (feet)	Hydric Soil Rating	Drainage Class	Farmland Class
Cayuga County					
Arkport fine sandy loam (AtC)	> 80	> 6.0	Not Hydric	Well drained	Not rated
Camillus silt loam (CaB)	36	> 6.0	Not Hydric	Well Drained	Prime
Cazenovia silt loam (CeB,	> 80	2-4	Not Hydric	Moderately well	Prime (CeB)

Soil Series	Depth to Bedrock (inches)	Depth to Water Table (feet)	Hydric Soil Rating	Drainage Class	Farmland Class
CeC3, CeD)				and well drained	
Collamer silt loam (ClA)	> 80	1.5-2.0	Not Hydric	Moderately well drained	Prime
Deep muck (Mr)	> 80	0	Hydric	Very poorly drained	Farmland of Statewide Importance
Dunkirk silt loam (DuB, DuC3)	> 80	> 5	Not Hydric	Well drained	Prime (DuB)
Eel silt loam	> 80	1.5-2.0	Not Hydric	Moderately well drained	Prime
Fredon loam (Fr)	> 80	0.5-1.5	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Lakemont silty clay loam (Lc)	> 80	0	Hydric	Poorly drained	Farmland of Statewide Importance
Lamson mucky fine sandy loam	> 80	0	Hydric	Poorly to very poorly drained	Not rated
Lima silt loam (LtA, LtB)	> 80	> 6.0	Not Hydric	Moderately well drained	Prime
Madalin silt loam (Ma)	> 80	0	Hydric	Poorly drained	Farmland of Statewide Importance
Minoa fine sandy loam	> 80	0.5-1.5	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Niagara fine sandy loam	> 80	0.5-1.5	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Niagara and Canandaigua (Nc)	> 80	0.5-1.5	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Odessa silt loam (OdA, OdB)	> 80	0.5-1.5	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Ontario loam (OnB, OnC, OnD, OnC3, OnD3)	> 80	3-5	Not Hydric	Well drained	Not rated
Ontario silt loam (OrB)	29-40	>6.0	Not Hydric	Well drained	Prime
Ontario, Honeoye and Lansing Association (OtE, OtF)	> 80	> 6.0	Not Hydric	Well drained	Not rated
Ovid silt loam (OvA, OvB)	> 80	0.5-2.0	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Palmyra gravelly loam (PgB, PgC)	> 80	> 6.0	Not Hydric	Somewhat excessively drained	Prime (PgB)
Palmyra gravelly sandy loam (PaB, PaC)	> 80	> 6.0	Not Hydric	Well drained	Prime (PaB)
Palmyra soils (PmD)	> 80	> 6.0	Not Hydric	Well drained	Not rated
Palmyra, Howard and Alton soils (PnE)	> 80	> 6.0	Not Hydric	Somewhat excessively drained	Not rated
Phelps gravelly silt loam (Pv)	> 80	1.5-2.0	Not Hydric	Well drained	Prime
Shallow muck (Ms)	> 80	0	Hydric	Very poorly drained	Not rated
Sloan silt loam (Sn)	> 80	0	Hydric	Poorly to very poorly drained	Farmland of Statewide Importance

Soil Series	Depth to Bedrock (inches)	Depth to Water Table (feet)	Hydric Soil Rating	Drainage Class	Farmland Class
Onondaga County					
Camillus silt loam (CaB, CaC)	20-40	3.0	Not Hydric	Well drained	Prime (CaB) and Farmland of Statewide Importance (CaC)
Collamer silt loam (ChA)	> 80	1.5-2.0	Not Hydric	Moderately well drained	Prime
Fredon loam (Fr)	> 80	0	Hydric	Somewhat poorly to poorly drained	Prime Farmland if drained
Hilton loam (HiA)	> 80	> 6.0	Not Hydric	Moderately well drained	Prime
Honeoye and Lansing gravelly silt loam (HoD)	> 80	2-3.5	Not Hydric	Well drained	Not rated
Honeoye silt loam (HnB, HnC, HnCK)	> 80	> 6.0	Not Hydric	Well drained	Prime (HnB) and Farmland of Statewide Importance (HnC, HnCK)
Honeoye, Lansing and Ontario Association (HTE, HTF)	> 80	> 6.0	Not Hydric	Well drained	Not rated
Howard gravelly fine sandy loam (HwB)	> 80	> 6.0	Not Hydric	Well to somewhat excessively drained	Prime
Kendaia silt loam (KeA)	> 80	0.5-1.5	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Lima silt loam (LtB)	> 80	> 6.0	Not Hydric	Moderately well drained	Prime
Madrid fine sandy loam (MdB, MdC2, MdCK)	> 80	> 6.0	Not Hydric	Well drained	Prime (MdB) and Farmland of Statewide Importance (MdCK)
Martisco and Warners soils (Ms)	> 80	0	Hydric	Poorly to very poorly drained	Not rated
Niagara silt loam (NgA)	> 80	0.5-1.5	Potential hydric inclusions	Somewhat poorly drained	Prime Farmland if drained
Ontario gravelly loam (OnC, OnD)	> 80	3.0-4.0	Not Hydric	Well drained	Farmland of Statewide Importance (OnC)
Palms muck (Pb)	> 80	0	Not Hydric	Very poorly drained	Not rated
Palmyra and Howard soils deep (PHE)	> 80	> 6.0	Not Hydric	Well drained	Not rated
Palmyra gravelly loam (PgB, PgC)	> 80	> 6.0	Not Hydric	Well to excessively drained	Prime (PgB) and Farmland of Statewide Importance (PgC)
Teel silt loam (Te)	> 80	1.0-2.0	Potential hydric inclusions	Moderately well to somewhat poorly drained	Prime
Wayland silt loam (Wn)	> 80	0	Hydric	Poorly drained	Not rated
Weaver silt loam (Wv)	> 80	>6.0	Not Hydric	Moderately well drained	Prime

Source: U.S. Department of Agriculture, Natural Resource Conservation Service Web Soil Survey and NRCS Cayuga and Onondaga County offices.

4.8.4 Environmental Effects and Mitigation

Construction and maintenance within the Project ROW will not result in cumulative effects relative to topographic and soil conditions. Excavations will be limited to structure installations.

Extensive alterations of slope and gradient are not anticipated in the transmission line ROW. Minor changes to topography will occur due to grading in work areas and construction of temporary access roads. The Project will be designed and constructed to be compatible with on-site geologic conditions. No geologic or environmental concerns exist that would have a long-term effect on the integrity of structures, as demonstrated by the long-standing presence of existing transmission lines along the Project ROW. To mitigate disturbances, disturbed soils will be re-graded to pre-construction contours, and compacted soils will be returned to their native state after construction activities are complete. Soil erosion and sediment controls will be implemented during construction activities.

Construction in active agricultural areas will be managed to protect farm soils from erosion, compaction, and soil mixing. A reasonable attempt will be made to locate active drain tiles that may cross the Project ROW to avoid tile damage during construction and maintenance activities. After construction is complete, any damaged tiles will be repaired or replaced, and the ROW will be returned to the original contours. The EM&CP will describe the restoration procedures that will be used to minimize impacts to active farmland.

4.9 Water Resources

This section provides an assessment of the potential effects to local water sources as a result of the Project construction activities. Efforts undertaken to avoid or minimize these potential impacts, as well as mitigation practices, will be identified to address unavoidable impacts. These mitigation measures will be shown in the Project design drawings included in the EM&CP. A desktop geo-spatial analysis was completed, using the proposed Project layout, existing information from federal and state agency data sources, and a literature review of published data, to determine the likely presence and extent of water resources in the Project ROW. Existing conditions were field verified by URS personnel.

Because Project construction will require more than one acre of land disturbance, NYSDEC will require the Applicant to obtain coverage under the State Pollutant Discharge Elimination System (SPDES), General Permit (GP) for Stormwater Discharges from Construction Activities (GP-0-10-001) to prevent the discharge of construction-related pollutants to surface waters. The Applicant also requests the issuance of a Water Quality Certification, by the DPS, pursuant to Section 401 of the Clean Water Act, 33 U.S.C. § 1341(a) (1).

4.9.1 Affected Environment

Water resource information was obtained from topographical maps from the NYSDEC Division of Water (NYSDEC 2010) which provides information regarding the classifications and standards of quality and purity assigned to the surface waters identified within the Project ROW.

4.9.1.1 Surface Waterbodies

The Project ROW is located within the Seneca River Basin (Hydrologic Unit Code 04020201), which drains much of central New York State. The Seneca River joins with the Oneida River to form the Oswego River, creating what is referred to as the Three Rivers System. These rivers have multiple uses including navigation, hydroelectric power generation, fishing, contact recreation, and waste disposal. The natural flow and other characteristics of the river system have been greatly altered by dams and locks to support navigation and hydroelectric power generation. This has reduced the river's capacity to compensate for oxygen depletion through natural aeration with the atmosphere and has contributed to the unusual bi-directional stratified flow that occurs between the Seneca River and Onondaga Lake.

Major streams within the Project ROW include Skaneateles Creek, Carpenter's Brook, and their associated tributaries. Figure 4-20 depicts the locations of water resources identified within the Project ROW as mapped by NYSDEC and verified during field investigations in October 2012. The *Final New York State 2010 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy* was reviewed to identify waters that do not support specific water uses and that may require development of a Total Maximum Daily Load (TMDL). Results of that review indicate that Skaneateles Creek is included on the List of Impaired Waters. This segment includes the entire stream and all tributaries from the mouth to Skaneateles Lake. The waters of the stream are Class C or C(t). Tributaries to this reach/segment of Skaneateles Creek are also Class C or C(t).

NYSDEC-Mapped waterbodies crossed by the Project with assigned water quality classifications are identified in Table 4-12. Five of the streams are classified as Class C Fresh Surface Waters; three of the streams crossed by the Project have an additional designation; (t) for those waters that may support a trout population. These C(t) classified streams include Carpenter's Brook, Skaneateles Creek, and North Brook. Those streams with the C(t) designation are also referred to as "protected" streams.

Table 4-12 NYSDEC-Mapped Waterbodies Located within the Project ROW

Town	Surface Waterbody Name	Number of Project Crossings	NYSDEC Class
Elbridge	Carpenter's Brook	2	C(t)
Elbridge	Carpenter's Brook Tributary	1	C
Elbridge	Skaneateles Creek	1	C(t)
Brutus	Unnamed Tributary to Putnam Brook	1	C
Brutus	Unnamed Tributary to Putnam Brook	1	C
Brutus	Unnamed Tributary to Putnam Brook	1	C
Throop	North Brook	3	C(t)
Throop	Cold Spring	2	C

Source: NYSDEC 2012

In addition to the wetlands and streams identified above, there are no surface water bodies (including lakes, ponds, waters considered navigable) that will be crossed by the Project.

Table 4-13 summarizes the streams identified within the Project ROW and adjacent areas.

Table 4-13: Delineated Streams Along the Project ROW and adjacent areas

Field ID	Flow Type, Substrate	Linear feet within Project Corridor	Comments
Stream 1A	Perennial, Rock/Cobble	362	Associated with Wetland B3
Stream 1B	Perennial, Cobble/Gravel	408	Associated with Wetland B4
Stream 2A	Perennial, Cobble/Gravel	198	Associated with Wetland C1
Stream 2B	Perennial, Cobble/Gravel	269	Associated with Wetland C2
Stream 2C	Perennial, Cobble/Gravel	397	Associated with Wetland C3
Stream 3	Intermittent, Rock	411	Associated with Wetland G
Stream 4	Intermittent, Gravel/Silt	468	Associated with Wetland L
Stream 5	Perennial, Cobble/Gravel/Silt	333	Associated with Wetlands M & N
Stream 6	Perennial, Gravel/Silt	295	Associated with Wetland S
Stream 7	Intermittent, Silt	62	Associated with Wetland U
Stream 8	Perennial, Gravel/Silt	253	Associated with Wetland W
Stream 9	Perennial, Cobble/Gravel/Silt	304	Associated with Wetland Z1
Stream 10A	Perennial, Cobble/Gravel	257	Not associated with a wetland
Stream 10B	Perennial, Gravel/Silt	395	Associated with Wetland AA
Stream 11	Intermittent, Gravel/Silt	257	Associated with Wetlands CC & DD

4.9.1.2 Stormwater Management

Generally, stormwater runoff from electric transmission line ROW is via overland flow, and few structural measures are needed to control stormwater discharges. Temporary BMPs to control stormwater runoff during construction activities may include silt fence, construction matting, and erosion control blankets. The Project will obtain a SPDES General Permit for Stormwater Discharges from Construction Activity to discharge stormwater and will adhere to the EM&CP design plans until final stabilization of the Project ROW is complete.

4.9.2 Environmental Effects and Mitigation

Water basins and watercourses are protected by the USACE, which has regulatory jurisdiction over Navigable Waters of the United States, pursuant to Section 10 of the 1899 Rivers and Harbors Act, and other jurisdictional waters of the U.S. (lakes, rivers, streams, and wetlands), pursuant to Section 404 of the Clean Water Act.

Because the Project will be installed on overhead lines exclusively, structures will be located to span streams within the Project ROW and will avoid the discharge of fill material to jurisdictional wetlands that would require a USACE permit pursuant to Section 404 of the Clean Water Act, to the extent practicable. Additionally, the Project will not be constructed in, on, or over a navigable water body; therefore, a Section 10 permit is not anticipated.

Project-related impacts to surface waters could potentially result from clearing and grading in areas adjacent to, within, and downstream of the Project ROW for construction access, installation and maintenance of the transmission line. Clearing activities will also extend beyond the Project ROW where danger tree removal is necessary. Small spills, including diesel and gasoline fuels, lubricating oils, and cooling fluids, may result from operation of construction equipment and vehicles. These types of spills would be confined to work sites to limit the potential flow into surface waters. All spills will be cleaned up in accordance with the applicable regulations.

Vehicular access across streams and other watercourses will be avoided, to the extent possible, by interrupting access along the Project ROW and precluding traffic through these areas. These areas will be designated “No Vehicular Access” on plan and profile drawings. If possible,

stream crossing will take place when stream beds are dry or where existing stream crossings are available to the extent possible. Factors used to determine the appropriate crossing types to be installed at a particular location include channel characteristics, stream bottom substrate, stream gradient and flow, riparian vegetation, resource value, assessment of erosion potential, and an estimate of potential stream flow at the time of construction.

Stream crossings will utilize equipment mats and other minimally-intrusive bridge materials that are designed to minimize stream bed and bank disturbance and water quality impacts. They will be installed at right angles to the stream, where practicable, and will be designed for one traffic lane with a minimum width of 12 feet and a maximum width of 20 feet.

Unless otherwise specified in the EM&CP, temporary stream crossings in those waters that may support fish spawning, nursery or migration activities will be avoided during fish spawning periods.

Each stream crossing type for each crossing location will be identified on the plan and profile drawings to be provided in the EM&CP. Care will be taken to ensure that stream flow remains uninhibited and to avoid damage to the stream banks during the installation and removal of crossing materials.

Transmission line structures will be placed a minimum of 100 feet from streams, rivers, and other bodies of water, where practicable, to facilitate the preservation or establishment of vegetative buffer strips at these locations. Any potential impacts to streams and other water bodies, such as minor increases in turbidity, would be short-term and have no long-term effect. Implementation of the BMPs, as presented in the EM&CP, will ensure that the Project will have only minor impacts on the NYSDEC streams crossings identified in Table 4-13. Unless otherwise specified in the EM&CP, BMPs will be the designed standard and will be maintained in accordance with state guidelines.

In portions of the Project ROW where shallow groundwater sources are identified (see Table 4-11), dewatering may be required during construction activities. Should dewatering be required, a temporary sedimentation basin will be created to receive dewatering effluent. Once filtered and/or settled, clear water will be pumped or allowed to flow onto a vegetated area. Materials,

such as straw bales, filter fabric, and other materials, would be used to construct the retention structures and basins. Dewatering plans will be presented in the EM&CP.

Proposed stormwater management practices will effectively minimize and control stormwater runoff to avoid an increase in stormwater runoff volume, erosion, and flood potential along the Project ROW and surrounding lands. No perceptible increase in stormwater runoff volume is anticipated as a result of the installation of the new transmission structures.

4.10 Noise

The existing transformers at the Elbridge and State Street Substations will not be modified, thus resulting in no new noise sources from either of the existing substations during post-construction daily operations. Permanent noise sources located outside the substation sites will include the corona effect of the transmission line under certain atmospheric conditions such as rain, fog, and high humidity, and minor sources from routine inspection and maintenance of the transmission line and substations. The temporary noise sources associated with the Project will include construction activities, such as access road construction, vegetation clearing, grading and excavation, and structure installation in both the transmission line ROW and at the existing substation sites.

Acoustic Terminology

Sound is described as a rapid fluctuation or oscillation of air pressure above or below atmospheric pressure creating a sound wave. Sound energy is characterized by the properties of sound waves, including wave length, frequency, amplitude, period, and velocity. The energy of a sound source is defined as Sound Power Level (L_W), which is independent of external factors, and is expressed in units of watts (W). Sound energy travels through a medium (air) where it is sensed and interpreted by a receiver. A sound pressure level (L_P) is a measure of this fluctuation at a given receiver location and can be obtained through a microphone or calculated from information about the source sound power level and the surrounding environment. Sound power, however, cannot be measured directly, but is calculated from measurements of sound intensity or sound pressure at a given distance from the source.

While the concept of sound is defined by the laws of physics, the term ‘noise’ has further qualities of being excessive or loud depending on the location of the sound and the perception of

the receiver. The perception of sound as noise is influenced by several factors including intensity, sound quality, tonality, duration, and existing background levels. Sound levels are expressed in units of decibels (dB) and are presented on a logarithmic scale to account for the large range of acoustic pressures that the human ear is exposed to. A decibel is the ratio between a measured value and reference value corresponding to the lower threshold of human hearing. Sound power levels reference decibels defined as 1 picowatt (pW), while sound pressure levels reference decibels, defined as 20 micropascals (µPa). Broadband sound includes sound energy summed across the frequency spectrum. In addition to broadband sound pressure levels, analysis of the various frequency components of the sound spectrum is completed to determine tonal characteristics. The unit of frequency is Hertz (Hz) which measures the cycles per second of the sound pressure waves, and typically the frequency analysis examines 11 octave (or 33 1/3 octave) bands ranging from 16 Hz (low) to 16,000 Hz (high), encompassing the entire human audible frequency range. Because the human ear does not perceive every frequency with equal loudness, spectrally varying sounds are often adjusted with a weighting filter. The A-weighted filter is applied to compensate for the frequency response of the human auditory system and sound exposure in acoustic assessments is designated in A-weighted decibels (dBA). Unweighted sound levels are referred to as linear. Linear decibels are used to determine a sound's tonality and to engineer solutions to reduce or control noise as techniques are different for low and high frequency noise. Linear sound levels are presented as dB.

To account for sound fluctuations, environmental noise is commonly described in terms of equivalent sound level (L_{eq}). The L_{eq} value, conventionally expressed in dBA, is the energy-averaged, A-weighted sound level for a pre-determined time period. It is defined as the steady, continuous sound level, over a specified time, which has the same acoustic energy as the actual varying sound levels over that same time. Another common noise descriptor used when assessing environmental noise is the day-night sound level (L_{dn}), which is calculated by averaging the 24-hour hourly L_{eq} levels at a given location and adding 10 dB to noise emitted during the nighttime period (10:00 pm to 7:00 am) to account for the increased sensitivity of people to noises that occur at night. The L_{max} is the maximum instantaneous sound level as measured during a specified time period. It can also be used to quantify the time-varying maximum instantaneous sound pressure level (as generated by equipment or an activity) or a manufacturer maximum source emission level.

Estimations of common noise sources and outdoor acoustic environments and the comparison of relative loudness are presented in Table 4-14.

Table 4-14 Sound Levels of Common Noise Sources and Soundscapes

Noise Source or Activity	Sound Level (dBA)	Subjective Impression
Airplane taking off	140	Threshold of pain
Band concert	120	Uncomfortably loud
Snowmobile	100	Very loud
Manual tools	80	Loud
Freeway traffic	70	Moderate
Normal conversation	60	Quiet
Rainfall	50	Quiet
Quiet library, soft whisper (15 feet)	30	Very quiet
Wilderness with no wind or animal activity	25	Extremely quiet
Normal breathing	10	Just audible
Softest sound a person can hear with normal hearing	0	Threshold of hearing

Source: Center for Hearing and Communication 2012

4.10.1 Applicable Noise Standards

a. A review of noise regulations was conducted at the state, county and local levels. NYSDEC published a program policy in 2001 titled Assessing and Mitigating Noise Impacts. These guidelines are defined as an allowable incremental increase relative to existing acoustic conditions. The NYSDEC criterion is a suggested guideline for determining the threshold for the potential onset of adverse noise impacts. The NYSDEC method is based on the perceptibility of a new sound source and identifies limits relative to the existing conditions at the nearest residences or other potentially sensitive receptors (i.e., schools, churches, etc.). In areas not sensitive to noise (i.e. undeveloped areas) the application of the NYSDEC criteria may not be appropriate.

The NYSDEC program policy [Section V B(7)(c)] states that a 0-3 dB increase in noise should have no appreciable effect on receptors. Noise level increases from 3-6 dB may potentially result in adverse noise impact but only in the presence of the most sensitive receptors. Sound pressure increases above 6 dB may require closer analysis of impact

potential to account for factors including existing sound pressure levels and surrounding land use and receptors.

According to the NYSDEC guidance, an incremental increase of 6 dBA over the existing L_{eq} is identified as the threshold when adverse noise impacts may begin to occur, depending in part on individual sensitivities. For new sources that may exceed the 6 dBA threshold, the program policy suggests a Second Level Noise Impact Evaluation be completed to examine the potential exceedance conditions. However, guidance on what comprises a second level evaluation is not explicitly stated.

The NYSDEC program policy defines a typical quiet suburban background sound level at 45 dBA. Therefore, a total cumulative sound level of 51 dBA or 6 dBA above the NYSDEC typical background sound level would be the threshold for a potential onset of adverse noise impact.

Neither Cayuga and Onondaga counties, nor the Towns of Elbridge, Brutus, and Throop, nor the Village of Elbridge have noise specific regulations that pertain to the project. However, the municipalities do have ordinances that limit excessive noise.

b. Village of Elbridge - The Village of Elbridge Zoning Law addresses noise at recreation areas, schools, parks, and playgrounds in any residential district. The zoning law states that these areas shall not "produce noise which would normally exceed the average level of noise existing within the particular zoning district or which would be annoying to the neighborhood." The zoning law also states that future site plans shall be reviewed by the planning board for an "avoidance of any uses which will create offensive levels of noise." Business and industrial zoning districts are also identified to be confined to remote areas where noise levels and processes will not be objectionable to residential areas.

c. Town of Elbridge - The Town of Elbridge zoning law addresses noise at heavy and light industrial uses. Heavy industrial uses are identified as properties where "which may have the potential to emit …noise… which is detectable at the property line." Light industrial uses are identified as places "which do not emit ... noise …. which is detectable at the property line." The zoning law also identifies that buffer strips (to muffle noise) shall be

provided upon all fixed zone nonresidential lots which abut a fixed zone residential lot at the side or rear lot line.

d. Town of Brutus - The Town of Brutus addresses vehicle and traffic noise in the Town Law Chapter 118 “Vehicles and Traffic”. The law states “It shall be unlawful for any person to make, continue or cause to be continued, any unnecessary or unusual noise which either annoys, injures or endangers the comfort, repose, health or safety of others, whether in the operation of any machine device or motor vehicle.” The law exempts noise created by farming equipment that is necessary in the operation of a farm, manufacturing facility or business and that said noise is deemed to be normal to the operation of the said business [or] created through the use of a motorized vehicle or equipment that is necessary to preserve public safety.”

e. Town of Throop - The Town of Throop Zoning Law addresses noise at the lots adjoining shopping centers and requires buffer strips to be provided at these locations. The zoning law also addresses noise limits at wind energy facilities.

f. City of Auburn - The City of Auburn has a noise ordinance in the Town Code, Section 210 “City of Auburn Noise Ordinance.” The ordinance states that loud and unnecessary noise is prohibited and “It shall be unlawful for any person to make, continue or cause to be made or continued any loud, unnecessary or unusual noise or any noise which endangers the health, safety or welfare of the community or which annoys, disturbs, injures or endangers the comfort, rest, health, peace or safety of others within the City of Auburn.” The ordinance identifies several acts which are considered as loud, unnecessary, and a violation of the noise ordinance. The following are examples of violations:

- The operation or use of any power lawn mower, chain saw, fence post driller or other similar devices between the hours of 10:00 p.m. and 7:00 a.m.
- Any of the following activities when occurring in close proximity to residents between 10:00 p.m. and 7:00 a.m.: the warming up or idling of buses, trucks or tractors and the unnecessary or unreasonable or repeated idling,

acceleration or deceleration or starting and stopping of automobiles or motorcycles.

- The operation of construction equipment between the hours of 8:00 p.m. and 7:00 a.m. on any day or at any time on Sunday. Such equipment includes, but is not limited to, pile drivers, pneumatic hammers, derricks, dredges, tractors, earth-moving equipment and other similar construction equipment.

4.10.2 Existing Conditions

The degree of audibility of a new or modified sound source is largely dependent on the relative ambient noise level. A range of noise settings occur within the Project area due in part to existing land uses, population density, and proximity to transportation corridors. One airport is located within one mile of the Project (as shown in Exhibit E-6). Flight paths associated with this airport contribute to ambient noise levels in the surrounding suburban and rural areas. The majority of the land uses in the vicinity of the Project is agricultural land or forested areas, all rural in nature. These areas will have comparatively lower ambient sound levels, possibly 30 dBA or less during the nighttime hours. Principal contributors to the existing acoustic environment likely include motor vehicle traffic, mobile farming equipment, agricultural activities, including plowing and irrigation, local roadways, periodic aircraft flyovers, and natural sounds, including birds, insects, and leaf and vegetation rustle during windy conditions. Sound levels are typically lower during the night compared to the daytime, except when nighttime insect noise dominates in warmer seasons.

4.10.3 Environmental Effects and Mitigation

4.10.3.1 Construction

Transmission Line

Overhead transmission line construction will generate noise levels that are periodically audible. Noise will be generated along the Project ROW, access roads, structure sites, conductor pulling sites, and staging and maintenance areas. Noise sources may also include motor vehicle use by Project workers and trucks moving material to and from work sites. The construction equipment to be used is similar to that used during typical public works projects and tree service operations.

Overhead line construction is typically completed in the following stages; site access and preparation, structure foundation installation, erecting support structures, stringing of conductors, shield wire and fiber optic ground wire, and cleanup and site restoration. Various construction activities may occur simultaneously with multiple construction crews potentially operating within the Project ROW.

Temporary noise levels associated with overhead line construction were evaluated using a screening level analysis approach. The methodology requires the input of the number and type of construction equipment by phase in addition to the typical noise source levels associated with that equipment to determine the composite sound levels for a standard distance of 50 feet and 1,000 feet. Table 4-15 summarizes results for the first four construction phases.

Table 4-15 Typical Construction Phase Noise Levels for Overhead Line Construction

Construction Phase	Example Construction Equipment	Equipment Noise Level at 50 feet, dBA	Maximum Composite Noise Level at 50 feet, dBA	Maximum Composite L_{eq} Noise Level at 1,000 feet, dBA
Site Access and Preparation	Bulldozer Grader Roller – Compactor Loader Water Truck Dump Truck	86 82 83 78 80 76	94	68
Structure Foundation Installation	Bulldozer Loader Backhoe-Loader Fork Lift Mobile Crane Auger Rig Drill Rig Compressor Pump Portable Mixer Jackhammer Cement Mixer Truck Dump Truck Slurry Truck Specialty Truck Water Truck	86 78 78 80 81 84 79 78 81 80 89 79 76 76 80 80	94	68
Erecting of Support Structures	Forklift Mobile Crane Compressor Flatbed Truck Water Truck	80 81 78 74 80	86	60
Stringing of Conductors, Shield Wire and Fiber Optic Ground Wire	Tracked Dozer Backhoe-Loader Compressor Line Puller Mixed Trucks Specialty Truck Water Truck	86 78 78 81 80 75 80	89	63

Source: Based on Federal Highway Administration 2006

As shown in Table 4-15, construction sound will be attenuated with increased distance from the source. Other factors, such as vegetation, terrain, and buildings and other structures, will act to further limit the impact of construction noise levels, but were not considered in the analysis. Actual received sound levels would fluctuate depending on the construction activity, equipment, and distances between the source and receiver. The variation in power and usage of each piece of construction equipment imposes additional complexity in characterizing construction noise levels. The analysis conservatively assumes all construction equipment in each phase is operating simultaneously. In reality, construction crews will be spread throughout the Project ROW and not operating continuously or concentrating noise generating sources. As a general construction practice, functional mufflers will be maintained on all equipment to maintain noise levels as low as reasonably achievable.

4.10.3.2 Operation

Transmission Line

Noise generated by transmission lines typically contributes very little to area noise levels when compared to other common noise sources, such as motor vehicles, aircraft flyovers, and industrial sources. Audible noise from transmission lines occurs primarily during foul weather. Generally, during fair weather conditions, the noise produced by transmission lines cannot be distinguished from ambient noise at the edge of the ROW. During wet conditions, when water drops are impinging or collecting on the conductors, a large number of corona discharges are produced, each creating a burst of noise.

Audible noise generated by corona on transmission lines is comprised of two components. The broadband component has a high frequency content distinguishing it from more common environmental noises. The random phase relationship of the pressure waves generated by each corona source along a line combined with the high frequency content creates the crackling or hissing characteristic of transmission line noise. The second component is a low frequency pure tone that is superimposed over the broadband noise. The corona discharges produce positive and negative ions that, under the influence of the alternating electric field around AC conductors, are alternately attracted to and repelled from the conductors. This activity creates a sound-pressure wave having a frequency twice that of the voltage, namely, 120 Hz for a 60-Hz system. The relative magnitudes of random noise and hum may vary in different weather conditions. Noise

levels in fog and snow typically do not reach the elevated level as compared to rain, and when reached, are usually for a shorter duration in proportion to the weather event. During relatively dry conditions, corona noise typically results in continuous noise levels of 40 to 50 dBA in close proximity to the transmission line, such as at the edge of the right-of-way. In many locations, this noise level is similar to ambient noise conditions in the environment. During wet or high humidity conditions, corona noise levels typically increase. Depending on conditions, wet weather corona noise levels could increase to 50 to 60 dBA and could even increase to over 60 dBA under some conditions. Corona noise levels are not consistent from location to location because conductor surface defects, damage, dust, and other inconsistencies can influence the corona effect.

In inclement weather, the potential exists for a large concentration source in the form of rain drops or snowflakes that stick to the conductor surface. A wide range of noise levels may occur during a rain event. At the start of rainfall, when the conductors are not entirely wet, a considerable fluctuation in the noise level may occur as the rain intensity varies. When the conductors are thoroughly wet, noise fluctuations are often less, even as rain intensity lessens, because the conductors will still be saturated with water drops. The variation in noise levels during a rain event depends heavily on the condition of the conductor surface as well as the voltage gradient at which the conductors are operating. At high operating gradients, audible noise is less sensitive to rain intensity than at low gradients. Consequently, the dispersion of noise levels is less at higher gradients.

The Project Lines will parallel the Existing Lines and it is expected that all of these lines would generate similar audible noise levels with minimal variation related to line geometry and/or conductor-surface conditions. The Project may cause an estimated increase in existing transmission line sounds levels in the range of 2 to 6 dBA, depending on the orientation of the receptor to the new line. The lateral attenuation of noise from a line source, such as a transmission line, is due to the divergence of the sound pressure waves with increased distance from the source. Molecular absorption of energy as the sound pressure waves travel through the air results in additional attenuation. Atmospheric absorption is a function of frequency, temperature, and relative humidity.

During meteorological conditions favorable to sound propagation and conducive to corona noise generation, as well as very quiet background ambient sound conditions, corona noise may be periodically audible at distances beyond the Project ROW. Conversely, corona noise may be partially or entirely masked by elevated ambient sound levels generated by rainfall. If ambient noise is very low, even a modest amount of wind can obscure the other noise sources and become the dominant ambient noise, particularly in areas with mature tree stands. Sound impacts related to the addition of the new line is expected to be low-level and generate corona sound levels below the recommended guideline limits to avoid the potential for adverse noise impacts on public health and safety in accordance with NYSDEC policy limits.

Substation Modification

The proposed modifications at the Elbridge and State Street Substations will involve switching, protection, and control equipment. The majority of the low humming sound often described at substations is produced by one or more transformers; the proposed addition of circuit breakers is not expected to alter sound levels at either substation. Audible noise caused by corona is typically not an issue with substations or switching stations. Equipment, including circuit breakers, switches, and measuring devices, reduces the gradient on the buses to a great extent. Consequently, low levels of corona noise would not likely be readily detectable outside the substation or switching station fence line.

4.10.3.3 Maintenance Activities

Routine Project inspections and maintenance will occur annually, but would only generate minor levels of noise. Traffic noise generated during these activities will be of short duration and is not expected to result in adverse noise impacts. General maintenance would include on-site component repair or replacement.

Vegetation maintenance in the Project ROW may require the use of chain saws. The sound level produced by a chain saw depends on the size rating, manufacturer, and equipment condition. Typically, a larger chain saw requires a larger engine due to stronger friction force; this effect may result in a somewhat higher sound source level. Chain-sawing activities would occur in many different locations within the Project ROW, but these locations will not be known until site clearance and maintenance activities commence. Assuming a 110 dBA sound power level for a

typical chainsaw, at a linear distance of 50 feet, sound would attenuate to approximately 78 dBA. Chainsaw activities would be short-term and limited to daytime hours.

4.10.4.4 Electromagnetic Fields

Studies of the expected electric and magnetic fields (EMF) effects using the Winter Normal Ratings as required by the NYPSC have been performed for the Project. The detailed studies can be found in Attachment E hereof. The results of the studies show that the maximum levels at the edge of the Project ROW are well below the levels recommended in the Commission's Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities.

4.11 Summary of Environmental Impacts

The anticipated environmental impacts for the proposed Project are summarized as follows:

Land Use

- The facilities are proposed to be located within and adjacent to the existing ROW to minimize land use impacts.
- Project is consistent with the goals of the 2009 New York State Open Space Conservation Plan.
- Project is consistent with local land use plans or policies (as they exist) of City of Auburn, Town of Throop, Town of Brutus, Town of Elbridge, Village of Elbridge.
- Cayuga County and Onondaga County planning documents were considered to confirm consistency with future land use plans.

Visual Resources

- Visual resources found within five miles of the Project ROW include: Historic Resources; The National Park System, Recreation Areas, Seashores, Forests; State Forest Preserve; and State or Federally Designated trail.
- The visual impact of the Project is greatly reduced by locating the Project Lines in the Existing ROW. Likewise, visual impacts are minimized due to distance, existing vegetation, and existing development.

- The proposed Project is not likely to have significant visual impacts on historic properties. Vegetation obscures views of the existing transmission line from the Elbridge Historic District.

Cultural Resources

- A review of the National Register of Historic Places (NRHP) database and the files maintained by the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) identified a total of 143 known (previously evaluated) historic properties within five miles of the Project ROW. The Project does not directly impact any of the NRHP sites.
- The Project is not anticipated to have direct impacts on archaeological and historical resources as there are no known archaeological resources located within the ROW.

The National Park System, Recreation Areas, Seashores, Forests

- The Camillus Erie Canal Park is located approximately 3.5 miles from the Elbridge Substation and is designated part of the Erie Canalway National Heritage Corridor. The Project does not traverse the park or the Canalway.
- There are no national recreation areas, national seashores or national forests located within five miles of the Project area.

State Forest Preserve

- The Camillus Forest Unique Area is located is located approximately 5.0 miles from the Elbridge Substation. The Project does not traverse this forest area.
- There are no additional state forest preserves located within five miles of the Project area.

Terrestrial Ecology and Wetlands

- Significant long-term or permanent loss of wetlands and wetland functions during construction are not anticipated, although the conversion of 3.2 acres of forested wetland communities to shallow emergent marsh and/or scrub-shrub wetland communities is anticipated as a result of the widening of the Existing ROW.

- Mitigation strategies will be utilized to address short-term (temporary) wetland impacts during construction.
- Sediment and erosion control methods will also be implemented, which may include silt fencing, use of water bars, and planting/seeding/mulching of exposed soils to prevent soil erosion and sedimentation in nearby wetlands and surface waters due to runoff.
- Soil compaction will be minimized by scheduling construction activities during drier periods of the year, staging construction materials outside of wetlands and agricultural areas, and utilizing equipment mats when moving equipment in wetlands and agricultural areas when possible.
- Use of existing access roads will be exercised whenever possible.
- All mitigation strategies, erosion and sediment control techniques, and temporary and permanent access roads will be identified during final design, and will be included in the EM&CP.

Wildlife

- Since the Project is located within and adjacent to the Existing ROW, the level of impacts associated with the expansion of this ROW is expected to result in a minimal change in the structure and function of wildlife habitat within the Project area.
- Species that temporarily use pastureland and row crop fields for bedding and forage may be temporarily displaced during Project construction, but are expected to return upon the completion of construction and restoration activities.
- Removal of woody vegetation during Project construction and maintenance will likely require wildlife species to seek suitable habitat in adjacent areas.
- The greatest impact to wildlife is expected to occur in those areas where forested communities will be permanently converted to other community types (i.e., old field, shrubland, shallow emergent marsh, etc.).

Threatened and Endangered Species

- For Cayuga County, the list of threatened and endangered species includes the threatened bog turtle (Clemmys [=Glyptemys] muhlenbergii), the endangered Indiana bat (Myotis sodalis), and the Bald Eagle (de-listed in 2009).

- For Onondaga County, the list of threatened and endangered species includes the threatened American Hart's-tongue fern (Asplenium scolopendrium var. americanum), the threatened eastern prairie fringed orchid (Platanthera leucophaea), the threatened small whorled pogonia (Isotria medeoloides), the de-listed bald eagle, the threatened bog turtle, the candidate species eastern massasauga rattlesnake (Sistrurus catenatus catenatus), and the endangered Indiana bat (Myotis sodalis).
- A review of the habitat requirements of these species indicates that none of the species, except the eastern prairie fringed orchid, have the potential to occur within the ROW for the Project.
- No effects to endangered and threatened species are expected from the proposed Project.

Topography and Soils

- The construction and maintenance of the proposed transmission line will not result in cumulative effects relative to topographic and soil conditions.
- Extensive alterations of slope and gradient are not anticipated in the transmission line ROW.
- The Project will be designed and constructed to be compatible with on-site geologic conditions.
- To minimize disturbances, disturbed soils will be re-graded to pre-construction contours, and compacted soils will be returned to their native state after construction activities are complete.
- Best Management Practices (BMPs) soil erosion and sediment controls will be implemented during construction activities.
- Construction in active agricultural areas will be managed to protect farm soils from erosion, compaction, and soil mixing.

Water Resources

Surface waters:

- Project operation and routine maintenance of the Project ROW will not create discharges to surface waters, increases in stormwater runoff and erosion, or flooding potential along the ROW or surrounding lands.

- Structures will be designed to span streams within the Project ROW and will avoid the discharge of fill material to jurisdictional wetlands and protected streams.
- The proposed transmission line will not be placed in, on, or over a navigable water body; therefore, a Section 10 permit is not anticipated.
- Transmission line structures will be placed to facilitate the preservation or establishment of vegetative buffer strips at these locations.
- Implementation of the BMPs will ensure that the Project will have only minor impacts on the stream crossings. All proposed BMPs will be designed and maintained in accordance with state guidelines.

Stormwater:

- It is not anticipated that the Project will result in significant increases in stormwater runoff volume.
- Proposed stormwater management practices will effectively minimize and control stormwater runoff to avoid an increase in stormwater runoff volume, erosion, and flood potential along the Project ROW and surrounding lands.

Noise

- The State of New York, the Counties of Cayuga and Onondaga, the Towns of Throop, Brutus, Elbridge, and the Village of Elbridge do not have definable noise ordinances that are applicable to the Project.
- Construction of the proposed overhead transmission lines will generate noise levels that are periodically audible along the Project ROW and at access roads, structure sites, conductor pulling sites, and staging and maintenance areas.
- Noise generated by the operation of transmission lines typically contributes little to ambient noise levels when compared to other common noise sources, including vehicles, outdoor equipment, and industrial sources.
- Operational noise levels at the existing Elbridge and State Street Substations are not expected to increase as a result of the proposed Project modifications.

Electric and Magnetic Fields

- The EMF studies show that both the electric field and magnetic field strengths are well below those proposed in the Commission's Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities.

4.12 Conclusion

This application presents evidence that the Project will have minimal impact to environmental and socio-economic concerns within and adjacent to the Project ROW.

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