Rochester Gas and Electric Corporation

Rochester Area Reliability Project

Exhibit 4

Environmental Impacts

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EXHIBIT 4: ENVIRONMENTAL IMPACTS

This Exhibit addresses the requirements of 16 NYCRR §86.5.

4.1 Introduction

The Rochester Area Reliability Project will be designed, constructed and operated in a manner that avoids or minimizes impacts to environmental resources within the Greater Rochester area.

Extensive field investigations, literature reviews, and agency consultations were conducted to identify and assess existing environmental conditions within the Project area. This Exhibit summarizes the results of environmental impact studies prepared by Rochester Gas and Electric Corporation (RG&E) under the following categories:

- Land Uses;
- Aesthetic, Visual and Recreational Resources;
- Cultural Resources;
- Terrestrial Ecology and Wetlands;
- Topography and Soils;
- Water Resources;
- Noise; and
- Transmission Line Electric and Magnetic Fields (EMF).

The impact studies describe existing conditions, methodologies used in the investigation, the anticipated environmental effects of the transmission facilities and, where appropriate, recommended mitigation measures to avoid or minimize any adverse impacts.

4.2 Project Description

The Rochester Area Reliability Project includes a new 9.8-mile 115 kV transmission line (circuit 940), a new 11.3-mile 115 kV transmission line (circuit 941), the reconstruction of 2.5 miles of an existing 115 kV transmission line (circuit 906), a new 1.9-mile 345 kV transmission line (circuit 40), a new 345 kV/115 kV substation (Station 255), and improvements to three existing substations (Stations 23, 80, and 418) in the towns of Chili, Gates, and Henrietta and the City of Rochester in Monroe County.

4.2.1 Proposed Overhead and Underground Transmission Line Construction

Proposed new circuits 940 and 941 will entail both overhead and underground 115 kV line construction along and within existing electric transmission line corridors and railroad corridors. Before beginning construction of circuits 940 and 941, a 2.5-mile portion of existing circuit 906 will be relocated from the west side of the Rochester and Southern railroad corridor to the east side, and the vacated right-of-way will be prepared for circuits 940 and 941. Beginning at new Station 255 for a distance of approximately 3.8 miles, circuits 940 and 941 will be located adjacent to one another on separate single-pole structures. Construction of both circuits along this segment will proceed simultaneously for efficiency and to minimize disturbance. From Station 255, both circuits will proceed west for approximately 1.3 miles adjacent to the north side of the existing NYPA rights-of-way (NYPA 345 kV lines NR1 and NR2). Both lines will then turn and head north along the west side of the Rochester and Southern railroad. Where circuit 906 turns to the east away from the railroad, circuit 941 will shift away from circuit 940 with each circuit located on opposite sides of the railroad. From this point to where each circuit terminates at their respective substation, line construction may proceed independently along each centerline.

Portions of both circuit 940 and circuit 941 will be located underground, primarily within existing electric transmission line rights-of-way with the exception of the last approximately 0.2 miles of circuit 941 which will be on new rights-of-way. Considering the different construction requirements and techniques for underground installation, these segments of each circuit may proceed independently from the overhead line construction.

Proposed new circuit 40 will consist entirely of overhead 345 kV line construction adjacent to the south edge of the existing NYPA 345 kV rights-of-way between Station 255 and Station 80. The phases and techniques of line construction are generally the same for both 115 kV and 345 kV, but the larger 345 kV structures and foundations will likely require more substantial access roads. The overhead crossing of the Genesee River may also involve special techniques during conductor stringing.

Construction of the proposed electric transmission lines will entail several distinct activities that will typically progress in a linear manner from one end of a circuit to the other. These general construction phases consist of:

- **Clearing** – Clearing does not need to be uniform along the length of the transmission lines. 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 operational integrity of the lines.

- **Access Roads** – Access roads are required to provide equipment access to each structure location but will not extend along the length of the right-of-way. These roads are primarily used during construction and are established following clearing. Certain flexibility can be employed in locating the roads so as to avoid environmentally sensitive features. A significant portion of circuits 940 and 941 are located on railroad rights-of-way. Construction along the railroad rights-of-way will require minimal access road construction.

- **Structure Erection** – Where possible, structures will be assembled and framed in pre-determined fabrication areas before being brought to installation locations, thus minimizing field disturbances. The two types of foundation are direct embedded and reinforced concrete. After holes are augered, direct embedded poles will be placed in the holes and backfilled. In the locations that the structures cannot be supported by direct embedded foundations, a reinforced concrete foundation will be used. At these locations, larger equipment to auger holes and place concrete will be required. Structures will be erected by bolting the base plates to the anchor bolts embedded in the concrete caissons.

- **Stringing of Conductors** – The conductors (wires) are strung between structures by using a lead line that can be walked through wetlands or wooded areas with minimum disruption. Wire pulling and tensioning equipment will be set up at the start and finish of each wire pull. Setup locations for wire pulling are chosen for ease of access and to avoid environmentally sensitive locations, if possible.

- **Clean-up and Restoration** – Clean-up activities include removal of all equipment and construction debris from the right-of-way. Restoration activities will vary depending on the resources specific to a particular section of rights-of-way and could include removal of access roads and stream or wetland crossings, seeding and mulching, and restoration of agricultural land.

- **Underground Construction** – Excavation activities are required for installation of the underground segments of circuits 940 and 941. Excavation activities include soil removal, erosion control, and backfilling and restoration activities. Specialized construction techniques such as horizontal directional drilling and horizontal boring will be used where open trenching will not be allowed (e.g., the crossing of Interstate 490 by circuit 940).

a. Clearing

As the proposed transmission rights-of-way are located within existing electric transmission corridors and along active railroad lines, limited clearing activities are anticipated. As a consequence, selective vegetation clearing practices will be employed along much of the right-of-way. However, non-selective (general) vegetation clearing practices will likely be employed in certain areas such as structure erection areas. At ecologically sensitive locations such as stream crossings, natural vegetation buffer strips will be maintained using selective tree cutting and trimming techniques as appropriate. If, during the initial right-of-way clearing, trees cannot be left in the buffer due to their mature height, natural re-vegetation will be allowed to develop buffers of predetermined width during the vegetation maintenance cycle. Based on previous experience, the actual widths for these buffer strips are determined by on-site inspection following completion of the centerline survey. This information is placed on the plan and profile drawings (to be provided for Commission approval as part of the Environmental Management and Construction Plan, or EM&CP) in order to locate the transmission line structures outside of the buffer strip and, where possible, to design conductor clearances to permit the preservation of the existing buffer. The amount of vegetation to be maintained during establishment of the buffer strip is dependent upon the existing tree species composition and tree heights and the flexibility of adjusting the structure location and the conductor height.

During the right-of-way clearing, all merchantable wood will be salvaged in the form of logs, pulpwood, and/or wood chips where RG&E deems appropriate. The non-merchantable wood and brush located in the selective and non-selective areas of the right-of-way will be removed, chipped or piled where permitted by state and local regulations regarding such operations. Disposal of the wood on the right-of-way will be compatible with special conditions or agreements made with the grantor and with New York law. Particular consideration will be afforded the handling and disposal of ash trees in accordance with the DEC Emerald Ash Borer Management Response Plan (NYSDEC, January 12, 2011, version 6.0).

b. Access Roads

Access roads provide access to the cleared right-of-way from local, state and public roadways. Access roads are located both on the right-of-way at the intersection with the public way and across property located adjacent to the right-of-way. Access roads are located within the cleared portion of the right-of-way and lead to structure locations. During operation of the transmission line, the access roads, where required, will serve to facilitate maintenance activities.

Significant environmental impact to existing vegetation, water and soil resources will be avoided by properly locating the access road system. Basic considerations relative to the timing and location of the access roads will include their location relative to: vegetative screening to minimize visibility of the transmission line; avoidance of environmentally sensitive features (e.g., wetlands and archaeological sites); facilitation of future maintenance work; minimization of erosion problems; and maximum utilization of existing roadways and existing cleared rights-of-way. Where conditions such as steep slopes, wetlands, or agricultural operations dictate, off right-of-way access will be pursued. Permission for off right-of-way access will be obtained from landowners if existing rights do not already provide for such access.

The construction of new access roads, the use of existing roads, and the control of erosion and sedimentation during construction of the proposed transmission lines will be conducted in accordance with the EM&CP to be submitted for this Project. Erosion control guidelines will be designed to improve, maintain and protect the soil and water resources located within the transmission line right-of-way during and immediately following the construction activity. These guidelines will include, but not be limited to, consideration of the following: timing of construction; accessibility; movement of construction traffic within the right-of-way at stream crossings; heavy equipment operation; and creation of access roads (cut and fill, waterbar, bridge, and culvert installation).

c. Construction

RG&E will coordinate the construction activities of all consultants and contractors to expedite the work function and assure that appropriate environmental standards are met. The field activities requiring coordination include designation of: natural vegetation buffer zones; access road location; construction road location; location of tree and brush disposal sites; location of structure foundations; location of structure assembly sites; location of conductor pulling sites; and installation of the grounding system. 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.

Where possible, transmission line structures will be located at least 100 feet from highway crossings, as well as streams, rivers and other major bodies of water to facilitate the establishment of vegetative buffer strips at these locations. The placement of structures in wetland areas and on steep slopes will be avoided where possible. Transmission line structures will not be located within identified archaeological sites or other sites sensitive to disturbance, such as locations supporting rare plants. During construction and operation, RG&E will comply with all applicable water quality standards for rivers, streams and lakes as required.

d. Structure Installation in Upland Locations

The 115 kV overhead structures will be direct embedded where possible, 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. Typical 115 kV steel pole angle or dead-end structures will be self-supporting and will require reinforced concrete (drilled caisson) foundations. However, there may be some locations where supporting angle or dead-end structures with guying may be beneficial. The 345 kV overhead steel structures will be self-supporting and will also require concrete caisson foundations. Concrete caisson foundations for the 345 kV structures will typically require excavations ranging from 6 to 8 feet in diameter and 20 to 30 feet in depth. Specific foundation requirements will be determined through geotechnical analysis conducted as part of the final design.

Along the transmission line, round steel casings may be required to support the sides of the larger excavations. Clean material will be used to backfill all foundations. 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. If locations nearby excavations are not suitable for placing excavated material, it will be hauled away and disposed of at approved sites.

e. Structure installation in Wetland Areas

Structures will be located in a manner to avoid wetland areas wherever possible. However, when it is necessary to place structures within the limits of a wetland, care will be taken to protect the individual wetland during site preparation and the wetland resource as a whole. Each wetland will be reviewed to determine the best method of access to the structure site. Once access has been provided, the structure site will be prepared. Wood matting will typically be utilized to access structure sites and create working areas around structure sites. The wood matting will be removed after construction is complete, minimizing impact to the wetlands. 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.

Two methods are generally used for placing structures in wetlands. The method selected depends upon structure type, soil strength, structural loads, environmental impact, and economics.

The 115 kV tangent structures will be installed by the direct embedment method where possible. Direct embedment involves excavating a hole and setting the structure in the hole. The size of the excavation will depend on the type of structure and type of soil. The approximate diameter of each excavation would range from 3 to 5 feet and the approximate depth would range from 8 to 16 feet. During construction, the walls of the excavations may be supported with round steel casings (corrugated or smooth wall), which may be removed or left in place as the backfill is installed. Clean gravel backfill will be used to stabilize the structure. Excavated soils in wetlands will be removed and disposed of at an approved site. At locations with especially poor soil, wood or steel grillages may be required at the surface to prevent the structures from sinking. Storm guys may also be required to stabilize the structure.

Heavy angle and dead-end structures in wetlands will typically be installed on concrete caisson foundations. The structure base plate fastens to the anchor bolts embedded in the foundation. Excavations for concrete caisson foundations range from 3 to 8 foot in diameter and 15 to 30 feet in depth. In areas where bedrock is encountered, concrete piers can be combined with rock anchors if applicable. During construction, the walls of the excavations may be supported with round steel casings, which may be removed as the backfill is installed. Round steel casings may be installed by traditional methods (auger hole and push incrementally) or by using a vibratory hammer. Thick walled steel casings may also be permanently installed and used in combination with concrete to form a hybrid foundation to minimize excavation. During foundation installation, water will be pumped from excavations to hay bale settling basins or discharged onto vegetated areas outside the wetlands to entrap sediments before the water is allowed to return to the wetlands. Excess concrete from the placing of piers in the wetlands will be removed and disposed of in suitable upland areas.

If soil beneath a wetland is not suitable for concrete piers, pile foundations types may be required. Steel or concrete piles will be installed with a pile driver and a concrete pile cap will be poured to incase the piles and provide an interface to connect to the structure. It is not anticipated that pile type foundations will be required in wetlands for the Project based on preliminary investigations.

Guying heavy angle and dead-end steel pole structures is another alternative method that may be considered in wetland areas although not anticipated based on preliminary routing and other investigations.

f. Stringing of Conductors

After structures are framed and erected, aerial ground wires and conductors will be strung using a lead line that can be walked through wetlands and vegetative buffer zones with minimum disruption. Conductors will be pulled through stringing blocks using pulling and tensioning equipment. During installation the tensions will be high enough to insure conductors do not touch the ground or interfere with other obstacles underneath. During the stringing operation, temporary guard structures will be placed at all crossings of highways, railroads, hiking trails and canal ways, and existing utility lines to ensure public safety and the continued operation of other utility equipment.

g. 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 to be submitted for the Project. This work may include: regrading; repair of stream banks; temporary and permanent seeding and mulching for erosion control; reseeding 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.

h. Underground Construction

Portions of circuits 940 and 941 will be installed underground. An approximately 3.5 mile segment of circuit 940 between Station 67 and Station 418 will be installed underground using solid dielectric cables in a duct bank. The minimum burial depth will be 3.5 feet to the top of the duct bank to satisfy National Electric Safety Code requirements.

The duct bank will be installed in a trench approximately 3 feet wide by 5 feet deep. Backfill, approximately 3 feet deep and having a thermal resistivity to improve the thermal conductivity will be placed around the PVC conduits. To facilitate cable splicing and pulling, manholes will be required. Manholes will be located approximately every 1,000 feet along the underground portion of the circuit.

Prior to construction, excavation contractors will be required to notify appropriate utility companies prior to conducting excavation activities within 100 feet of an underground facility. In addition to contacting the Rochester *One Call Center* (Dig Safely New York), RG&E's construction manager will conduct in-the-field meetings with appropriate local utility representatives (e.g., gas, telephone, and cable television), New York State Department of Transportation (NYSDOT), Monroe County Department of Public Works, and the local public works officials, as needed, to detail all utility and roadway crossings.

Excavation activities will be completed in sections to minimize open-trench areas and soil stockpile exposure to stormwater. Excavated material will not be stockpiled on public streets. As the excavation approaches sidewalks or roadways, special care will be taken to adequately support objects that may create a hazard to the general public, employees or the integrity of the existing structure. Should dewatering be necessary, a temporary sedimentation basin will be established to which filtered dewatering effluent would be pumped. Once filtered and/or settled, clear water will be pumped or allowed to flow onto a vegetated area. Retention structures and basins will be constructed using hay bales, filter fabric, or other materials. Filter bags will be bought commercially. Trapped sediment will be graded into the right-of-way without being washed into the adjacent stream, wetland, or other sensitive resource.

Temporary fencing will be installed whenever public access to the work zone is possible. At manhole excavations of greater than 5 feet below ground surface or other excavation areas determined as a potential cave-in location, the excavation will be sloped, shored, or shielded to prevent a cave-in.

Where topsoil, or “loam” is present in appreciable amounts, this material will be segregated during trenching for use as replacement topsoil. All topography will be returned to existing conditions. Following backfilling, disturbed areas will be immediately seeded for grass, fertilized, and mulched. Where needed due to seasonal conditions or location, temporary grass covers and/or jute netting (course open mesh netting) may be applied directly on the soil to protect exposed soils, new seeds, and mulch. The limited paved areas will be returned to original condition.

i. Off Right-of-Way Construction Laydown and Staging Areas

During construction of the proposed Project, it will be necessary to establish and utilize off-site 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
- Structure storage, assembly and framing; and
- Minor equipment and vehicle maintenance.

These areas, referred to as construction laydown and staging areas, will typically be located along the proposed route. A project of this size could require several construction laydown and staging areas. Although, in general, they will not be on the right-of-way, the laydown and staging area will normally be located adjacent to an existing road or near the route. These areas will be located to avoid environmentally sensitive features including wetlands, known archaeological sites, and sites supporting rare, threatened and endangered plants and animals.

Each laydown and staging area will be approximately one to two acres in size, and, where possible, will be located near a paved road. They will serve as a major storage yard for material such as poles, hardware and conductor delivered from outside the region. Establishment of these areas could require vegetation clearing, removal and stockpiling of topsoil, site grading, spreading of gravel cover, and fencing. Additional vegetation clearing and grading for site access also could be required in some instances. These areas will be utilized at various times as construction proceeds along the routes. Upon completion of the line, the area will be restored to conditions comparable to those that existed before construction.

The construction laydown and staging areas will be identified during final design and presented in the EM&CP for review and approval prior to their establishment. Occasionally, sites away from the rights-of-way, such as storage buildings, gravel pits, quarries, and logging yards are available for use at the time of construction and are more suitable for laydown and staging areas then sites in the vicinity of the right-of-way.

4.2.2 Construction of Station 255

The proposed Project includes the construction of Station 255, located in the town of Chili adjacent to the existing NYPA 345 kV right-of-way. The selected site for Station 255 is currently in agricultural use (corn and soybeans) and will require only minimal grading in preparation for site development. Following site preparation and establishment of erosion controls, foundations will be installed to support the equipment and buswork. Final elevations within the substation will be established with crushed stone. A perimeter fence will be erected during construction to secure the construction area and provide security for the completed substation. Disturbed areas not located within the Station 255 fence line will be restored to the required standards to enable continued agricultural use.

4.2.3 Improvements to Existing Substations

The proposed Project includes equipment additions, removals and upgrades at three existing substations on the 115 kV system: Station 23 located in downtown Rochester, Station 80 located in the Town of Henrietta, and Station 418 located in the Town of Gates. All modifications at Station 23 to provide for the termination of circuit 941 will be accommodated within the existing enclosed building. The additional 345 kV bay at Station 80 for circuit 40 will be accommodated within the existing fence line of that substation. Minor relocations of the existing fence line within the current substation property will be necessary at Station 418 to provide space for the termination of circuit 940. Further details regarding the specific changes and equipment at Stations 23, 80, and 418 are provided in Exhibit E-2: Other Facilities.

4.3 Land Use

This section examines land uses traversed by, directly affected by and surrounding the proposed transmission line rights-of-way and substations and evaluates potential land use impacts resulting from the Rochester Area Reliability Project. The Project will require the acquisition of active agricultural land for new Station 255 and new and expanded transmission line rights-of-way in rural, suburban, and urban areas for proposed circuits 40, 940, 941 and the partial relocation of circuit 906. Additionally, land use policy plans for the area have been reviewed to determine whether the proposed transmission facility "minimizes conflict with any present or future planned land use."

4.3.1 Existing Land Use

Land uses adjacent to the proposed new and existing facilities were identified from several sources including reconnaissance surveys during January and March 2011, aerial photography obtained in April 2011, and various mapped sources including U.S Geological Survey (USGS) 1:24,000 scale quadrangle maps. Aerial photographs reflecting current land use conditions are provided as Figure 2-3 in Exhibit 2 of this application.

The existing land uses along the southern portion of the Project are rural and consist of active agricultural land with scattered residences in the towns of Chili and Henrietta. After extensive analysis of site requirements and characteristics, new Station 255 is proposed on active agricultural land and will likely have the greatest land use impacts of the proposed Project. The northern portions of the Project are adjacent to suburban and urban development consisting of residential and industrial development in the town of Gates and the city of Rochester. The new 345 kV and 115 kV circuits will make extensive use of existing transmission line and railroad corridors and will use a combination of overhead and underground configurations to minimize impacts on surrounding land uses. Existing rights-of-way will be expanded in some locations. The proposed Project will not require the acquisition or relocation of any residences.

The proposed site for new Station 255 is located on approximately 10 acres of actively farmed land in the town of Chili. The site will be acquired and the current use will not be able to resume after construction of the substation. As discussed in Exhibit 3, the site was chosen after consideration of site requirements and characteristics, including topography, proximity of existing residences, wetlands and water features, public road access, site elevation, and location relative to floodplains. Prior to the addition of circuit 40 to the Project, the proposed site balanced impacts on sensitive resources while minimizing the distance along the NYPA right-of-way to the Rochester and Southern rail line. The addition of circuit 40 to connect Station 255 to existing Station 80 introduced conflicts with residences located along the existing NYPA right-of-way. To avoid these conflicts, a site that had similarly balanced impacts on sensitive resources, located approximately one mile east, was identified for Station 255. Although agricultural land will be acquired for Station 255, the site does not contain wetlands or floodplains, has level topography, avoids residences, and can accommodate future growth of the substation. The proposed site is in the town's Agricultural Conservation district, which allows public and private utilities as special permit uses.

Circuit 940 begins at new Station 255 in the town of Chili and proceeds west along the northern edge of the existing NYPA 345 kV right-of-way to the Rochester and Southern rail line. This section of the NYPA right-of-way is currently surrounded by forested and agricultural land and will require expansion to the north to accommodate circuits 940 and 941. The NYPA right-of-way traverses an approximately 40 acre conservation easement held by the U.S. Department of Agriculture just east of the Rochester and Southern rail line. RG&E must obtain permission from the U.S. Department of Agriculture and the property owner to install the structures for circuits 940 and 941. Exhibit 3 presents alternative routes in the event that permission is not obtained. Project construction will be coordinated to reduce interference with agricultural production. After construction, agricultural production may resume along the right-of-way although it may be somewhat hindered by the footprint of the transmission line structures. At the rail line, circuit 940 turns in a northeasterly direction to parallel the rail line for approximately 5 miles to Station 67. The portion of the right-of-way south of the crossing with the CSX Railroad (West Shore Division) is surrounded by a combination of floodways, forest and agricultural land while the northern portion consists of light industrial and few residential uses. At Station 67, circuit 940 turns northwest along an existing RG&E and National Grid transmission corridor for approximately 3.5 miles to Station 418 in the town of Gates. Circuit 940 will be buried within the existing transmission corridor and will not require expansion of the existing right-of-way and will not cause any impact on the surrounding land uses, which largely consists of suburban residences, light industrial land, forests, and an Interstate 490 interchange. With the exception of 1.1 miles south of Genesee Junction where circuit 940 will parallel an oil pipeline right-of-way alongside the rail line, the proposed circuit 940 right-of-way parallels existing electric transmission rights-of-way for its entire length. Table 4.3-1 provides details on the zoning districts traversed by proposed circuit 940. Zoning districts indicate the Project's compatibility with present and future planned land uses.

Table 4.3-1: Circuit 940 Zoning Districts

Zoning District	Location	Purpose
Agricultural Conservation (AC)	Chili	The district encourages a proper environment to foster agricultural operations and rural residential land uses, to maintain an open rural character, to protect viable agricultural soils, and to coordinate residential densities with the availability of utilities.
Floodway (FW)	Chili	Public health, safety and general welfare are promoted to minimize public and private losses due to flood conditions in specific areas.
Rural Agricultural (RA-10)	Chili	Areas suitable for farm and agricultural uses are conserved and protected from incompatible uses.
Light Industrial (LI)	Chili	Provides for research or development of materials, methods or products and compatible light manufacturing.
General Industrial (GI)	Chili	The district allows for heavier industrial uses that are essential to the development of a balanced economic base in an industrial environment.
Residential One Family (R-1-11)	Gates	Suitable living environments and residential character are maintained and promoted through the provision of single-family homes at urban standards.

Zoning District	Location	Purpose
Limited Industrial (LI)	Gates	Research- and development-oriented industries and regional or district corporate offices and other compatible light manufacturing operations are allowed.
General Industrial (GI)	Gates	The district provides for “heavy” industries in a manner that is not detrimental to the adjacent development or general community health, safety or welfare.

Circuit 941 begins at new Station 255 in the town of Chili and proceeds west along the existing NYPA 345 kV right-of-way to the Rochester and Southern rail line, at which point circuit 941 turns in a northeasterly direction to parallel the rail line for 7.7 miles to the CSX rail line. The southernmost portion of the right-of-way will be shared by circuit 940 adjacent to floodways and agricultural land. The northern portion of the right-of-way traverses open space and residential and industrial land uses including the Greater Rochester International Airport. Circuit 941 traverses the Erie Canalway Trail in the town of Gates alongside the Rochester and Southern rail line and circuits 916 and 921 (The Erie Canalway Trail is designated as General Industrial). On the opposite side of the Erie Canal, approximately 80 feet of circuit 941 traverses a narrow strip of land designated as open space in the city of Rochester. At the CSX Railroad (Main Line) circuit 941 proceeds east for nearly 2 miles to Station 23 in downtown Rochester. This corridor is surrounded by urban and commercial/industrial land uses. Circuit 941 crosses the rail line in several locations to accommodate existing land uses and structures. At a point 1,200 feet west of Station 23 near the rear parking lot of Frontier Field (home of the Rochester Red Wings minor league baseball team), circuit 941 transitions to an underground configuration, preserving the aesthetic image of the Center City district of Rochester. Overall, circuit 941 parallels existing rail lines for nearly the entirely length and will therefore cause minimal incremental impact to the surrounding land uses. Table 4.3-2 provides details on the zoning districts traversed by proposed circuit 941.

Table 4.3-2: Circuit 941 Zoning Districts

Zoning Districts	Location	Purpose
Agricultural Conservation (AC)	Chili	The district encourages a proper environment to foster agricultural operations and rural residential land uses, to maintain an open rural character, to protect viable agricultural soils, and to coordinate residential densities with the availability of utilities.
Floodway (FW)	Chili	Public health, safety and general welfare are promoted to minimize public and private losses due to flood conditions in specific areas.
Rural Agricultural (RA-10)	Chili	Areas suitable for farm and agricultural uses are conserved and protected from incompatible uses.
Light Industrial (LI)	Chili	Provides for research or development of materials, methods or products and compatible light manufacturing.
Limited Industrial (LI)	Gates	Research- and development-oriented industries and regional or district corporate offices and other compatible light manufacturing operations are allowed.
General Business (GB)	Gates	The district provides for general and comparison commercial goods and services necessary to serve a number of neighborhoods in an orderly fashion while maintaining the viability of residential areas and neighborhood commercial areas.
General Industrial (GI)	Gates	The district provides for “heavy” industries in a manner that is not detrimental to the adjacent development or general community health, safety or welfare.
Open Space (O-S)	Rochester	Development is restricted to preserve and enhance open spaces and recreational areas.
Industrial (M-1)	Rochester	The retention and growth of employment opportunities are promoted through the provision of areas for a broad range of industrial uses and

Zoning Districts	Location	Purpose
		complementary uses, including retail sales and services, offices, eating and drinking establishments and loft-style living spaces.
Medium Density Residential (R-2)	Rochester	Single-family residential, two-family residential and multifamily residential are permitted to provide a mix of housing choices while the bulk and density regulations maintain the lower-density scale of neighborhoods.
Center City District (CCD)	Rochester	Residential, commercial, office, institutional, public, cultural, and entertainment uses and activities are encouraged to create a desirable place to live, work and recreate.

The preferred route for circuits 940 and 941 crosses an approximately 55 acre parcel owned by the Anna Gunther Living Trust identified as tax map parcel 173.04-1-2. A substantial majority of this parcel is encumbered by a thirty year Warranty Easement Deed ("Conservation Easement") in favor of the U. S. Department of Agriculture (through its subsidiary the Commodity Credit Corporation). In addition, the vegetation clearance easement that will be required for the preferred circuit 906 rebuild route is also partially located within the Conservation Easement area.

The Department of Agriculture acquired the Conservation Easement in 2007 pursuant to Title XII of the Food Security Act of 1985, as amended (16 U.S.C. § 3837)(the "Act") for the Wetlands Reserve Program, in order "to restore, protect, manage, maintain, and enhance the functional values of wetlands and other lands and for the conservation of natural values . . ." The Conservation Easement prohibits a wide variety of uses, including "altering of . . . natural features by burning, digging, plowing, disking, cutting or otherwise destroying the vegetative cover," and "building or placing buildings or structures on the easement area."

New 345 kV circuit 40 will connect new Station 255 to existing Station 80 in the town of Henrietta, located almost two miles east. The proposed route will follow the southern edge of the existing 345 kV NYPA right-of-way through forested, agricultural, residential and industrial land

and across the Genesee River. One small non-residential building that appears to be associated with a former commercial office complex is located within the proposed right-of-way for circuit 40. Based on a review of current aerial photography, circuit 40 predominantly traverses agricultural land. Therefore, project construction will be coordinated to reduce interference with agricultural production and, after construction, agricultural production may resume along the right-of-way although it may be somewhat hindered by the footprint of the transmission line structures. Table 4.3-3 provides details on the zoning districts traversed by proposed circuit 40.

Table 4.3-3: Circuit 40 Zoning Districts

Zoning Districts	Location	Purpose
Agricultural Conservation (AC)	Chili	The district encourages a proper environment to foster agricultural operations and rural residential land uses, to maintain an open rural character, to protect viable agricultural soils, and to coordinate residential densities with the availability of utilities.
Floodway (FW)	Chili	Public health, safety and general welfare are promoted to minimize public and private losses due to flood conditions in specific areas.
Industrial (IND)	Henrietta	Industrial uses are permitted provided that the use is in accordance with the orderly development and character of the area.
Residential (R-1-15)	Henrietta	The district allows single-family dwellings and complementary uses.

Circuit 906 will be partially relocated to vacate its existing right-of-way for use by circuits 940 and 941. Circuit 906 will be relocated from the western edge of the Rochester and Southern rail line to the eastern edge, maintaining its location adjacent to the rail line and agricultural conservation areas. The partial relocation of circuit 906 will allow for circuit 940 and circuit 941 to use its vacated right-of-way and will reduce the total right-of-way expansion required for the Project.

4.3.2 New York State Open Space Conservation Plan

The 2009 New York State Open Space Conservation Plan contains comprehensive recommendations to help local governments and non-profit organizations undertake open space planning at regional and community levels. The Plan focuses on four goals: responding to climate change; fostering green, healthy communities; connecting New Yorkers with nature and recreation; and safeguarding the state's natural and cultural heritage. New York's formal Open Space Conservation Program began in 1990 and focused on ensuring citizen input into the land acquisition decisions made by the State. New York's current open space conservation goals as reflected in the 2009 Plan are, among several, to protect habitat for the diversity of plant and animal species; to combat climate change by protecting New York's coastlines, riparian corridors, and wetlands; to maintain an interconnected network of protected lands and waters; to protect habitat to sustain the traditional pastimes of hunting, fishing, trapping, and wildlife viewing; and to protect and enhance scenic, historic, and cultural resources.

The Plan divides New York State into nine regions. The Project is entirely contained within Region 8/Western Finger Lakes. The key environmental features of Region 8 related to the Project include the Erie Canal Corridor and the Genesee River.

- Project 107: Genesee River Corridor – This project will protect the variety of habitats and landscapes along the Genesee River by providing links to existing public lands, enhancing public access points, protecting migratory and resident bird habitats, supporting farmland protection and advancing environmental justice projects.
- Project 115: Genesee Greenway/Recreationway – The Genesee Valley Greenway (GVG) is a 90 mile long corridor that extends from the city of Rochester in Monroe County through to the Village of Hinsdale in Cattaraugus County. The state has acquired the corridor but serious encroachments and gaps exist that prevent full use of this significant recreational trail.

Additionally, there are seven statewide priority conservation projects that apply to the Project. These projects include

- Project 129: State Forest, Unique Area & Wildlife Management Area Projection;
- Project 130: New York State Canal System;

- Project 131: Working Forest Lands;
- Project 132: State Park & State Historic Site Protection;
- Project 133: Statewide Farmland Protection;
- Project 134: Long Distance Trail Corridors, and;
- Project 135: Statewide Small Projects.

The resources that are the focus of these projects were considered in the site selection process for the Project. Additionally, the New York State Open Space Conservation 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 plan supports the use of a statewide planning and siting process that takes into consideration the sustainable development of energy generation and transmission facilities, which has been fulfilled by this Project.

4.3.3 Local Land Use Planning and Policies

Local land use planning and policies, including comprehensive plans and zoning districts, help to guide routing, locations and configurations of the proposed circuits and substation to promote compatibility with existing and future land use. The proposed Project includes the expansion and relocation of certain existing rights-of-way as well as the addition of new rights-of-way that will make use of existing rail lines. The use of existing corridors will substantially reduce the impact on land use as compared to new rights-of-way within new corridors.

a. Monroe County Farmland Protection Plan 1999

The goals of the Monroe County Farmland Protection Plan are to preserve farmland and promote the agriculture industry. The Project is entirely within Monroe County and the southern portion of the Project is surrounded by agricultural land. The Monroe County Department of Planning and Development and Cornell Cooperative Extension, on behalf of the Monroe County Agricultural and Farmland Protection Planning Board, discuss the need for farmland preservation and protection, economic development/viability/marketing, education, database maintenance and development. The plan recognizes that Monroe County is an urbanizing county and has experienced a decline in total farm acreage, harvested cropland, number of farms, and persons whose principal occupation is farming. Once farmland is converted to nonfarm uses, it is usually lost forever to agricultural production. The plan recommends that Monroe County evaluate policies regarding public utilities in agricultural and rural areas to identify and consider the impacts of capital improvement projects. Concerning the Rochester Area Reliability Project, the impacts of locating the substation and transmission lines in rural agricultural areas were considered and balanced with other factors to select a location that would allow for the least imposing routes, locations, and configurations to the Project area as a whole.

b. Town of Henrietta Comprehensive Land Use Plan 2003

The Town of Henrietta has a mix of rural and suburban development and is experiencing commercial growth along major transportation corridors. To retain the town's rural and suburban character, including the presence of recreational and environmental resources and agricultural and rural lands, the plan recognizes the need to control growth and confine it to specific areas. Specifically, the goal of town leaders and residents is to preserve rural and agricultural areas in the southern half of the town and to encourage economic growth and commercial development in the northern half of the town. Within the town of Henrietta, the Project includes new circuit 40 which will extend east through the middle of the western edge of the town along the existing NYPA right-of-way to existing Station 80, which is located close to the geographic center of the town. The Project traverses Industrial (IND) and Residential (R-1-15) zones described in Table 4.3-3.

c. Town of Henrietta 2011 Strategic Update to the Comprehensive Plan: Public Review Draft

In April 2011, the Town of Henrietta released a public review draft of the 2011 Strategic Update to the Comprehensive Plan. The plan recognizes that the overall goals, policies, and recommendations in the 2003 Comprehensive Land Use Plan are still applicable and focuses on setting priorities and outlining a clear course of action for advancing these priorities over the next 5 to 10 years. The priorities, which were determined through community surveys, public workshops, and stakeholder meetings, include community building, green infrastructure, and economic development. New zoning regulations were developed for land south of the New York State Thruway and are accordingly irrelevant to the Project, which lies north of the Thruway.

d. Town of Gates Master Plan 2007

The town of Gates contains circuit 940 within the existing RG&E and National Grid transmission corridor, circuit 941 within a right-of-way expansion of the existing Rochester and Southern rail line and circuits 916 and 921 corridor, and the expansion of existing Station 418. The Town of Gates Master Plan provides town officials with a set of goals, objectives, and policies for guiding future growth and redevelopment of residential, commercial and open space/recreation land uses, transportation, and other community facilities. The proposed Project will not interfere with the goals and objectives of the Town of Gates Master Plan.

e. Town of Gates Recreation and Parks Department 5 Year Plan 2007

The Town of Gates Recreation and Parks Department 5-Year Plan ("5-Year Plan") presents a plan of action for future Recreation and Parks Department programs and facilities for the five-year period ending 2011. The 5-Year Plan includes an inventory of existing facilities, describes areas in need of improvement, and provides yearly cost estimates and potential funding sources. Exhibit 4, Section 4.4 provides an inventory of the existing parks and recreation areas within a three mile radius of the Project to determine that the proposed facility avoids scenic, recreational and historic areas and is routed to minimize its visibility from areas of public view.

f. Town of Chili Comprehensive Plan Update 2010; Town of Chili 2030 Comprehensive Plan

New circuits 40, 940 and 941, the partial rebuild of circuit 906, and new Station 255 are located in rural and suburban areas of the Town of Chili. The Town of Chili Comprehensive Plan 2010 provides specific goals and recommended actions to promote the protection of air quality, water quality, wildlife species and habitat, and other environmental features in the town. Two of the recommendations in the plan are to preserve farmland and to promote a pattern of growth and development that builds upon the existing energy infrastructure. The proposed locations of new circuits 40, 940 and 941 are along existing transmission rights-of-way and wetland areas that are not suitable for development. New Station 255 requires the acquisition of farmland, which was determined to be the preferable alternative once other environmental and social factors were considered, as explained in Exhibit 3. A Draft of the Town of Chili 2030 Comprehensive Plan was released in April 2011. The 2030 Comprehensive Plan Committee evaluated the Implementation Actions from the previous plan and determined which actions should remain, new actions, and more detailed implementation plans. The recommended zoning changes on land traversed by the Project include rezoning formerly Agricultural land to Residential or Limited Industrial.

g. Town of Chili Parks and Recreation Master Plan 2007

The purpose of the Parks and Recreation Master Plan update is to establish a strategic planning guide for the improvement and operation of Chili's parks to meet future recreational needs. Section 4.4 provides an inventory of the existing parks and recreation areas within a three mile radius of the Project. The locations of the proposed circuits along existing transmission and railroad corridors and the proposed Station 255 site along the existing NYPA right-of-way preclude parks and recreation from those locations.

h. Rochester 2010: The Renaissance Plan 1999

The City of Rochester's Comprehensive Plan, entitled "Rochester 2010: The Renaissance Plan" was adopted by the City Council in April 1999. It is a planning tool based on eleven "renaissance campaigns" which include: (1) Involved Citizens, (2) Educational Excellence, (3) Health, Safety, and Responsibility, (4) Environmental Stewardship, (5) Regional Partnerships, (6) Economic Vitality, (7) Quality Service, (8) Tourism Destination, (9) Healthy Urban Neighborhoods, (10) Center City, and (11) Arts and Culture. The Plan establishes policy statements and goals for each campaign and seeks to preserve parks and open space, to create a strong visual and aesthetic image for the Center City, and to provide high quality and reliable public services. Circuit 941 transitions to an underground configuration to traverse the Center City District, preserving its visual and aesthetic image. Above all, the Project increases the reliability of electric transmission in the Greater Rochester area.

4.3.4 Floodplains

Figure 4.3-1 illustrates the 100-year floodplains relative to the Rochester Area Reliability Project. Floodplain mapping was derived from the Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA). Flood hazard areas are determined by using statistical analysis of records reflecting river flow, storm tides, and rainfall as well as information obtained through consultation with the communities including floodplain topographic surveys and hydrological and hydraulic analysis. Typically, only drainage areas that are greater than one square mile are studied.

The Project traverses approximately 5.8 miles of land that FEMA has determined to be in 100-year floodplain. The floodplains exist along the border of the Greater Rochester International Airport and in the rural and agricultural portion of the town of Chili. Due to the characteristics and minimal footprint of the proposed single-pole structures, the proposed transmission lines will have minimal impact on the floodplain areas that are traversed. The proposed site for Station 255 is located outside the 100-year and 500-year floodplains and will have no effect on floodways or flooding patterns.

4.3.5 Agricultural Districts

Article 25-AA of the Agriculture and Markets Law authorizes the creation of local agricultural districts pursuant to landowner initiative, preliminary county review, state certification, and county adoption. These designations encourage improvements of agricultural land and the continued use of agricultural land for the production of food and other agricultural products. An important benefit of the Agricultural Districts Program is the opportunity provided to farmland owners to receive real property assessments based on the value of their land for agricultural production rather than on its development value. The Agricultural Districts Law and the Agricultural and Farmland Protection programs have had significant influence over municipal comprehensive plans and zoning regulations. County agricultural and farmland protection boards may develop protective plans in collaboration with the county soils and water conservation districts. The Agricultural Districts Law protects farmers against local laws that unreasonably restrict farm operations located within an agricultural district.

The Project traverses the Agricultural District MONR002 and borders MONR006. The district boundaries are shown on Figure 4.3-1.

4.3.6 Environmental Effects and Mitigation

Proposed Station 255 will have a direct impact on land use because the proposed site is active agricultural land used for soybean and corn production which will cease following site acquisition and development of Station 255. The site is outside of any floodplains and wetlands and will require minimal site grading. As there will be no permanent change in topography within the designated floodplains, no impacts to the floodplains or to other upstream/downstream properties are expected from the construction and operation of the transmission facilities. The agricultural uses on surrounding properties will be able to continue.

Proposed routes for circuits 40, 940, 941 and the partial rebuild of circuit 906 make extensive use of existing transmission and railroad corridors to minimize land use impacts and subsequent mitigation. The proposed centerline and preliminary structure locations for circuits 40, 940 and 941 and the partial relocation of circuit 906 were designed in PLS-CADD. Using the typical cross sections provided in Exhibit 5 (Design Drawings) of this application and preliminary plan and profile drawings, the proposed new RG&E right-of-way was identified and tabulated by circuit, as shown in Table 4.3-4 below.

Table 4.3-4: Proposed New Right-of-Way by Circuit

Circuit	RG&E ROW Standards (feet)	New ROW Width (feet)	New ROW Acres
40	150	100 – 150	23.4
940	100	10 – 50	19.8
941	100	10 – 50	26.2
906 Rebuild	100	15 – 50	6.0
		Total New ROW	75.4

As shown in Table 4.3-4, the proposed new right-of-way in most locations is significantly less than would be required for new, independent right-of-way, based on RG&E design standards for 345 kV and 115 kV transmission lines. Based on the preliminary design along the proposed centerlines, the Project will require approximately 75 acres of new, additional electric transmission right-of-way. Applying the RG&E design standards to the proposed centerline miles of each circuit would result in a total of more than 320 acres if all new right-of-way were used. Accordingly, through the use of existing rights-of-way and railroad corridors, the required new right-of-way for the proposed Project has been reduced to approximately 25 percent of what would potentially be required.

The proposed Project traverses active agricultural lands and designated New York Agricultural Districts. Agreements between local farm operators and the Applicant allow for the co-existence of active farmland and transmission lines. During construction, agricultural operations may be disrupted within the right-of-way for a single growing season, depending upon the timing of construction. If possible, construction will be scheduled for drier or frozen periods of the year, so as to prevent rutting of the soil surface. If temporary timber mat access is not practical or desirable, topsoil may be temporarily stripped and stockpiled from crop field-related work sites and access routes, then replaced following completion of work. Should some soil rutting occur, such areas will be graded and restored to the farm operator's satisfaction. The EM&CP will present mitigation measures to be implemented during construction to minimize impacts to agricultural operations. Restoration measures such as rehabilitation of drainage tile fields, deep tilling of compacted areas, and thorough removal of all construction debris will also be implemented in active agricultural areas. Continued use of the land after construction may be hindered by the footprint of the structures.

There will not be any permanent impact on nearby residences along the proposed circuits and substation, although they will experience temporary disturbance and inconvenience associated with construction activities. This will primarily occur at locations where the existing right-of-way crosses roadways that will be used by construction vehicles to access the construction right-of-way. These impacts will be temporary and short-term in most locations as the construction progresses along the right-of-way. To minimize potential construction impacts to adjacent landowners, RG&E will provide timely information to adjacent property owners and/or tenants regarding the planned reconstruction activities and schedule, and will coordinate with NYSDOT, Monroe County, and local police departments to develop and implement traffic control measures to ensure safe and adequate traffic operations along roadways to be used by construction vehicles. No residences need to be acquired for the Project, although there are two structures along the existing NYPA right-of-way that may conflict with circuit 40. The two structures appear to be associated with a former commercial office and research complex.

4.4 Visual Resources

In accordance with PSL §122(1) (c) and 16 NYCRR §86.5(b) (2) (i) - (ii), and (8), this section includes a study of the visual and aesthetic impacts resulting from the construction and operation of the proposed Station 255, 115 kV circuits 940 and 941, 345 kV circuit 40, and the partial rebuild of circuit 906. The study examines the visual qualities and the existing visual resources within a three mile radius of the Rochester Area Reliability Project ("Project area") to determine whether the proposed facility and its right-of-way "avoids scenic, recreational and historic areas," and whether the right-of-way has been, "routed to minimize its visibility from areas of public view."

4.4.1 Existing Landscape Quality

The facilities that comprise the Rochester Area Reliability Project are located entirely within Monroe County in the western portion of New York State. The landscape surrounding the Project area is diverse, ranging from rural development and agricultural land in the south to an urban, industrial rail corridor through downtown Rochester in the north. The Project makes use of existing electric transmission and railroad corridors, which will minimize visual impacts and disturbance to the surrounding built and natural environments.

The proposed site for Station 255 is located in the town of Chili adjacent to the NYPA 345 kV right-of-way. The substation will be approximately 2,000 feet east of Scottsville Road and 2,000 feet west of the Genesee River in a rural, agricultural area that provides limited viewpoints open to the general public.

Circuit 940 will connect new Station 255 to existing Station 418 in the town of Gates. The overhead portion of circuit 940 is located adjacent and parallel to existing electric transmission and railroad lines from Station 255 to Station 67 on the west side of the Greater Rochester International Airport. The portion of circuit 940 between Station 67 and Station 418 will be underground within an existing electric transmission right-of-way, resulting in no changes to the existing suburban landscape traverse by that right-of-way.

Circuit 941 will connect new Station 255 to existing Station 23 in downtown Rochester. From Station 255 to Station 67, circuit 941 will share the same right-of-way and/or railroad corridor with circuit 940, in a similar overhead configuration. North of Station 67, circuit 941 will transition briefly to an underground configuration due to airport restrictions, and will continue overhead along existing railroad lines through the urban landscape to downtown Rochester. The last several thousand feet of circuit 941 before entering Station 23 will be underground. North of the airport, the railroad corridor traverses a commercial/industrial landscape with a mix of active and derelict buildings.

The new 345 kV circuit 40 will be located along the southern edge of the NYPA right-of-way between new Station 255 in the town of Chili and existing Station 80 in the town of Henrietta. Circuit 40 will result in a new overhead crossing of the Genesee River. The area surrounding the right-of-way is largely agricultural with few residential and industrial uses.

a. Visual Resource Inventory

Visual resources are landscape areas and features that are significant because of their inherent visual quality or cultural significance, including:

- Natural features which create a landscape of high visual/aesthetic quality;
- Manmade features which create a landscape of high visual/aesthetic quality;
- Designated recreational and scenic areas; and
- Landscapes that demonstrate a historic significance.

An inventory of aesthetic resources of statewide significance was conducted for the Project area studied (a three-mile radius surrounding the Rochester Area Reliability Project) to identify resources that would warrant specific consideration in terms of potential visual impacts. The specific categories of aesthetic resources of statewide significance pursuant to the NYSDEC Policy on Assessing and Mitigating Visual Impacts are shown on Figures 2-1a through 2-1e. These figures identify the locations of known historic or scenic areas and parks within three miles of the proposed Project. These resources are also listed in Table 4.4-1. A total of 210 visual, recreational and historic resources were identified within the Project area.

Table 4.4-1: Visual, Recreational and Historical Resources

Map Reference	Figure	Name	Location	Category
Municipal and County Parks, Trails and Recreation Areas				
L01	Figure 2-1a	Local Athletic Field	Scottsville	Local Recreation Area
L02	Figure 2-1a	T. J. Conner Elementary School	Scottsville	Local Recreation Area
L03	Figure 2-1a	Wheatland-Chili High School	Scottsville	Local Recreation Area

Map Reference	Figure	Name	Location	Category
L04	Figure 2-1a	Riverton Oaks Golf Club	Henrietta	Local Recreation Area
L05	Figure 2-1a	Riverbend Park	Henrietta	Municipal Park
L06	Figure 2-1a	Riverton Oaks Golf Course	Henrietta	Local Recreation Area
L07	Figure 2-1a; 2-1c	Cragie Brae Golf Club	Chili	Local Recreation Area
L08	Figure 2-1a; 2-1c	Chili Country Club	Chili	Local Recreation Area
L09	Figure 2-1c	Black Creek County Park	Chili	County Park
L10	Figure 2-1c	Town Park	Chili	Municipal Park
L11	Figure 2-1b; 2-1c	Rochester Institute of Technology	Henrietta	Local Recreation Area
L12	Figure 2-1c	Chili Heights Nature Trail	Chili	Municipal Park
L13	Figure 2-1c	Willowbrook Greens	Chili	Local Recreation Area
L14	Figure 2-1b; 2-1c	Ballantyne Park	Chili	Local Park
L15	Figure 2-1b	Meridian Centre Park	Brighton	Municipal Park
L16	Figure 2-1c	Memorial Park	Chili	Municipal Park
L17	Figure 2-1c	Davis Park	Chili	Municipal Park
L18	Figure 2-1b; 2-1c	Genesee Valley County Park	Rochester	County Park
L19	Figure 2-1b	Brighton Park	Brighton	Municipal Park
L20	Figure 2-1b; 2-1c	Genesee Valley Park Golf Course	Rochester	Local Recreation Area
L21	Figure 2-1b	Local Athletic Field	Rochester	Local Recreation Area
L22	Figure 2-1b	Genesee Valley West Park	Rochester	Municipal Park
L23	Figure 2-1c	Yolanda Park	Chili	Local Park

Map Reference	Figure	Name	Location	Category
L24	Figure 2-1b; 2-1e	McQuaid Jesuit High School	Brighton	Local Recreation Area
L25	Figure 2-1b; 2-1c; 2-1e	Local Athletic Field	Chili	Local Recreation Area
L26	Figure 2-1c; 2-1d	Roberts Wesleyan College	Chili	Local Recreation Area
L27	Figure 2-1b; 2-1e	Highland County Park	Rochester	County Park
L28	Figure 2-1b; 2-1e	Fauver Stadium	Rochester	Local Park
L29	Figure 2-1b; 2-1c; 2-1d; 2-1e	Washington Irving Elementary School	Gates	Local Recreation Area
L30	Figure 2-1c; 2-1d; 2-1e	Westgate Park	Gates	Local Park
L31	Figure 2-1e	Hillside Children's Center School	Rochester	Local Recreation Area
L32	Figure 2-1c; 2-1d; 2-1e	Brooklea Country Club	Gates	Local Recreation Area
L33	Figure 2-1c; 2-1d; 2-1e	Westgate Park	Gates	Local Park
L34	Figure 2-1e	James P. B. Duffy School No. 12 ES	Rochester	Local Recreation Area
L35	Figure 2-1c; 2-1d	Local Athletic Field	Gates	Local Recreation Area
L36	Figure 2-1e	Pinnacle School No. 35	Rochester	Local Recreation Area
L37	Figure 2-1e	Cobbs Hill Park	Rochester	Local Park
L38	Figure 2-1e	Dr. Charles T. Lunsford School No. 19 ES	Rochester	Local Recreation Area

Map Reference	Figure	Name	Location	Category
L39	Figure 2-1c; 2-1d; 2-1e	Hinchey Homestead and Park	Gates	Local Park
L40	Figure 2-1e	Martin B. Anderson School No. 1 ES	Rochester	Local Recreation Area
L41	Figure 2-1e	Local Athletic Field	Rochester	Local Recreation Area
L42	Figure 2-1c; 2-1d	Walt Disney Elementary School	Gates	Local Recreation Area
L43	Figure 2-1e	Local Playground	Rochester	Local Recreation Area
L44	Figure 2-1e	Genesee Gateway Park	Rochester	Municipal Park
L45	Figure 2-1e	Madison High School	Rochester	Local Recreation Area
L46	Figure 2-1e	Children's School of Rochester No. 15 ES	Rochester	Local Recreation Area
L47	Figure 2-1e	Nathaniel Rochester Community School	Rochester	Local Recreation Area
L48	Figure 2-1c; 2-1e	Local Athletic Field	Rochester	Local Recreation Area
L49	Figure 2-1c; 2-1d; 2-1e	Gates-Chili Jr. High School	Gates	Local Recreation Area
L50	Figure 2-1e	Anthony Park	Rochester	Local Park
L51	Figure 2-1e	Henry Hudson School No. 28 ES	Rochester	Local Recreation Area
L52	Figure 2-1e	East High School	Rochester	Local Recreation Area
L53	Figure 2-1c; 2-1d; 2-1e	Wegman Road Park	Gates	Local Park
L54	Figure 2-1e	Baseball Stadium	Rochester	Local Recreation Area

Map Reference	Figure	Name	Location	Category
L55	Figure 2-1e	Local Athletic Field	Rochester	Local Recreation Area
L56	Figure 2-1e	John Williams School No. 5 ES	Rochester	Local Recreation Area
L57	Figure 2-1d	Neil Armstrong Elementary School	Gates	Local Recreation Area
L58	Figure 2-1d	Elmgrove Park	Gates	Local Park
L59	Figure 2-1e	Dr. Martin Luther King, Jr. School No. 9 ES	Rochester	Local Recreation Area
L60	Figure 2-1e	Jones Square Park	Rochester	Local Park
L61	Figure 2-1e	Dr. Freddie Thomas Learning Center	Rochester	Local Recreation Area
L62	Figure 2-1d	Gates Town Park	Gates	Local Park
L63	Figure 2-1e	Local Athletic Field	Rochester	Local Recreation Area
L64	Figure 2-1e	Audubon School No. 33 ES	Rochester	Local Recreation Area
L65	Figure 2-1e	Local Athletic Field	Rochester	Local Recreation Area
L66	Figure 2-1e	Dag Hammarskjold School No. 6 ES	Rochester	Local Recreation Area
L67	Figure 2-1d	North Star Christian Academy	Gates	Local Recreation Area
L68	Figure 2-1e	Henry Lomb School No. 20 ES	Rochester	Local Recreation Area
L69	Figure 2-1e	Edgerton Park	Rochester	Municipal Park
L70	Figure 2-1d	Memorial Park	Gates	Municipal Park
L71	Figure 2-1e	Mary Mcleod Bethune School No. 45 ES	Rochester	Local Recreation Area
L72	Figure 2-1d	Lions Park	Gates	Municipal Park

Map Reference	Figure	Name	Location	Category
L73	Figure 2-1e	Roberto Clemente School No. 8 ES	Rochester	Local Recreation Area
L74	Figure 2-1d	Most Precious Blood School	Rochester	Local Recreation Area
L75	Figure 2-1e	Local Athletic Field	Rochester	Local Recreation Area
L76	Figure 2-1d	Local Athletic Field	Rochester	Local Recreation Area
L77	Figure 2-1e	Frederick Douglass Middle School	Rochester	Local Recreation Area
L78	Figure 2-1e	Lowe Falls Park	Rochester	Local Park
L79	Figure 2-1e	Pulaski Park	Rochester	Local Park
L80	Figure 2-1e	Norton Village Park	Rochester	Municipal Park
L81	Figure 2-1e	Local Athletic Field	Rochester	Local Recreation Area
L82	Figure 2-1e	Silver Stadium	Rochester	Local Park
L83	Figure 2-1e	Aquinas Institute of Rochester	Rochester	Local Recreation Area
L84	Figure 2-1e	Career Schools at Benjamin Franklin High School	Rochester	Local Recreation Area
L85	Figure 2-1d	Henpeck Park	Greece	Local Park
L86	Figure 2-1e	Maplewood Park	Rochester	Local Park
L87	Figure 2-1e	La Grange Park	Rochester	Municipal Park
L88	Figure 2-1d	Holleder Memorial Stadium	Rochester	Local Park
L89	Figure 2-1e	Seneca Park	Rochester	Local Park
L90	Figure 2-1e	John Marshall High School	Rochester	Local Recreation Area
L91	Figure 2-1d	Greece Canal County Park	Greece	County Park
L92	Figure 2-1e	Southlawn Elementary School	Irondequoit	Local Recreation Area
L93	Figure 2-1e	Seneca County Park	Irondequoit	County Park

Map Reference	Figure	Name	Location	Category
L94	Figure 2-1a; 2-1b	Veterans Memorial Park	Henrietta	Local Park
L95	Figure 2-1a; 2-1b	Local Athletic Field	Henrietta	Local Recreation Area
L96	Figure 2-1a; 2-1b	Kenwick Local Athletic Field	Henrietta	Local Recreation Area
State Parks, Recreation Areas, and Wildlife Management Areas				
S01	Figure 2-1a; 2-1b; 2-1c	Genesee Valley Greenway State Trail	Chili	State Multi-Use Trail
S02	Figure 2-1b; 2-1c	Black Creek Waterway Access	Chili	State Recreation Area
S03	Figure 2-1b; 2-1c; 2-1d; 2-1e	Unnamed bike trail segment	Rochester	State Multi-Use Trail
S04	Figure 2-1b; 2-1e	Genesee River Trail (SE)	Rochester	State Multi-Use Trail
S05	Figure 2-1b; 2-1e	Genesee River Trail (S)	Rochester	State Multi-Use Trail
S06	Figure 2-1b; 2-1c; 2-1d; 2-1e	Erie Canalway Trail	Ogden; Greece; Gates; Rochester; Brighton	State Multi-Use Trail
S07	Figure 2-1e	High Falls Heritage Area	Rochester	State Heritage Area
S08	Figure 2-1e	Urban Heritage Area	Rochester	State Heritage Area
National Parks and Wildlife Refuges				
N01	Figure 2-1c; 2-1d; 2-1e	Erie Canal	Rochester	National Park System

Map Reference	Figure	Name	Location	Category
Historic Resources, Including National Register of Historic Places (NRHP)				
H01	Figure 2-1a	Sage, Simeon House	Scottsville	NRHP
H02	Figure 2-1a	Windom Hall	Scottsville	NRHP
H04	Figure 2-1a	Union Presbyterian Church	Scottsville	NHRP
H05	Figure 2-1a	Grace Church	Scottsville	NHRP
H06	Figure 2-1a	Rochester Street Historic District	Scottsville	NHRP
H07	Figure 2-1a	McVean, David, House	Scottsville	NHRP
H08	Figure 2-1b; Figure 2-1c	Genesee Valley Canal & RR	Scottsville, Chili, Rochester	Resource Management Corridor
H09	Figure 2-1b	Genesee Valley Park	Rochester	NHRP in Process
H10	Figure 2-1b	Wallace, Timothy, House	Brighton	NRHP
H11	Figure 2-1b; Figure 2-1e	Hagaman, David, House	Brighton	NHRP
H12	Figure 2-1e	Mt. Hope-Highland Historic District	Rochester	NHRP
H13	Figure 2-1c; Figure 2-1d; Figure 2-1e	Hinchey, Franklin, House	Gates	NRHP
H14	Figure 2-1e	Rochester City School #24	Rochester	NHRP
H15	Figure 2-1e	Emmanuel Presbyterian Church	Rochester	NHRP
H16	Figure 2-1e	Linden-South Historic District	Rochester	NRHP
H17	Figure 2-1e	O'Kane Market and O'Kane Building	Rochester	NHRP
H18	Figure 2-1e	House at 235--237 Reynolds Street	Rochester	NHRP
H19	Figure 2-1e	Saint Andrew's Episcopal Church	Rochester	NHRP
H20	Figure 2-1e	Nazareth House	Rochester	NHRP

Map Reference	Figure	Name	Location	Category
H22	Figure 2-1e	Immaculate Conception Roman Catholic Church Complex	Rochester	NHRP
H23	Figure 2-1e	Immanuel Baptist Church	Rochester	NHRP
H24	Figure 2-1e	Old Stone Warehouse	Rochester	NHRP
H25	Figure 2-1e	Third Ward Historic District	Rochester	NHRP
H26	Figure 2-1e	Campbell-Whittlesey House	Rochester	NHRP
H27	Figure 2-1e	Ely, Hervey, House	Rochester	NHRP
H28	Figure 2-1e	East Avenue Historic District	Rochester	NHRP
H29	Figure 2-1e	Naval Armory--Convention Hall	Rochester	NHRP
H30	Figure 2-1e	Court Exchange Building--National Casket Company	Rochester	NHRP
H31	Figure 2-1e	Eastman, George, House	Rochester	NHRP
H32	Figure 2-1e	First Presbyterian Church	Rochester	NHRP
H33	Figure 2-1e	Bevier Memorial Building	Rochester	NHRP
H34	Figure 2-1e	Child, Jonathan, House & Brewster-Burke House Historic District	Rochester	NHRP
H35	Figure 2-1e	St. Mary's Roman Catholic Church and Rectory	Rochester	NHRP
H36	Figure 2-1e	Lehigh Valley Railroad Station	Rochester	NHRP
H37	Figure 2-1e	Anthony, Susan B., House	Rochester	NHRP
H38	Figure 2-1e	Court Street Bridge	Rochester	NHRP
H39	Figure 2-1e	Madison Square--West Main Street Historic District	Rochester	NHRP
H40	Figure 2-1e	Watts, Ebenezer, House	Rochester	NHRP
H41	Figure 2-1e	First Universalist Church	Rochester	NHRP
H42	Figure 2-1e	Gannett Building	Rochester	NHRP
H43	Figure 2-1e	Rundel Memorial Library	Rochester	NHRP

Map Reference	Figure	Name	Location	Category
H44	Figure 2-1e	Erie Canal: Second Genesee Aqueduct	Rochester	NHRP
H45	Figure 2-1e	The Times Square Building	Rochester	NHRP
H47	Figure 2-1e	City Hall Historic District	Rochester	NHRP
H48	Figure 2-1e	Bridge Square Historic District	Rochester	NHRP
H49	Figure 2-1e	Arcade Mill	Rochester	NRHP Eligible
H50	Figure 2-1e	Wilder Building	Rochester	NHRP
H51	Figure 2-1e	Duffy-Powers Building	Rochester	NRHP Eligible
H52	Figure 2-1e	Powers Building	Rochester	NHRP
H53	Figure 2-1e	University Club	Rochester	NHRP
H54	Figure 2-1e	Washington Street Rowhouses	Rochester	NHRP
H55	Figure 2-1e	Reynolds Arcade	Rochester	NHRP
H56	Figure 2-1e	Christ Church	Rochester	NRHP
H57	Figure 2-1e	First National Bank of Rochester--Old Monroe County Savings Bank Building	Rochester	NHRP
H58	Figure 2-1e	Main Street Bridge	Rochester	NHRP
H59	Figure 2-1e	Yawman and Erbe Building	Rochester	NHRP Eligible
H60	Figure 2-1e	Little Theatre	Rochester	NHRP
H61	Figure 2-1e	National Company Building	Rochester	NHRP
H62	Figure 2-1e	Eastman Historic District	Rochester	NHRP Eligible
H63	Figure 2-1e	Federal Building	Rochester	NHRP
H64	Figure 2-1e	Hallman Chevrolet	Rochester	State Register
H65	Figure 2-1e	Granite Building	Rochester	NHRP
H66	Figure 2-1e	Edwards Building	Rochester	NHRP
H67	Figure 2-1e	Brick Presbyterian Church Complex	Rochester	NHRP
H68	Figure 2-1e	Sibley Triangle Building	Rochester	NHRP

Map Reference	Figure	Name	Location	Category
H69	Figure 2-1e	State Street Historic District	Rochester	NHRP
H70	Figure 2-1e	Cox Building	Rochester	NHRP
H71	Figure 2-1e	Chamber of Commerce	Rochester	NHRP
H72	Figure 2-1e	Sibley, Lindsay & Curr Building	Rochester	NHRP Eligible
H73	Figure 2-1e	Baptist Temple Building	Rochester	NHRP Eligible
H74	Figure 2-1e	Warner, H. H., Building	Rochester	NHRP
H75	Figure 2-1e	Michaels--Stern Building	Rochester	NHRP
H76	Figure 2-1e	Rochester Savings Bank	Rochester	NHRP
H77	Figure 2-1e	English Evangelical Church of the Reformation and Parish House	Rochester	NHRP
H78	Figure 2-1e	Our Lady of Victory Roman Catholic Church	Rochester	NHRP
H79	Figure 2-1e	Brown, Adam, Block	Rochester	NHRP
H80	Figure 2-1e	Andrews Street Bridge	Rochester	NHRP
H81	Figure 2-1e	East High School	Rochester	NHRP
H82	Figure 2-1e	St. Joseph Roman Catholic Church and Rectory	Rochester	NHRP
H83	Figure 2-1e	Grove Place Historic District	Rochester	NHRP
H84	Figure 2-1e	Cohen, H. C., Company Building--Andrews Building	Rochester	NHRP
H85	Figure 2-1e	Kirstein Building	Rochester	NHRP
H86	Figure 2-1e	St. Paul-North Water Streets Historic District	Rochester	NHRP
H87	Figure 2-1e	Dewey, Chester, School No. 14	Rochester	NHRP
H88	Figure 2-1e	Salmon-Nusbaum Building	Rochester	NHRP Eligible
H89	Figure 2-1e	Jewish Young Men's and Women's Association	Rochester	NHRP
H90	Figure 2-1e	Brown's Race Historic District	Rochester	NHRP

Map Reference	Figure	Name	Location	Category
H91	Figure 2-1e	German United Evangelical Church Complex	Rochester	NHRP
H92	Figure 2-1e	Rochester Fire Department Headquarters and Shops	Rochester	NHRP
H93	Figure 2-1e	Eastman Dental Dispensary	Rochester	NHRP
H94	Figure 2-1e	Teoronto Block Historic District	Rochester	NRHP
H95	Figure 2-1e	Building at 551--555 North Goodman Street	Rochester	NHRP
H96	Figure 2-1d; Figure 2-1e	Erie Canal (Modern Alignment)	Brighton, Rochester, Gates	Resource Management Corridor
H97	Figure 2-1e	Leopold Street Shule	Rochester	NRHP
H98	Figure 2-1e	Eastside Memorial Presbyterian Church	Rochester	NHRP
H99	Figure 2-1e	Saint Mark's and Saint John's Episcopal Church	Rochester	NHRP
H100	Figure 2-1e	Fernwood Park Historic District	Rochester	NRHP
H101	Figure 2-1e	Erie Canal (Historic Alignment)	Rochester, Gates	Resource Management Corridor
H102	Figure 2-1e	Pulaski Library	Rochester	NHRP
H103	Figure 2-1e	Maplewood Historic District	Rochester	NHRP
H104	Figure 2-1e	Aquinas Institute	Rochester	NHRP
H105	Figure 2-1e	Vanderbeck House	Rochester	NHRP
H106	Figure 2-1e	Seneca Park East and West	Rochester	NHRP
H107	Figure 2-1e	Ramona Park Historic District	Rochester	NRHP

b. DEC Policy Inventory

This section addresses specific visual resource categories outlined in the NYSDEC's Program Policy, Assessing and Mitigating Visual Impacts (NYSDEC 2003). With this policy, NYSDEC asserts that the State's interest with respect to aesthetic resources is to protect those resources whose scenic character has been recognized through national or state designations. This section addresses the 11 categories of aesthetic resources of statewide significance that are applicable to the proposed Project. The other four categories pertain to the Palisades, Adirondack and Catskill Parks, which are far removed from the Project area, and designated Scenic Areas of Statewide Significance, all six of which are located in the Hudson River Valley.

1) *Historic Resources. A property 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 files maintained by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and other appropriate databases identified 92 individual properties, complexes and historic districts listed in the National Register of Historic Places (NRHP) and one property on the State Register of Historic Places within three miles of the proposed facilities. Additionally there is one property (Genesee Valley Park) in the process of being listed on the NHRP and seven properties or complexes eligible to be listed on the NHRP.

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

No state parks are located within three miles of the proposed circuits 940 or 941 or Station 255.

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

In 1982 the New York State Legislature created the Urban Cultural Parks Program under the jurisdiction of the OPRHP. This Program, which aimed to develop, interpret, identify and preserve the natural and cultural resources of the state, has grown beyond the original concept and was amended in 1994 to become the State Heritage Areas program. The Project falls within the Western Erie Canal Heritage Corridor which is part of the New York State Heritage Area System. This heritage corridor consists of the counties of Wayne, Monroe, Orleans, Niagara, and Erie and all the municipalities therein, along with a 136-mile section of the canal.

4) *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]*

No national wildlife refuges, State Game Refuges, or State Wildlife Management Areas are located within three miles of the proposed circuits 940 or 941 or Station 255.

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

No National Natural Landmarks are located within three miles of the proposed circuits 940 or 941 or Station 255.

6) *The National Park System [16 U.S.C. 1c]*

The Project falls within the Erie Canalway National Heritage Corridor, which is part of the New York State Canal System. This heritage corridor encompasses New York's canal system and the communities along its shores. The Erie Canalway National Heritage Corridor covers 524 miles in Upstate New York, including four navigable waterways (the Erie, Champlain, Oswego and Cayuga-Seneca Canals), sections of the first Erie Canal and over 200 municipalities adjacent to the canals. No National Forests or National Seashores were identified within the Project area.

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

No National or State Wild and Scenic Rivers have been designated within the Project area.

8) *A site, area, lake, reservoir or highway designated or eligible for designation as scenic [ECL Article 49]*

Areas subject to Article 49 designation include Scenic Byways (now under the purview of the NYSDOT), parkways designated by the OPRHP, and other areas designated by NYSDEC. Based on review of the NYSDOT Scenic Byways inventory, there are no Scenic Byways within the Project area. The nearest designated scenic highway is the Great Lakes Seaway Trail, a 454-mile series of highway links along New York's northern border that follows Lake Erie, Lake Ontario and the St. Lawrence River. The Seaway Trail, which is also designated a National Scenic Byway, is located north of the Project area along Lake Ontario.

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

Three designated trails are located within the Project area. They include the Erie Canal Heritage Trail, the Genesee Valley Greenway State Trail and the Genesee River Trail. The Erie Canal Heritage Trail, which is part of the Erie Canalway National Heritage Corridor, has been designated a National Recreation Trail. It is an 85.5-mile long asphalt, stone, and dirt hiking, biking, cross-county skiing trail from Lockport to Palmyra that passes through villages whose development centered on the canal. This heritage trail is crossed by Circuit 941 in the town of Gates along the boundary with the city of Rochester and is within three miles of Circuit 940. The Erie Canal Heritage Trail is part of a network of more than 260 miles of existing multi-use, recreational trails across upstate New York.

The Genesee Valley Greenway is an 84-mile hiking, biking and horseback riding rail-trail generally following the path of the abandoned Genesee Valley Canal and the Pennsylvania Railroad, between the City of Rochester and Portageville. The Genesee Valley Greenway is crossed by circuits 940 and 941 adjacent and to the north of where the existing NYPA 345 kV lines cross the trail, approximately 0.6 miles west of proposed Station 255.

The Genesee River Trail is a 9.1-mile trail along the Genesee River through the City of Rochester to Lake Ontario. The Genesee River Trail meets with and forms a continuation of the Genesee Valley Greenway at the Erie Canal. The Genesee River Trail is within the Project area but is not traversed by the Project facilities.

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

There are no Wildlife Management Areas or National Wildlife Refuge within three miles of the transmission centerline.

11) Bond Act Properties purchased under Exceptional Scenic Beauty category

According to the NYSDEC Division of Forests and Lands website, no Bond Act Properties are located within the Project area.

c. Local Recreation Sites

The Project area includes a number of county and municipal recreation areas. These local recreation areas include municipal parks, playgrounds, recreation centers, and golf courses. Generally, these local recreation areas include active recreation facilities (i.e., ball fields, courts and playgrounds), which tend to minimize their sensitivity to potential visual impacts.

d. Environmental Effects and Mitigation

Potential visual impacts are greatest when incompatible landscape features or elements are added in a way that detracts from the overall setting or the enjoyment of historic, scenic and recreational resources. Potential visual impacts from circuits 940, 941 and 40 and the partial relocation of circuit 906 are minimized through the use of existing electric transmission and railroad corridors.

Circuits 940 and 941 and the partial relocation of circuit 906 will be constructed using primarily single-pole structures of either wood or steel. The structures will range from 60 to 80 feet in height with span lengths between 300 and 400 feet. Circuit 40 will be constructed using steel single-pole structures that will range from 90 to 130 feet in height with span lengths between 550 and 850 feet.

The potential visibility of the proposed Project and related impacts to surrounding areas are dependent on the visibility of the existing circuit and the nature and extent of surrounding development. Generally, the existing circuit is viewed as part of an urban/suburban context and active agricultural fields with most visibility limited to stretches of open fields and road crossings.

In terms of visual aspects and context, the proposed Project can be divided into three distinct sections: (a) circuits 940 and 941 from new Station 255 to Station 67; (b) circuit 941 from Station 67 to Station 23; and (c) circuit 40 between new Station 255 and Station 80. The visual context and potential visual impacts of the proposed Project are discussed below for each of these three sections. The underground portion of circuit 940 between Station 67 and Station 418 will not result in any noticeable change in the visual quality or character of the existing right-of-way and surrounding landscape.

4.4.2 Circuits 940 and 941

Between new Station 255 and Station 67 circuits 940 and 941 either share the same right-of-way or the same railroad corridor and both lines will be viewed in a similar context. This portion of the Project area is a predominantly rural landscape with large agricultural tracts interspersed with wooded and scrub-shrub wetland areas. Visual and recreational resources in proximity to the proposed lines in this area include Riverton Oaks Golf Course and Riverbend Park, located south of the New York State Thruway in the town of Henrietta and Willowbrook Greens, located along Black Creek in the town of Chili. Considering distance, topography, and intervening wooded areas, the Project facilities will not be visible from any of these specific area. Another recreational resource – the Genesee Valley Greenway Trail – will be crossed by circuits 940 and 941 adjacent to the crossing by the NYPA 345 kV lines. Required vegetation clearing along the trail will open views of the adjacent agricultural areas to trail users, but the impact of the new lines will be incremental considering the width of the existing right-of-way crossing.

Public visibility of circuits 940 and 941 as well as the partially relocated circuit 906 will be limited to a few road crossings due to the relatively isolated setting of the Rochester and Southern railroad corridor. Figure 4.4-1 provides a photo simulation of these three circuits at the crossing of Brooks Road. As shown, the partial relocation of circuit 906 to the east side of the railroad and the use of the existing right-of-way for circuits 940 and 941 will require additional clearing along both sides of the tracks; however, the lack of public vantage points limits the potential visual impacts of the transmission lines and associated clearing. Figure 4.4-2 provides a photo simulation of circuits 940 and 941 at the crossing of Ballantyne Road, the only other public road crossing south of Genesee Junction.

Between Genesee Junction and Station 67, circuits 940 and 941 will have limited visibility from public road crossings and will be viewed in the context of other existing transmission lines (circuits 921 and 916). Required clearing will primarily be needed along the east side of the railroad for circuit 941, but the industrial land uses and absence of any visual or recreational resources along this portion of the Project corridor will limit potential visual impacts.

4.4.3 Circuit 941

North of Station 67, circuit 941 will cross Beehan Road in an overhead configuration and then transition to underground and continue within an existing utility right-of-way. Circuit 941 will transition back to overhead configuration south of Brooks Avenue and continue within the railroad corridor into downtown Rochester. The few visual resources along this portion of the Project consist primarily of historic properties within the urban context of Rochester.

North of the Greater Rochester International Airport, proposed circuit 941 crosses the Erie Canal and the Erie Canalway Trail. This crossing is located between the Rochester and Southern railroad bridge and the Chili Avenue bridge, which span the canal. The Canalway Trail crosses both Chili Avenue and the railroad at grade, adjacent to the interchange between Chili Avenue and I-390. The diminished aesthetic values in this area due to the high volume roadways and railroad minimize potential visual impacts from circuit 941 for users of the canal and trail.

North of the Erie Canal crossing, circuit 941 continues within railroad corridors shifting from the Rochester and Southern railroad to the CSX mainline. As the line approaches downtown Rochester, the railroad becomes elevated relative to the surrounding community, and potential views of circuit 941 from the surrounding neighborhoods are limited initially by the industrial buildings adjacent to the railroad corridor and then by the change in elevation. Figure 4.4-3 provides a photo simulation of circuit 941 within the context of the CSX railroad corridor.

4.4.4 Circuit 40

The proposed 345 kV circuit 40 will be constructed in an overhead configuration on single-pole, steel structures along the southern edge of the existing NYPA right-of-way to connect new Station 255 to Station 80. With span lengths comparable to the existing NYPA 345 kV lines, the new circuit 40 will match the existing lines structure-for-structure, but the location of the new structures will not precisely match the existing structures, and the single-pole structures will provide a visual contrast with the existing single circuit steel lattice structures. Potential visual impacts are limited by the lack of public viewpoints, which are confined to a single public road crossing at East River Road in the town of Henrietta. Figure 4.4-4 provides a photo simulation of circuit 40 from the vantage point of East River Road.

4.5 Cultural Resources

This section addresses 16 NYCRR §§86.3(a)(1)(iii) and 86.5(b)(2)(i), regarding potential impacts on cultural resources from the construction and operation of the Rochester Area Reliability Project. As used here, the term cultural resources includes archeological sites, objects, and places, as well as historic buildings, structures, districts, and objects. This section tabulates previously-inventoried cultural resources in the area affected by the proposed Project and discusses the Project’s potential direct impacts on these resources. The Project’s potential visual impacts on historic structures are addressed in Section 4.4 of this exhibit.

4.5.1 Existing Setting

a. Project Description

Under the Applicant’s preferred design, the Project will be installed within existing utility rights-of-way currently occupied by electrical transmission lines and gas pipelines and rail corridors shared with utility lines. Over 80 percent of the combined circuit lengths will be carried on overhead lines. Though designs remain to be finalized, overhead lines likely will be carried on single-circuit wood poles with an approximate height of 75 feet and typically spaced at intervals of several hundred feet. Where the circuits are installed in railroad corridors, the poles will generally be placed in or adjacent to the railroad berms. The balance of the Project will be installed as underground circuits. Under the preferred design, the Applicant proposes to install circuits underground in the 3.5-mile western leg of circuit 940 between stations 67 and 418 in the existing RG&E corridor, along a 0.7-mile segment of circuit 941 in the Rochester & Southern right-of-way west of Rochester Airport, and in the final 0.2-mile run of the same circuit where it transitions from the CSX right-of-way into its terminus at station 23 in the vicinity of Frontier Field, a stadium in downtown Rochester. Construction methods for the underground installations have yet to be determined, but at least some portions of these lines will likely be built by open trenching to a depth of approximately 5 feet, with horizontal directional drilling possibly used in some instances.

b. Environmental Setting

The Project will be constructed in an area of generally low relief that grades from rural in the south and west to urban in the north. Proposed Station 255, circuit 40, circuit 940 and circuit 941 at the southern end of the Project are predominantly in an area of farmland interspersed by wetlands. The western leg of circuit 940 is a mix of farmland and suburban development. The area around the northern leg of circuit 941 is the most densely developed, with expansive commercial industrial facilities (including the Greater Rochester International Airport) to the south becoming densely urbanized with a mix of industrial, residential, and commercial districts to the north.

Although new Station 255 will be constructed on land currently used for agricultural production, the remainder of the Applicant's preferred design will be built in existing utility and railroad corridors. The existing NYPA line at the southern end of the Project occupies an electrical and gas transmission corridor approximately 350 feet wide that is cleared of mature trees, while the existing cleared RG&E and National Grid corridor that will be used by the western leg of circuit 940 is approximately 150 feet in width. The railroad rights-of-way are typically 100 feet wide. The Rochester and Southern right-of-way is occupied by a single track on a berm with a footprint roughly 25 to 40 feet wide. The southern portion of this corridor is currently used by existing RG&E circuit 906, a portion of which will be relocated to new poles within the corridor to accommodate the Project's new circuits. The CSX right-of-way contains three through-tracks plus spurs and interchange lines, and the railroad berm and its side slopes occupy the entire corridor. Poles for local electrical and/or telephone service are situated in certain places along the edges of the CSX corridor. The general alignments likely to be used in the approach for circuit 941 from the CSX corridor to station 23 are located in the vicinity of Frontier Field and the northwestern end of Rochester's Inner Loop roadway. Current land use along these possible alignments comprises stadium parking lots, surface streets, elevated roadways, and highway access ramps.

c. Archeological Sites

To address potential Project impacts to historic and archeological resources, a site file check and review of basic background information was completed. This background research utilized the online databases of the New York Office of Parks, Recreation and Historic Preservation (OPRHP)—particularly OPRHP's SPHINX system—and the National Register of Historic Places (NRHP) FOCUS database, as well as other online resources. Additional information was collected during an in-person visit to the OPRHP's research center at Peebles Island, Cohoes, New York. This review focused on a study area buffered out from the preferred Project alignment. This review considered a 1-mile buffer around proposed Project elements for archeological resources and a 3-mile buffer for cultural resources listed on or eligible for historic registers.

A review of the files maintained by the OPRHP and other pertinent databases identified 49 recorded prehistoric archeological sites and 12 recorded historic sites within 1 mile of the Project (Tables 4.5-1 and 4.5-2). No inventoried archeological sites occur within the Project's immediate footprint.

Table 4.5-1: Native American Archeological Sites (Predominantly Prehistoric) Within 1 Mile of the Proposed Project

Site Name	Designation	Description
Circuits 940 and 941: Sites Within 1,000 Feet		
No Native American archeological sites within 1,000 feet.		
Circuits 940 and 941: Sites More Than 1,000 Feet Away		
A055.02.000030	Lexington No. 1 (Follett 75A)	Notched projectile points and 'crude' clay pipe. Possible village; possible Archaic and/or Woodland periods.
A055.02.000035	Genesee Junction (Follett 160)	Village; no additional information. (Same as NYSM 3873?)
A055.02.000036	Severance (Follett 192)	Projectile points; unidentified prehistoric.
A055.02.000039	Convalescent Hospital (Follett 382)	Possible Archaic period site. No additional information.
A055.02.000094	Wehle No. 1 (ANR-110)	Lithic scatter (2 utilized flakes; 2 secondary flakes) and historic field scatter (ceramics)
A055.02.000095	Wehle No. 2 (ANR-111)	Isolated find locus--1 utilized flake; 1 shatter fragment.
A055.02.000096	Robert Graham (ANR-113)	Isolated find--flake tool.
A055.02.000097	Steimer No. 1 (ANR-114)	Isolated find--secondary reduction flake.

Site Name	Designation	Description
A055.02.000098	Steimer No. 2 (ANR-117)	Isolated find--secondary reduction flake.
A055.02.000099	Wehel No. 3 (ANR-118)	Isolated find locus--1 utilized flake; 1 shatter fragment.
A055.02.000100	Steimer No. 3 (ANR-206)	Isolated find--secondary reduction flake.
A055.07.000070	Huckleberry (Roc 125)	Isolated find--two chert flakes.
NYSM 2542	Maplewood Station (Roc 6-3 (5?))	Village site with several graves and hearths.
NYSM 2544	Dumpling Hill (ROC-19-5RMSC)	Grave; no additional information.
NYSM 2545	Davis Locus B (ROC 3-5RMSC)	Burial site--several graves; one pipe. No additional information.
NYSM 3872	ACP MNRO-22	Village and burial site.
NYSM 3873	ACP MNRO-23	Village or large campsite. (Same as Follett's Genesee Junction Site?)
NYSM 3874	Sibley Tower (Follett 102)	Historic Iroquois camp or village. No additional information.
NYSM 8762	No information	Camp; no additional information.
NYSM 8763	No information	No information.
NYSM 8765	No information	Village; no additional information.
NYSM 8766	No information	Village; no additional information.
Circuit 940 (western leg): Sites Within 1,000 Feet		
A055.02.000031	Lexington No. 2 (Follett 75B)	Notched projectile points, "crude" clay pipe, and possible burial. Possible Archaic-Woodland.
Circuit 940 (western leg): Sites More Than 1,000 Feet Away		
A055.02.000032	Lexington No. 3 (Follett 75C)	Notched projectile points, "crude" clay pipe, and possible burial. Possible Archaic-Woodland.
A055.04.000006	Coldwater Site (Follett 389)	Village; no additional information.
NYSM 8767	No information	Possible ossuary.
Circuit 941 (northern leg): Sites Within 1,000 Feet		

Site Name	Designation	Description
No Native American archeological sites within 1,000 feet.		
Circuit 941 (northern leg): Sites More Than 1,000 Feet Away		
A055.40.001549	Rochester Airport (Follett 251)	Camp; no additional information.
A055.40.001550	Kimball (Follett 301)	Early-Middle Woodland village. No additional information.
A055.40.001559	Roxborough Street (Follett 440)	Unidentified prehistoric, possibly Archaic.
A055.40.001544	Sibley Tower (Follett 102)	Historic Iroquois camp or village. No additional information.
A055.40.001557	Bah-Na-Wau-Deh (Follett 366)	Late Woodland or Iroquois village. No additional information.
NYSM 3889	ACP MNRO-39	No information.
NYSM 3890	ACP MNRO-40	Village; no additional information.
NYSM 3923	ACP MNRO-73C	No information.
NYSM 7117	ACP MNRO-73B	Isolated find--large mortar.
NYSM 7118	ACP MNRO-73C	Pipes and other relics found in a gravel pit.
NYSM 7119	ACP MNRO (no sequential number)	Possible trail or traces of occupation.
NYSM 8720	No information	Camp; no additional information.
NYSM 8721	No information	Camp; no additional information.
NYSM 8764	No information	Village; no additional information.
Circuit 40 (345 kV Line): Sites Within 1,000 Feet		
A055.07.000072	Eastman Kodak (ANR-115)	Lithic scatter in plow zone.
A055.07.000073	Yost (ANR-116)	Isolated find--one chert flake
Circuit 40 (345 kV Line): Sites More Than 1,000 Feet Away		
A055.07.000065	Valley Park No. 3 (Follett 356C)	Early Woodland camp.
A055.07.000053	RMSC Roc 120	Late Archaic-Early Woodland camp.
A055.07.000055	Vollmer School (Follett 97)	Camp, Woodland period; no additional information.
A055.07.000058	Red Creek No. 3 (Follett 100C)	Camp; no additional information.
A055.07.000081	Miller (ANR-214)	Isolated find--projectile point fragment

Site Name	Designation	Description
NYSM 8747	No information	Camp; no additional information.
NYSM 8748	No information	Camp; no additional information.

Source: OPRHP

Table 4.5-2: Historic Euro American Archeological Sites Within Approximately 1 Mile of the Proposed Project

Site Name	Designation	Description
Circuits 940 and 941: Sites Within 1,000 Feet		
A055.02.000109	Wehle No. 4 (ANR-153)	Farm dump--late 19th-century ceramics, vessel glass, and window glass.
Circuits 940 and 941: Sites More Than 1,000 Feet Away		
A055.02.000024	Culvert No. 9 (UB 1960)*	Cut limestone blocks.
A055.02.000025	Waste Weir (UB 1961)*	Trimmed, shaped limestone blocks.
A055.02.000026	Genesee Valley Canal (UB 1962)*	Portion of canal in vicinity of channelized mouth of Little Black Creek. Two earthen embankments; railroad bed placed on eastern canal embankment ca. 1880.
A055.02.000225	Genesee Valley Canal/Thruway Site (SUBi-2067)	Portion of canal within NYS Thruway ROW, including berm banks, towpath/ railroad bed, and dewatered, clay-lined canal prism with occasional randomly-discarded artifacts (e.g., one nail).
Circuit 940 (western leg): Sites Within 1,000 Feet		
No historic archeological sites within 1,000 feet.		
Circuit 940 (western leg): Sites More Than 1,000 Feet Away		
No historic archeological sites more than 1,000 feet away.		
Circuit 941 (northern leg): Sites Within 1,000 Feet		
A055.40.000014	Triphammer Building Ruins	Ruins of a 19th-century water-powered manufacturing complex. Designated as a contributing resource to the NRHP-listed Brown's Race HD (NRHP

Site Name	Designation	Description
		89000067; NY SHPO 90NR03133).
Circuit 941 (northern leg): Sites More Than 1,000 Feet Away		
A055.40.001393	Water Street Millrace	Abandoned ca.-1875 mill race along bank of river beneath modern street.
NYSM 2538	Campbell-Whittlesey House	19th-century archeological features and deposits associated with the NRHP-listed Campbell-Whittlesey House (NRHP-71000542; NY SHPO-90NR01461). Archeological resources are not explicitly defined as significant contributing elements.
NYSM 2539	Western Cemetery Site (ROC 41-3RMSC; Buffalo St. Cemetery; West Cemetery)	Site of Rochester's second Euro American cemetery, active ca. 1821-1848. Subsequently closed, incompletely cleared, and incorporated into the grounds of Rochester General Hospital (ca. 1860-1965); later redeveloped as apartment complex.
NYSM 2540	Philip & John M. Hammer Pottery (ROC 47-3RMSC)	Site of early earthenware pottery; sherds collected from vacant house lot.
Circuit 40 (345 kV Line): Sites Within 1,000 Feet		
No historic archeological sites within 1,000 feet.		
Circuit 40 (345 kV Line): Sites More Than 1,000 Feet Away		
A055.07.000171 (#125)	Henry U. Martin Site	Ca. 1850-1920 house site represented by surface materials only, chiefly consisting of bottle glass fragments.
A055.07.000172 (#104)	Woodruff Farm Site	Farmstead site occupied ca. 1858-1941, represented by dwelling and outbuilding foundations and associated artifact assemblage.

**Incorrectly identified by the OPRHP SPHINX database as contributing elements of the NRHP-listed Chili Mills Conservation Area historic district (NRHP-75001198; NY SHPO-90NR01450).*
Source: OPRHP

d.   National Register of Historic Places

According to data assembled in Table 4.4-, there are 104 known historic resources situated within 3 miles of the proposed Project. Nearly all of these have been listed on the NRHP or the New York State equivalent, or have been formally determined as eligible for one or the other of these registers. Analysis indicates that approximately 70 percent of these resources are situated 1 mile or less from the proposed Project. All such nearby historic resources are located in the historically urbanized neighborhoods of Rochester. They include individually-listed buildings and structures, historic districts, and management corridors for historic resources.

4.3.1.   Cultural Resource Assessment Methodology

The cultural resource investigations conducted to date involved two tasks: 1) preliminary records check; and 2) a desktop-level resource sensitivity assessment.

The records check involved a thorough search of online databases supplemented by a review of agency paper files at OPRHP to identify previously-recorded archeological sites and historic properties located within the 1- and 3-mile study area buffers for the Project. Records examined included results of database searches, GIS mapping, record and nomination forms, and selected reports and publications.

The resource sensitivity assessment sought to identify areas within the Project footprint with a high potential for containing previously-unidentified archeological resources. This assessment considered the known distribution of archeological sites and the terrain of the Project area. In addition, it involved a preliminary review of selected historical maps and other historical background information.

4.5.2   Area of Potential Effects

A project's area of potential effects (APE) is "…the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). The APE is defined based on the Project's potential for altering significant, character-defining qualities of known or anticipated cultural resources, including, where relevant, their setting. The potential effects of the Rochester Area Reliability Project effects include ground disturbances due to the construction of the new substation, circuits, and other Project elements, as well as possible alterations to the visual environment in the vicinity of the Project. Construction activities that could result in ground disturbances include clearing and grubbing, grading, excavation, trenching, and erection of power poles. Visual effects may result from the erection of new transmission structures or from the replacement of existing structures with those of a different size or design.

The OPRHP has established a policy regarding the APE for utility corridors and the requirements for assessing potential impacts to archeological resources. The OPRHP expects documentation of previous disturbance and requires testing to be conducted within a construction work zone (i.e., the area within which work can proceed without the potential to impact resources) where the least disturbance has occurred. Accordingly, the APE would also include construction access roads where grading is required, transmission structure sites, laydown areas and storage yards. These areas will be identified as part of the final design and presented in the EM&CP.

4.5.3 Impact Assessment and Mitigation

As indicated in Tables 4.5-1 and 4.5-2, previously-recorded archeological sites are distributed among the Project segments as follows:

	Prehistoric Sites within 1 mile	Historic Sites within 1 mile
Circuits 940/941 (southern legs), including station 255	22	5
Circuit 940 (western leg)	4	0
Circuit 941 (northern leg)	14	5
Circuit 40 (345 kV line)	9	2
Total	49	12

This distribution of archeological sites reflects the proximity of the north-south segment of the study area (i.e., circuits 40, 940 and 941) to the Genesee River. Numerous prehistoric and Colonial-era Native American sites of various types have been recorded in the vicinity of the river. The river was also the focus of nineteenth-century Euro American settlement in and near

Rochester, and it supported the development of water-powered industry and water-based transportation networks.

In general, review of site location maps maintained by OPRHP shows that Native American sites occur in a variety of settings in the vicinity of the Project. Not surprisingly, it appears that many of the previously-recorded Native American sites are located on the floodplain and low alluvial terraces of the Genesee River. Available information indicates that many of these sites were camps, hamlets, or villages, representing localities that prehistoric or Colonial-era Native Americans occupied intensively and/or repeatedly. This site distribution pattern also extends for short distances upstream along some of the river's larger tributary streams in the Project vicinity. A geoarcheological investigation within NYPA's 345 kV transmission corridor at its crossing of the Genesee River slightly north of the proposed alignment of Circuit 40 revealed the presence of deep Holocene alluvial deposits on the floodplain adjacent to the left (west) bank of the river (Weir et al. 1992:3-71 to 3-75). While no buried, stable floodplain landforms were identified on which substantial archeological deposits might be expected to have developed as a result of that study, such information will be considered in assessing the archeological sensitivity of the APE once the Project design is sufficiently well developed to warrant a Phase I archeological field survey.

Native American sites also occur in the upland areas away from the main stem of the Genesee—that is, in the terrain primarily traversed by the Project's preferred alignment. However, based upon the limited evidence currently available, Native American sites in upland areas tend to be very small and represent limited ranges of activity. One example of this trend is the two Native American sites documented as occurring within 1,000 feet of the preferred alignment for the Project for Circuit 40. Site A055.07.000072 is a low-density lithic scatter in a plow zone, while Site A055.07.000073 is an isolated find; neither site is eligible for the NRHP (Table 4.5-1). Another example is the group of seven sites situated in the vicinity of the proposed circuits 940 and 941 (sites A055.02.000094 through -100 in Table 4.5-1). All these sites are identified as isolated find spots and consist of one or two pieces of lithic debitage, which in some instances appear to have been lightly utilized or modified. Such sites represent transient activities involving tool maintenance or expedient use and cannot be securely dated or assigned to a cultural period because of an absence of diagnostic attributes and a lack of associated datable organic materials. These sites seem to occur on relatively level, relatively well-drained land in proximity to neighboring wetlands, streams, and headwater areas. If such landforms are present within the proposed Project alignment, and if they have not been disturbed by railroad construction or other ground-disturbing activities, then they would be sensitive for Native American archeological resources.

Once the Project design has reached an appropriate level of completion, a Phase I archeological investigation will be conducted in areas of moderate to high archeological sensitivity, including floodplain and upland areas as appropriate, to ascertain whether archeological resources are present and to evaluate possible Project impacts. This investigation will be coordinated with the OPRHP Field Services Bureau, in conjunction with EM&CP preparation activities.

Two previously-recorded historic period Euro American archeological sites have been documented within 1,000 feet of the proposed Project (Table 4.5-2). One of these (Wehle No. 4 [A055.02.0000109], a farm dump) is located near the southern portion of circuits 940 and 941 while the other (the Triphammer Building Ruins [A055.04.000014]) is located near the northern end of circuit 941.

A preliminary review of historical maps and other sources also indicates that there are few or no map-documented structures (MDSs) within most portions of the Project's preferred alignment. MDSs are buildings and structures depicted on historical maps; they may be present in a Project area as extant architectural resources or their remnants may exist in the archeological record. The apparent general rarity of MDSs reflects patterns of historical development in the vicinity of the preferred alignment.

The southern end of the Project in the vicinity of new Station 255 and circuit 40, as well as western leg of circuit 940 will occupy existing electrical transmission corridors. These were established in rural areas in the mid-twentieth century, and preliminary examination of maps dating back to the mid-nineteenth century suggests that both transmission corridors avoided the historical locations of farmsteads and small-scale rural industries (Beers 1872; Browne 1852, 1858; USGS 1920).

As proposed, much of the Project will occupy railroad rights-of-way that were established in the nineteenth century. The Rochester and Southern Railroad line, which is proposed for the alignment of circuits 940 and 941 and much of the northern leg of circuit 941, was constructed in 1873-1874. Originally built by the Rochester & State Line Railroad and operated as a regional coal-haul line, the line connected Rochester to the coal fields of central Pennsylvania. It subsequently was operated by the Buffalo, Rochester & Pittsburgh Railway (1881-1932) and Baltimore & Ohio Railroad, later the Chessie System (1932-1985). Since 1986, it has operated as part of the Rochester and Southern short line. The CSX main line, which is the proposed location for the northern end of circuit 941 , originated several decades earlier, in 1837, as part of the Tonawanda Railroad. That railroad became part of the New York Central Railroad in 1853 and was operated as part of the Central's main line, a role it continued to serve under successor companies Penn Central, Conrail, and CSX. These corridors were originally constructed through farmland and other undeveloped land. Both were repeatedly improved over their subsequent century-plus histories. Even so, improvement and expansion of the CSX corridor was more intensive than in the Rochester and Southern corridor, since the former has served as a multi-track main line for well over a century (Beers 1872; Browne 1852, 1858; Lawrence 2006; Rochester & Genesee Valley Railroad Museum 2011a, 2011b, 2011c, 2011d).

Finally, the northern end of circuit 941 leading to existing Station 23 will traverse an area that was densely developed by commercial and industrial enterprises around the beginning of the twentieth century. From the late 1950s onward, the area was subject to a long cycle of urban renewal, which included demolition of many blocks of older structures, followed by construction of high-capacity, high-speed roadways and a local sports facility, Rochester's Frontier Field (Bodner 1995; Frisch 2010; Greater Rochester Sports Authority 2011; USGS 1951, 1971).

Preliminary review of the historical development of the Project area therefore suggests that construction of circuits 40, 940, and 941 and associated Project elements are unlikely to impact significant historic resources in nearly all areas of the preferred alignment. One area that could potentially be sensitive for historic archeological resources is the northern side of the CSX corridor in the vicinity Frontier Field, whose history (including material assembled by Bodner [1995]) remains to be examined in detail. Once the Project design has reached an appropriate level of completion, Phase I archeological investigation, including a more detailed review of historical maps as appropriate, will be conducted to identify any areas of archeological sensitivity, ascertain the presence of resources, and evaluate possible Project impacts. Such investigations will be coordinated with the OPRHP Field Services Bureau, in conjunction with development of the EM&CP.

As discussed in Section 4.4 regarding visual resources, approximately three-quarters of the preferred alignments of circuits 940 and 941 will occupy existing railroad corridors, portions of which already host either high-voltage or local overhead electrical lines. The remaining portions of the Project proposed for overhead lines are already developed as electrical transmission corridors. Moreover, in many portions of the preferred alignment, circuits 940 and 941 will not be readily apparent beyond their immediate vicinities due to intervening development and interspersed, mature vegetation. In open agricultural areas, the transmission lines may be viewed intermittently across open fields from parallel roads at farther distances. Areas of intervening vegetation, however, combined with patterns of topographic relief, effectively screen the transmission corridor. As shown on Figure 2-1, most current NRHP-listed or -eligible resources are located at distances of approximately one-quarter mile or more from the planned overhead portions of the Project. The one notable exception is the Madison Square–West Main Street Historic District, whose northern edge is located 130 to 400 feet from the CSX corridor in the heavily urbanized downtown area of Rochester. However, here, as elsewhere along the preferred alignment, the overall visual effect is anticipated to be incremental and non-intrusive, as the new circuits will be consistent with the current use and character of the proposed alignments.

4.6 Terrestrial Ecology and Wetlands

In accordance with PSL §122(1)(c) and 16 NYCRR §86. 5(a) and (b), this section provides a summary of the potential effects to biological and natural resources incurred from construction and operation of the proposed Project and identifies efforts undertaken to avoid or minimize these potential impacts. A desktop analysis was conducted based on an overlay of Project facilities using existing information from federal and state agency database searches, literature review of published data, and state agency correspondence to ascertain the presence of biological and natural resources likely to occur, and to determine the extent to which they occur within the Project vicinity.

Vegetation communities were analyzed using vegetation cover types as defined by USGS Gap Analysis Program (GAP) Level 3 New York land cover data (USGS 2010). GAP land cover data is developed using a combination of 2001 Landsat imagery from the Multi-Resolution Land

Characteristics (MRLC) Consortium land cover data available in the National Land Cover Database (NLCD) which is then field verified. GAP integrates a variety of other datasets to help with the land cover classification process including Digital elevation model-derived data sets; digital data on soils, geology, stream, and wetlands; point locations for rare plant communities; and fire and tree harvest information. A review of current aerial photography in comparison to GAP data was conducted to detect large changes over time, especially in respect to vegetation structure and density associated with forest clearing, development, and changing cultivation strategies. Predominant vegetation communities have been characterized according to the classification scheme presented in the Ecological Communities of New York State, Second Edition (Edinger et al. 2002).

The presence of potentially jurisdictional waters of the U.S., including wetlands, and waters of the state were determined based on a review of existing information from New York's Department of Environmental Conservation (NYSDEC) Freshwater Wetland maps (CUGIR 2002) and the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) wetland maps (USFWS 2009). The NWI database indicates potential wetland areas based on interpretation of remotely sensed imagery with limited ground verification and often coincide with state-regulated wetlands and surface water features. Current aerial imagery (NAIP 2009), the USGS National Hydrography Dataset (NHD) (USGS 2010b), and the Natural Resources Conservation Service (NRCS) soil survey (USDA-NRCS 2009) supplemented review of freshwater wetland maps to determine wetland areas.

A literature review was conducted to identify the status and distribution of resident and transient wildlife species likely to occur within the Project Corridor. Information resources included published literature, previously recorded survey data, and NYSDEC database searches. The USFWS Federally-listed Threatened and Endangered Species and Candidate Species County Lists for the Project were evaluated, and data request letters were submitted to the New York Natural Heritage Program (NYNHP) to assess potential effects to documented species as well as sensitive habitats potentially occurring within the Project rights-of-way.

Potential Project-related impacts in terms of vegetation communities and wetlands were evaluated using the above-referenced spatial data in conjunction with the preliminary transmission line design. The proposed centerline and preliminary structure locations for circuits

40, 940 and 941 and the partial relocation of circuit 906 were designed in PLS-CADD and geo-referenced to the GIS database described above. Using the typical cross sections provided in Exhibit 5 (Design Drawings) of this application, the proposed edge of new RG&E rights-of-way were added to the existing rights-of-way to define the area of potential impact from clearing; collectively this is defined as the Project Corridor.

4.6.1 Vegetation

The presence and distribution of vegetation communities associated with the Project Corridor are indicative of socioeconomic development within the urban, suburban, rural residential and agricultural landscapes of the towns of Chili, Gates, and Henrietta and the City of Rochester. The dispersion and density of land cover throughout the Project Corridor correlates with adjacent land use, development, and existing natural resources. Cultivated cropland is highly concentrated within the southern portion of the Project in the town of Chili before transitioning into developed land approaching and entering the City of Rochester to the north. Agricultural land was not identified as occurring within the Project north of the town of Chili. Wetland communities intermixed with forested upland communities occur most frequently within the central and southern portion of the Project. Table 4.6-1 provides a cumulative summary of ecological communities identified within the Project Corridor.

The occurrence of invasive plant species is common along transmission line rights-of-way and railroad beds. Common species within the existing rights-of-way includes purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), common reed (*Phragmites* australis), Japanese knotweed (*Polygonum cuspidatum*), multiflora rose (*Rosa multiflora*), and bush honeysuckles (*Lonicera* spp.). Emerging invasive species known to occur in New York include giant hogweed (*Heracleum mantegazzianum*) and pale and black swallow-wort (*Cynanchum rossicum* and *C. nigrum*). One insect species, the emerald ash borer (*Agrilus planipennis*), has recently emerged in the region.

The emerald ash borer, commonly referred to as EAB, is an invasive wood-boring beetle that infests and kills North American ash tree species (*Fraxinus* sp.). The beetle was first detected in western New York during 2009, and has since spread to Monroe County. The NYSDEC and the Department of Agriculture and Markets (Ag & Markets) enacted a quarantine in western New

York that restrict the movement of ash trees, ash products and firewood from all wood species in order to limit the potential introduction of EAB to other areas of the state (NYSDEC 2010).

Table 4.6-1: Community Cover Types Intersecting the Proposed Project Corridor

Vegetation Community Classification		Description	Community within Project Corridor	
Edinger	**Cowardin[4]**		**Acres**	**Percent**
Riverine System				
Natural Streams				
Unconfined River	R2UBH	Genesee River	0.6	0.4
Palustrine System				
Open Mineral Soil Wetlands				
Deep emergent marsh	PEM	PEM	4.9	3.0
Forested Mineral Soil Wetlands				
Floodplain forest	PFO	PFO	0.4	0.3
Hemlock-hardwood swamp[1]	PFO	PFO	25.1	15.3
Forested Mineral Soil/ Open Mineral Soil Wetlands				
Floodplain forest or Deep emergent marsh	PFO, PEM	PFO or PEM wetland communities with introduced riparian and wetland vegetation	0.6	0.4
Palustrine Cultural				
Reedgrass/Purple loosestrife marsh	PEM	PEM wetland communities colonized specifically with reedgrass and purple loosestrife	2.0	1.2
Subtotals			**33.6**	**20.6**
Terrestrial System				
Open Uplands				
Successional old field	-	Grassland undergoing succession following clearing	3.1	1.9

Vegetation Community Classification		Description	Community within Project Corridor	
Edinger	Cowardin[4]		Acres	Percent
Barrens and Woodlands				
Pitch pine-scrub oak barrens[2]	-	Forested/woodland upland communities	0.3	0.2
Forested Uplands				
Appalachian oak-pine forest	-	Forested upland communities	2.0	1.2
Beech-maple mesic forest	-	Forested upland communities	6.9	4.2
Hemlock-northern hardwood forest	-	Forested upland communities	10.4	6.3
Terrestrial Cultural				
Cropland/rowcrop	-	Agricultural	38.9	23.9
Pastureland & Cropland/field crops	-	Agricultural	27.4	16.8
Terrestrial Cultural[3]	-	Developed - Open Space	6.2	3.8
Urban/Rural structural exterior	-	Developed - Structure	34.5	21.1
Subtotals			**129.7**	**79.4**
TOTALS			**163.3**	**100.0**

[1] Silver maple-ash swamp is included in the Hemlock-hardwood swamp community description.

[2] Based on distribution within New York, Pitch-pine oak heath barrens description (Edinger 2002) most closely resembles community classification derived from GAP data. Small and isolated communities occur at two locations along the existing NYPA right-of-way adjacent to wooded and forested areas.

[3] Land cover is composed of a combination of mowed lawn, mowed lawn with trees, mowed roadside/pathway, and herbicide-sprayed roadside/pathway.

[4] PFO = Palustrine Forested, PEM = Palustrine Emergent, R2UBH = Riverine Lower Perennial Unconsolidated Bottom

As anticipated, cultivated agricultural land consisting of row crops and hay/pastureland (41 percent) occurs most frequently within the proposed Project Corridor followed by land that has undergone some degree of development (25 percent) including residential, commercial, and vacant land. Native and natural vegetation has likely been replaced with cultivated crops (i.e., soybeans and corn), planted grasses for pasture or hay, and planted ornamental species, and highly developed areas may be devoid of vegetation or established with weedy or exotic species.

Twenty (20) percent of the proposed Project Corridor intersects forested and emergent wetland communities of which less than two percent are colonized with introduced and invasive species that occur either spontaneously or as a result of significant anthropogenic disturbance. Terrestrial forested, woodland, and grassland communities were identified within 14 percent of the proposed Project Corridor with forested uplands making up 12 percent of the cover. Forested cover associated with these corridors is highly fragmented. Edge habitats with shrubby growth occupy the transition between agriculture fields and forested areas. The Genesee River (riverine community) composes less than one percent of the proposed Project Corridor. Black Creek, which is located in the town of Chili, is associated with the Project although no work is proposed within the bed and along the banks. According to the NYNHP, the silver maple-ash swamp, which supports populations of the state listed Big shellbark hickory (*Carya laciniosa*), is known to occur within the Project vicinity (NYNHP 2011) and is included in the Hemlock-hardwood swamp community description (USGS 2010a). Wetland communities associated with the Genesee River, Black Creek, and silver maple-ash swamp are described in Section 4.6.2. A brief description of the vegetation communities including common plant species anticipated within the communities are provided below.

a. Riverine System

Natural Streams

This subsystem includes linear aquatic communities of flowing, non-tidal waters with a discrete channel, with persistent emergent vegetation sparse or lacking, but may include areas with abundant submerged or floating-leaved aquatic vegetation. The riverine communities in this classification are distinguished primarily by position of the stream in the watershed and water flow characteristics. This subsystem includes streams in which the stream flow, morphometry, and water chemistry have not been substantially modified by human activities, or the native biota is dominant.

Unconfined river: unconfined rivers usually have clearly distinguished meanders (i.e., high sinuosity) are typically deep, wide, have a high low flow discharge, and usually represent a network of 5th to 6th order stream segments. Characteristic submergent vascular plants may include naiad (*Najas flexilis*), pondweeds (*Potamogeton* spp.), and spikerush (*Eleocharis robbinsii*). Floating aquatic macrophytes such as white water-lily (*Nymphaea* sp.) may be common in pools along shallow shores and in backwaters. Two exotic weeds, Eurasian milfoil (*Myriophyllum spicatum*) and water chestnut (*Trapa natans*) may also occur along shores and backwaters.

b. Palustrine System

Open Mineral Soil Wetlands

This subsystem includes wetlands with less than 50 percent canopy cover of trees. The dominant vegetation may include shrubs or herbs. Substrates range from mineral soils or bedrock to well-decomposed organic soils (muck).

Deep emergent marsh*:* a marsh community that occurs on mineral soils or fine-grained organic soils (muck or well-decomposed peat). The substrate remains inundated by water depths ranging from 6 inches to 6 feet. The most abundant emergent aquatic plants are cattails (*Typha* spp.), bur-weeds (*Sparganium* spp.), and bulrushes (*Scirpus* spp.). The most abundant floating-leaved aquatic plants are fragrant water lily (*Nymphaea odorata*), duckweeds (*Lemna* spp.), and pondweeds (*Potamogeton* spp.). The most abundant submerged aquatic plants are coontail (*Ceratophyllum demersum*) and water milfoils (*Myriophyllum* spp.). Marshes that have been disturbed are frequently dominated by aggressive weedy species such as purple loosestrife (*Lythrum salicaria*) and reedgrass (*Phragmites australis*). Deep emergent marshes also occur in excavations that contain standing water (e.g., roadside ditches, gravel pits).

Forested Mineral Soil Wetlands

This subsystem includes seasonally flooded forests, and permanently flooded or saturated swamps with at least 50 percent canopy cover of trees.

Floodplain forest: a hardwood forest that occurs on mineral soils on low terraces of river floodplains and river deltas. These sites are characterized by their flood regime; low areas are annually flooded in spring, and high areas are flooded irregularly. This is a broadly defined community; floodplain forests are quite variable and may be very diverse. The most abundant trees include silver maple (*Acer saccharinum*), ashes (*Fraxinus* spp.), elms (*Ulmus* spp.), and hickories (*Carya* spp.). The most abundant shrubs include spicebush (*Lindera benzoin*), speckled alder (*Alnus rugosa*), dogwoods *(Cornus* spp.), and viburnums (*Viburnum* spp.). Invasive exotic shrubs that may be locally abundant include shrub honeysuckles (*Lonicera* spp.), and multiflora rose (*Rosa multiflora*). The most abundant vines include poison ivy (*Toxicodendron radicans*), wild grapes (*Vitis* spp.), and Virginia creeper (*Parthenocissus quinquefolia*). The most abundant herbs include sensitive fern (*Onoclea sensibilis*), jewelweeds (*Impatiens capensis*), white snakeroot (*Eupatorium rugosum*), and goldenrods (*Solidago* spp.). Invasive exotic herbs that may be locally abundant include moneywort (*Lysimachia ummularia*), garlic mustard (*Alliaria petiolata*), dame's rockets (*Hesperis matronalis*), and stilt grass (*Microstegium vimineum*).

Hemlock-hardwood swamp: a mixed swamp that occurs on mineral soils and deep muck in depressions which receive groundwater discharge. These swamps usually have a fairly closed canopy (70 to 90 percent cover), sparse shrublayer, and low species diversity. The tree canopy is typically dominated by hemlock (*Tsuga canadensis*), and co-dominated by yellow birch (*Betula alleghaniensis*), and red maple (*Acer rubrum*). Characteristic shrubs include saplings of canopy trees, highbush blueberry (*Vaccinium corymbosum*), viburnums (*Viburnum* spp.), and mountain holly (*Nemopanthus mucronatus*). Groundcover may be fairly sparse with herbs including cinnamon fern (*Osmunda cinnamomea*) and sensitive fern (*Onoclea sensibilis*). Other less frequently occurring herbs include sedges *(Carex* spp.), goldthread (*Coptis trifolia*), and Canada mayflower (*Maianthemum canadense*).

Silver maple-ash swamp: a hardwood basin swamp that typically occurs in poorly-drained depressions or along the borders of large lakes, and less frequently in poorly drained soils along rivers. These sites are characterized by uniformly wet conditions with minimal seasonal fluctuations in water levels. The dominant trees are usually silver maple (*Acer saccharinum*) green ash (*Fraxinus pennsylvanica*), and prior to Dutch elm disease, American elm (*Ulmus americana*). Other trees include ashes (*Fraxinus* spp.), swamp white oak (*Quercus bicolor*), and red maple (*Acer rubrum*). Many of the canopy trees occur in the subcanopy along with ironwood (*Carpinus carolinianus*). Characteristic shrubs include winterberry (*Ilex verticillata*), spicebush (*Lindera benzoin*), dogwoods *(Cornus* ssp.), viburnums (*Viburnum* spp.), and speckled alder (*Alnus incana* ssp. *rugosa*). Vines include Virginia creeper (*Parthenocissus quinquefolia*) and poison ivy (*Toxicodendron radicans*). Herbs include sensitive fern (*Onoclea sensibilis*), skunk cabbage (*Symplocarpus foetidus*), jewelweed (*Impatiens capensis*), manna grass (*Glyceris striata*), and various sedges (*Carex* spp.). Herbs in wetter examples include arrowheads (*Sagittaria* spp.), cattail (*Typha latifolia*), and reed canary grass (*Phalaris arundinacea*).

Palustrine Cultural

This subsystem includes communities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical conformation of the substrate, the hydrology, or the biological composition of the resident community is substantially different from the character of the substrate, hydrology, or community as it existed prior to human influence.

Reedgrass/Purple loosestrife marsh: a marsh that has been disturbed by draining, filling, road salts, etc.in which reedgrass (*Phragmites australis*) or purple loosestrife (*Lythrum salicaria*) has become dominant. This community is common along highways and railroads.

c. Terrestrial System

Open Uplands

This subsystem includes upland communities with less than 25 percent canopy cover of trees; the dominant species in these communities are shrubs, herbs, or cryptogamic plants (mosses, lichens, etc.). Shrublands include communities that are dominated by shrubs (more than 50 percent cover of shrubs); they may include scattered trees.

Successional old field: a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming or development), and then abandoned. Characteristic herbs include goldenrods (*Solidago* spp.), timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), common chickweed (*Cerastium arvense*), New England aster (*Aster novae-angliae*), Queen-Anne's lace (*Daucus corota*), ragweed (*Ambrosia artemisiifolia*), hawkweeds (*Hieracium* spp.), and dandelion (*Taraxacum officinale*). Shrubs may be present, but collectively they have less than 50 percent cover in the community. Characteristic shrubs include dogwoods (*Cornus* ssp.), arrowwood (*Viburnum recognitum*), and raspberries (*Rubus* spp.).

Barrens and Woodlands

This subsystem includes upland communities that are structurally intermediate between forests and open canopy uplands. Savannas are communities with a sparse canopy of trees (25 to 60 percent cover), and a groundlayer that is predominantly either grassy or shrubby. Woodlands include communities with a canopy of stunted or dwarf trees (less than 16 feet tall), and wooded communities occurring on shallow soils over bedrock with numerous rock outcrops. The term "barrens" is commonly applied to both savannas and woodlands (e. g., pine barrens).

Pitch pine-heath barrens: a shrub-savanna community that occurs on well-drained, sandy or rocky soils. This is a broadly defined community with several regional variants. The most abundant tree is pitch pine (*Pinus rigida*), and in some stands, species may include big tooth aspen (*Populus grandidentata*), white pine (*Pinus strobus*), or jack pine (*P. banksiana*). The percent cover of trees is variable, ranging from 30 to 60 percent. The shrublayer is dominated by heath shrubs such as black huckleberry (*Gaylussacia baccata*), blueberries (*Vaccinium* spp.), and sweet-fern (*Comptonia peregrina*). Groundlayer species include wintergreen (*Gaultheria procumbens*), wild sarsaparilla (*Aralia nudicaulis*), Canada mayflower (*Maianthemum canadense*), and bracken fern (*Pteridium aquilinum*). Scrub oaks may be present, but they are never abundant or dominant in the shrublayer of pitch pine-heath barrens.

Forested Uplands

This subsystem includes upland communities with more than 60 percent canopy cover of trees; these communities occur on substrates with less than 50 percent rock outcrop or shallow soil over bedrock.

Appalachian oak-pine forest: a mixed forest that occurs on sandy soils or on slopes with rocky soils that are well-drained. The canopy is dominated by a mixture of oaks and pines. The oaks include one or more of the following: black oak (*Quercus velutina*), chestnut oak (*Q. montana*), red oak (*Q. rubra*), white oak (*Q. alba*), and scarlet oak (*Q. coccinea*). The pines are either white pine (*Pinus strobus*) or pitch pine (*P. rigida*); in some stands both pines are present. Red maple

(*Acer rubrum*), hemlock (*Tsuga canadensis*), beech (*Fagus grandifolia*), and black cherry (*Prunus serotina*) are common associates occurring at low densities. The shrublayer is predominantly ericaceous and the groundlayer is relatively sparse, and species diversity is low.

Beech-maple mesic forest: a hardwood forest with sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*) codominant. This is a broadly defined community type with several regional and edaphic variants. These forests occur on moist, well-drained, usually acid soils. Common associates are yellow birch (*Betula alleghaniensis*), white ash (*Fraxinus americana*), eastern hop hornbeam (*Ostrya virginiana*), and red maple (*Acer rubrum*). There are relatively few shrubs and herbs. Characteristic small trees or tall shrubs are hobblebush (*Viburnum lantanoides*), American hornbeam (*Carpinus caroliniana*), striped maple (*Acer pensylvanicum*), witch hazel (*Hamamelis virginiana*), and alternate-leaved dogwood (*Cornus alternifolia*). Dominant groundlayer species are star flower (*Trientalis borealis*), common wood-sorrel (*Oxalis montana*), Canada mayflower (*Maianthemum canadense*), and trilliums (*Trillium* spp.). Hemlock (*Tsuga canadensis*) may be present at a low density.

Hemlock-northern hardwood forest: a mixed forest that typically occurs on middle to lower slopes of ravines, on cool, mid-elevation slopes, and on moist, well-drained sites at the margins of swamps. In any one stand, hemlock (*Tsuga canadensis*) is codominant with any one to three of the following: beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), red maple (*A. rubrum*), black cherry (*Prunus serotina*), white pine (*Pinus strobus*), yellow birch (*Betula alleghaniensis*), black birch (*B. lenta*), red oak (*Quercus rubra*), and basswood (*Tilia americana*). The relative cover of hemlock is quite variable, ranging from nearly pure stands in some steep ravines to as little as 20 percent of the canopy cover. Striped maple (*Acer pensylvanicum*) is often prominent as a mid-story tree. The shrublayer may be sparse and characteristic shrubs include hobblebush (*Viburnum lantanoides*), mapleleaf viburnum (*Viburnum acerifolium*), and raspberries (*Rubus* spp.). Canopy cover can be quite dense, resulting in low light intensities on the forest floor and hence a relatively sparse groundlayer. Characteristic groundlayer plants are Canada mayflower (*Maianthemum canadense*), shining clubmoss (*Lycopodium lucidulum*), common wood fern (*Dryopteris intermedia*), star flower (*Trientalis borealis*), (*Oxalis acetosella*), partridge berry (*Mitchella repens*), and foamflower (*Tiarella cordifolia*).

Terrestrial Cultural

This subsystem includes communities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence.

Cropland/rowcrop: an agricultural field planted in row crops such as corn, potatoes, and soybeans. This community includes vegetable gardens in residential areas.

Cropland/field crops: an agricultural field planted in field crops such as alfalfa, wheat, timothy, and oats. This community includes hayfields that are rotated to pasture.

Pastureland: agricultural land permanently maintained (or recently abandoned) as a pasture area for livestock.

Mowed lawn: residential, recreational, commercial land or unpaved airport runways in which the groundcover is dominated by clipped grasses and there is less than 30 percent cover of trees. Ornamental and/or native shrubs may be present and the groundcover is maintained by mowing.

Mowed lawn with trees: residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and forbs, and it is shaded by at least 30 percent cover of trees. Ornamental and/or native shrubs may be present and the groundcover is maintained by mowing.

Mowed roadside/pathway: a narrow strip of mowed vegetation along the side of a road, or a mowed pathway through taller vegetation (e.g., meadows, old fields, woodlands, forests), or along utility right-of-way corridors (e.g., power lines, telephone lines, gas pipelines). The vegetation in these mowed strips and paths may be dominated by grasses, sedges, and rushes; or it may be dominated by forbs, vines, and low shrubs that can tolerate infrequent mowing.

Herbicide-sprayed roadside/pathway: a narrow strip of low-growing vegetation along the side of a road, or along utility right-of-way corridors (e.g., power lines, telephone lines, gas pipelines) that is maintained by spraying herbicides.

Urban structural exterior: the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, apartment buildings, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in an urban or densely populated suburban area.

These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; occasionally vascular plants may grow in cracks.

Rural structure exterior: the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, barns, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in a rural or sparsely populated suburban area. These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; occasionally vascular plants may grow in cracks.

d. Environmental Effects

The most significant effect to vegetation is the long-term conversion of existing forested communities to managed grassland or shrubland within cleared areas of the proposed rights-of-way. The extent of direct impacts will vary on the quality of vegetation and soils, the type of activity proposed for a particular portion of the Project, and methods used to facilitate construction. While the quality of the existing habitat does play a large role in quantifying effects, the conversion of forest cover is considered more significant than the conversion of shrub or grassland because of the structural changes that occur. Permanent removal of some forest cover is expected in areas that require widening of the existing right-of-way and clearing of the new right-of-way, and selective clearing of undesirable woody species or saplings will be required for improved road access or construction activities.

Construction and improvements will occur along an existing right-of-way and within actively cultivated agricultural lands. Widths along the proposed Project Corridor range from 150 feet to 250 feet and in many cases encompass presently maintained portions of an existing right-of-way. Methods employed to widen and maintain the proposed Project Corridor will be comparable to current right-of-way management practices. The current control methods available for right-of-way clearing and maintenance work are mechanical, chemical, or a combination of the two (RG&E 2007). Chemical control methods will consist of ground applications of New York State approved herbicides to target vegetation species. Following construction, the right-of-way will be selectively managed periodically so that trees or their branches do not infringe on the conductor security zone and jeopardize the reliability of the electric transmission system.

A majority of invasive species in the Project Corridor occur in disturbed areas. These species typically enter the landscape via roadways, utility right-of-ways, farm fields, and construction. Construction activities may instigate introduction and spread of invasive species by transferring seeds to the site mixed in topsoil, gravel, and straw or by construction workers and equipment. One plant community of ecological concern, the silver maple-ash swamp, supports populations of the state listed big shellbark hickory (*Carya laciniosa*). Segments of the existing right-of-way intersect the swamp, and additional clearing will be required to establish a new right-of-way. Clearing of vegetation will be limited in areas that are ecologically sensitive, such as the banks of streams crossed by the proposed transmission route.

Vegetation clearing and management techniques will include mechanical and chemical applications, or a combination of the two. Site-specific selection of vegetation management practices will be based on the community type, and vegetation structure and density. Implementation of an invasive species management plan including NYSDEC regulations and quarantine guidelines will mitigate potential spread of invasive plant and insect species. Details regarding vegetation clearing methods, herbicide application and disposal as well as techniques employed to limit the spread of invasive species will be included in the EM&CP to be prepared as part of the final design.

4.6.2 Wetlands

Wetlands provide critical habitat to a variety of plants and animals, which are often dependent upon the characteristic attributes of wetland ecosystems. These areas are typically abundant with vegetation that offers food, nesting substrates, and essential cover for numerous species during breeding seasons, migration, and winter months. In addition to wildlife value, wetlands offer hydrological benefits such as water quality improvement, floodwater retention, and erosion control. Water quality is improved through the removal and retention of nutrients, the processing of organic and chemical wastes, and the reduction of sediment load. During flood periods, wetlands act to alleviate rising storm waters by serving as temporary storage areas and protecting downstream areas from flood damage. Alterations or the destruction of wetlands may result in a decline in water quality downstream or in adjacent lakes. In addition, wetlands have a recreational significance as they contribute to the aesthetic value of the landscape as well as provide habitat to numerous game species of fish and wildlife.

Federal and State agencies protect these resources through regulation and permitting activities. The USFWS employ Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) hierarchy to classify wetland cover types. Cover types are assigned based on the most abundant cover type in the wetland. A wetland is assigned multiple cover types if multiple covers 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 wetland functions and provide wetland benefits. Class I wetlands have the highest rank, and the ranking descends through Classes II, III and IV. New York assigns a cover class based on the cover type that constitutes at least 50 percent of the area of the wetland. Wetland cover types are not documented as part of New York's wetland database as the state prioritizes wetlands based on classification rank. Therefore, wetlands identified on New York's freshwater wetland map were assigned cover types in correlation with NWI mapped wetlands (NYSDEC 2011).

a. 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. In addition, to protect and preserve the wetland New York regulates a wetlands adjacent area, defined as those areas of land or water that are outside a wetland and within 100 feet of the wetland boundary.

Five NYSDEC-regulated wetlands (CI-5, CI-32, CI-40, CI-41, and HR-26) that total approximately 14.9 acres are located at multiple locations within the proposed Project Corridor. Due to the fragmented wetlands and the number of individual wetland crossings, regulated adjacent areas comprise another 27.7 acres within the proposed Project Corridor. Wetland CI-5 is crossed at twelve locations, CI-41 is crossed three times, and HR-26 is crossed two times. Wetlands CI-32 and CI-40 are intersected once. Wetland CI-5 is a Class I wetland; the other NYSDEC-regulated wetlands traversed by the Project (CI-32, CI-40, CI-41, and HR-26) are Class II. Wetlands identified within the Project corridor coincide with forested communities adjacent to agricultural land and along riparian and floodplain areas of rivers or streams. All of the wetlands identified within the Project corridor correspond with mapped NWI wetlands to create larger assemblages of wetland complexes.

Circuit 40 traverses the Genesee River where approximately 3.0 acres of wetland CI-32, a forested wetland in the Genesee River floodplain, occurs within the proposed right-of way. Wetland CI-5, a complex of forested, scrub-shrub and emergent wetlands (approximately 6.4 acres within the proposed Project Corridor) occurs within the riparian and floodplain of Black Creek. Wetland CI-5, identified by the NYNHP as a silver maple-ash swamp, is designated as a rare significant natural community (NYNHP, 2011). A review of the Natural Heritage Database indicates the three remaining wetlands have the potential to hydrologically connect to tributaries of the Genesee River and Black Creek. All the wetlands include portions of NWI-mapped wetlands, but only CI-5 and CI-41 coincide with NWI wetlands that intersect the proposed transmission route. The GIS analysis did not indicate the presence of NYSDEC wetlands within the proposed substation site. Figure 4.6-1 shows the location of NYSDEC-regulated wetlands in relation to the proposed transmission route.

Cumulative impacts resulting from permanent structure placement in NYSDEC wetlands and adjacent areas total approximately .06 acres. Based on the preliminary design, approximately 21 poles will be placed within mapped NYSDEC wetlands and approximately 77 poles will be placed within the adjacent areas of state regulated wetlands. Table 4.6-2 provides a summary of NYSDEC-regulated wetlands and adjacent areas crossed by the proposed Project Corridor.

Table 4.6-2: NYSDEC-Regulated Wetlands within the Project Corridor

Wetland ID[1]	Cowardin Classification[2]	Area within Project Corridor (Acre)
CI-5	PEM1E	0.3
CI-5	PSS1/EM1E	<0.1
CI-5	PFO1E/R2UBH	0.2
CI-5	PFO1E/SS1E/EM1	0.5
CI-5	PFO1E	1.8
CI-5	PFO1E/R2UBH4	<0. 1
CI-5	PFO1E	<0.1
CI-5	PFO1E	<0.1
CI-5	PFO1E	<0.1
CI-5	PFO1E	1.2

Wetland ID[1]	Cowardin Classification[2]	Area within Project Corridor (Acre)
CI-5	PEM1/5E	<0.1
CI-5	PFO1E	2.3
CI-32	PFO1E	3.0
CI-40	PFO1Ed	0.6
CI-41	PFO1Ed	0.4
CI-41	PFO1Ed/PSS1/EM1E/PUBH	2.9
CI-41	PFO1Ed	1.1
HR-26	PFO1E	0.2
HR-26	PFO1E	0.3
	Total	14.9

[1]Wetland CI-5 is a Class I wetland; all other NYSDEC-regulated wetlands traversed by the Project are Class II.

[2] PFO = Palustrine Forested, PSS = Palustrine Scrub-Shrub, PEM = Palustrine Emergent, PUB = Palustrine Unconsolidated Bottom (Pond)

b. USACE-Regulated Wetlands

The U. S. Army Corps of Engineers (USACE) has regulatory jurisdiction over waters of the United States including wetlands pursuant to Section 404 of the Clean Water Act, and jurisdiction over Navigable Waters of the United States pursuant to Section 10 of the 1899 Rivers and Harbors Act.

USFWS NWI maps were used to identify wetlands existing along the transmission route and proposed substation site. Wetlands identified as palustrine forested wetland (PFO) were most frequently associated with the proposed routes. In addition, the proposed Project Corridor intersects the Genesee River, Black Creek, and one unnamed open water body. NWI data identified an excavated pond connected to an emergent wetland in an agriculture field and one lake. All NYSDEC-regulated wetlands coincide with NWI mapped wetlands; although the boundaries are not an exact match. In addition, several NWI wetlands are located outside the boundaries of NYDEC mapped wetlands since NYDEC only regulates wetlands 12.4 acres or larger. Approximately .05 acres of cumulative impacts are anticipated from the placement of eighty-three poles in NWI wetlands. Table 4.6-3 provides a summary of NWI wetlands within the proposed Project Corridor. Figure 4.6-1 displays NWI wetlands within the Project Corridor.

Table 4.6-3: USFWS NWI Wetlands within the Project Corridor

USFWS Classification Code	Description	Number of Crossing	Area within Project Corridor (Acre)
R2UBH	Riverine	3	0.8
LUBH	Lake	1	0.2
PUBH	Freshwater pond	2	0.4
PFO	Freshwater forested	15	19.5
PSS	Freshwater scrub-shrub	3	2.0
PEM	Freshwater emergent	11	4.7
PSS/PEM	Freshwater scrub-shrub, emergent	8	7.2
		Total	34.8

c. Environmental Effects and Mitigation

Potential effects to wetland areas may occur directly or indirectly during construction and operation. Every practical attempt will be made to avoid wetlands and minimize the area of disturbance. The long-term loss of small areas of wetlands associated with structure placement, temporary loss of wetlands and wetland functions during construction, and conversion of wetland type are anticipated.

Mitigation strategies will be implemented to address short-term and temporary impacts during construction as well as long-term and permanent effects to wetlands including mitigation requirements included in permits. Erosion control methods may include silt fencing and planting or seeding of exposed soils to prevent soil from entering wetlands and surface waters due to runoff. Soil compaction will be minimized by scheduling construction during drier periods of the year, staging outside of wetlands, and utilizing construction mats, when possible. Access roads will be temporary and the area restored to pre-construction condition.

4.6.3 Wildlife

Wildlife habitats within Monroe County are associated with suburban, rural residential and agricultural areas. Many species likely to occur are those that have adapted to interactions with humans and in disturbed environments similar to those within the Project area. Monroe County supports a large population of white-tailed deer, grey squirrel and eastern cottontail. Many species of song birds are common throughout Monroe County. Wildlife species expected to occur within the proposed Project Corridor are provided in Table 4.6-4. The potential occurrence for each species was based on examination of habitat suitability and known occurrences within the Project area.

As discussed in Section 4.6.1, vegetation cover types include upland agricultural land, early successional shrubland, deciduous forest, and riparian and wetland areas. Land use practices such as grazing, cultivation, road and utility corridor construction, and rural and residential development have extensively modified wildlife habitats. Wildlife species composition and abundance within the right-of way corridor varies based on factors such as habitat size, foraging availability, and adjacent land use. A greater number and variety of animal species is expected in transition areas between early and late successional habitats. Amphibians and reptiles likely to occur in early successional habitats include Eastern American toad (*Bufo americanus*), Eastern garter snake (*Thamnophia sirtalis*), and Northern black racer (*Coluber constrictor*). Birds commonly encountered in this type of habitat include red-winged blackbird (*Agelaius phoeniceus*), European starling (*Sturnus vulgaris*), and field sparrow (*Spizella pusilla*).

Resident mammals include eastern cottontail rabbit, white-tailed deer, and coyote. Open pasture areas and some cultivated communities provide grazing habitat for white-tailed deer (*Odocoileus virginianus)* and red fox (*Vulpes vulpes)*. The long-term control of native vegetation in open areas suggest limited breeding bird habitat. Intact riparian and wetland areas provide habitat for most wildlife species listed above. These areas function as breeding habitats for reptiles and amphibians such as toads, frogs, and salamanders and support species of turtles, snakes, and other mammals. A wide variety of bird species may frequent riparian areas, but are expected to use all cover types, both for nesting and for foraging. Many of the smaller wildlife species migrate between cover types, often using riparian corridors for movement. In some farmed areas, at road crossings, and within utility crossings riparian vegetation has been altered and in some areas woody species have been removed.

Table 4.6-4: Summary of Wildlife Reasonably Expected to Occur in the Project Area

Common Name	Scientific Name	Common Name	Scientific Name
Amphibians			
Eastern Painted Turtle	*Chrysemys picta*	Northern Black Racer	*Coluber constrictor*
Eastern Smooth Green Snake	*Opheodrys vernalis*	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*
Eastern Ribbon Snake	*Thamnophis sauritus*	Northern Water Snake	*Nerodia sipedon*
Bog Turtle[1]	*Clemmys [=Glyptemys] muhlenbergii*	Snapping Turtle	*Chelydra serpentina*
Musk Turtle	*Sternotherus odoratus*		
Reptiles			
Eastern American Toad	*Bufo americanus*	Northern Spring Peeper	*Pseudacris crucifer*
Northern Leopard Frog	*Rana pipiens*	Pickerel Frog	*Rana palustris*
Bullfrog	*Rana catesbeiana*	Redback Salamander	*Plethodon cinereus*
Gray Treefrog	*Hyla versicolor*	Red-spotted Newt	*Notophthalmus viridescens*
Green Frog	*Rana clamitans melanota*	Spotted Salamander	*Ambystoma maculatum*
Jefferson Salamander	*Ambystoma jeffersonianum*	Wood Frog	*Rana sylvatica*
Birds			
American Crow	*Corvus brachyrhynchos*	Horned Lark	*Eremophila alpestris*

Common Name	Scientific Name	Common Name	Scientific Name
American Goldfinch	*Carduelis tristis*	House Finch	*Carpodacus mexicanus*
American Kestrel	*Falco sparverius*	House Sparrow	*Passer domesticus*
American Robin	*Turdus migratorius*	Lesser Scaup	*Aythya affinis*
American Tree Sparrow	*Spizella arborea*	Long-tailed Duck	*Clangula hyemalis*
Big Brown Bat	*Eptesicus fuscus*	Mallard	*Anas platyrhynchos*
Black-capped Chickadee	*Poecile atricapilla*	Merlin	*Falco columbarius*
Blue Jay	*Cyanocitta cristata*	Mourning Dove	*Zenaida macroura*
Bonaparte's Gull	*Larus philadelphia*	Mute Swan	*Cygnus olor*
Broad-winged Hawk	*Buteo platypterus*	Northern Cardinal	*Cardinalis cardinalis*
Canada Goose	*Branta canadensis*	Osprey	*Pandion haliaetus*
Cedar Waxwing	*Bombycilla cedrorum*	Peregrine Falcon[1]	*Falco peregrinus*
Common Goldeneye	*Bucephala clangula*	Red-bellied Woodpecker	*Melanerpes carolinus*
Common Grackle	*Quiscalus quiscula*	Red-breasted Merganser	*Mergus serrator*
Common Merganser	*Mergus merganser*	Red-shouldered Hawk	*Buteo lineatus*
Cooper's Hawk	*Accipiter cooperii*	Red-tailed Hawk	*Buteo jamaicensis*
Dark-eyed (Slate-colored) Junco	*Junco hyemalis*	Red-winged Blackbird	*Agelaius phoeniceus*
Downy Woodpecker	*Picoides pubescens*	Ring-billed Gull	*Larus delawarensis*
Eastern Bluebird	*Sialia sialis*	Ring-necked Pheasant	*Phasianus colchicus*
Eastern Screech-Owl	*Otus asio*	Rock Pigeon	*Columba livia*
European Starling	*Sturnus vulgaris*	Rough-legged Hawk	*Buteo lagopus*
Field Sparrow	*Spizella pusilla*	Sharp-shinned Hawk	*Accipiter striatus*
Great Blue Heron	*Ardea herodias*	Song Sparrow	*Melospiza melodia*
Great Horned Owl	*Bubo virginianus*	Tufted Titmouse	*Baeolophus bicolor*
Greater Scaup	*Aythya marila*	Turkey Vulture	*Cathartes aura*
Hairy Woodpecker	*Piciodes villosus*	White-breasted Nuthatch	*Sitta carolinensis*

Common Name	Scientific Name	Common Name	Scientific Name
Herring Gull	*Larus argentatus*	White-throated Sparrow	*Zonotrichia albicollis*
Hooded Merganser	*Lophodytes cucullatus*	Wild Turkey	*Meleagris gallopavo*
Mammals			
Coyote	*Canis latrans*	Muskrat	*Ondatra zibethicus*
Deer Mouse	*Peromyscus maniculatus*	Northern Short-tailed Shrew	*Blarina brevicauda*
Eastern Chipmunk	*Tamias striatus*	Norway Rat	*Rattus norvegicus*
Eastern Cottontail Rabbit	*Sylvilagus floridanus*	Raccoon	*Procyon lotor*
Gray Fox	*Urocyon cinereoargenteus*	Red Bat	*Lasiurus borealis*
Gray Squirrel	*Sciurus carolinensis*	Red Fox	*Vulpes vulpes*
Hairy-tailed Mole	*Parascalops breweri*	Southern Red-backed Vole	*Clethrionomys gapperi*
House Mouse	*Mus musculus*	Star-nosed Mole	*Condylura cristata*
Little Brown Bat	*Myotis lucifugus*	Striped Skunk	*Mephitis mephitis*
Long-tailed Weasel	*Mustela frenata*	Virginia Opossum	*Didelphis virginiana*
Masked Shrew	*Sorex cinereus*	White-footed Mouse	*Peromyscus leucopus*
Meadow Jumping Mouse	*Zapus hudsonius*	White-tailed Deer	*Odocoileus virginianus*
Meadow Vole	*Microtus pennsylvanicus*	Woodchuck	*Marmota monax*
Mink	*Mustela vison*	Woodland Vole	*Microtus pinetorum*

[1] New York State and/or U. S. Fish and Wildlife Listed Threatened or Endangered Species.

Sources: HMANA 2010, NYNHP 2011, NYSDEC 2007, NYSDEC 2009, Sauer *et al*. 2009, WNYW 2007.

a. Environmental Effects and Mitigation

Generally, wildlife species and habitat occurring within the proposed Project Corridor are common throughout Monroe County. While a majority of the proposed transmission line utilizes existing corridors, construction of new corridors and the substation would result in a change in the structure and function of wildlife habitat within the developed area.

A majority of cover adjacent to the Project Corridor is active agricultural land. While grain and hay crops may provide forage for some mammals and birds, routine tilling, planting, and harvesting activities prevent breeding and nesting opportunities for resident wildlife species. Species expected to occur within agricultural lands are likely transient, utilizing cropland for a short duration for bedding, forage, and predation. These species will likely experience temporary displacement during construction and return once construction is complete.

Portions of the right-of-way that will utilize the existing corridor may have undergone secondary succession resulting in established saplings and shrubs. Removal of woody vegetation will likely require wildlife species to temporarily seek suitable habitat in adjacent areas during construction and maintenance. Species favoring edge and early successional habitats are expected to return post construction and maintenance. The greatest impact to wildlife will result from expanding the existing right-of way corridor which will permanently convert forested habitat to early successional shrubland. An increase in early successional habitats types, as well as an increase in the amount of edge habitats would benefit some species however, species that require forest cover for food, shelter and nesting may be adversely affected. It is also likely that early successional habitat would provide new foraging corridors for predatory species.

Avian collisions and electrocution of large birds could potentially occur following construction in areas where the corridor is situated between foraging or breeding areas such as agricultural fields, wetlands, and riparian areas, or when avian species nest on transmission line structures. Effects to avian species can be minimized during the planning phase by following practices such as designing transmission lines to include adequate spacing and integrating grounding devices (APLIC 2006). A series of mitigation strategies will be implemented in order to minimize disruption to resident and migrant species resulting from habitat conversion and increased fragmentation of adjacent forests through widening existing corridors.

4.6.4 Threatened and Endangered Species

Federal and State-level protection for threatened and endangered species, as well as their habitat require certain procedures be followed during project planning. A letter request was submitted on March 17, 2011 to the NYNHP for information regarding the presence of threatened or endangered species and unique or significant natural communities in the vicinity of proposed circuit 940, circuit 941, circuit 906 and the proposed site for Station 255. A second letter was submitted to NYNHP on August 4, 2011 for proposed circuit 40. A response from the NYNHP dated March 30, 2011 identified the Peregrine Falcon (*Falco peregrines*), big shellbark hickory (*Carya laciniosa*), and the silver maple-ash swamp as occurring or having the potential to occur within the Project area (NYNHP 2011). A summary describing habitat requirements (NYNHP 2005, 2005a, and 2005b), and the occurrence and distribution of the listed species and community are described below. Copies of the correspondence are provided in Appendix A of this application.

Section 7(a) of the Endangered Species Act (ESA) establishes a national program, administered by USFWS for the conservation of threatened and endangered species of fish, wildlife, and for terrestrial species and the ecosystems on which they depend. 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. The bog turtle (*Clemmys* [=*Glyptemys*] *muhlenbergii*), a federally- and state-listed threatened species, is identified on the USFWS County list as occurring in Monroe County in the Townships of Riga and Sweden (USFWS 2011). Riga Township is approximately 9 miles west of the Town of Chili, and Sweden Township is approximately 16 miles west of the Town of Gates. Both Townships are located well beyond the Project Corridor. The bog turtle was not identified by NYNHP as having the potential to occur within the Project Corridor (NYNHP 2011). A desktop habitat assessment was conducted to ascertain the availability of suitable bog turtle habitat within the Project area. A brief summary to describe habitat use requirements and the availability of suitable habitat are provided below.

a. State-Listed Species

Peregrine Falcon

The endangered Peregrine Falcon (*Falco peregrines*), has been documented in the City of Rochester, indicating the potential to occur in or around the Project Corridor. The falcon often nests on ledges or holes on the faces of rocky cliffs. In an urban landscape, such as the City of Rochester, Peregrine Falcons take advantage of manmade structures for nesting opportunities. They utilize structures such as bridges, tall buildings, and utility pole platforms. Wintering birds frequent buildings, towers, and steeples in urban areas, and in open areas with plentiful prey in more natural settings.

Silver maple-ash swamp

The occurrence of silver maple-ash swamp is considered significant from a state-wide perspective as the community type is rare in New York. The swamp occupies the floodplain of Black Creek, a tributary to the Genesee River, which channels through Black Creek Swamp. The community, identified on NYSDEC freshwater wetlands map as wetland CI-5, is a large river palustrine forested/scrub-shrub floodplain wetland complex in good to fair condition. The adjacent landscape is residential, agricultural, light industrial development, and divided by an existing railroad bed and transmission right-of-way. Silver maple (*Acer saccharinum*) dominates the canopy. Other plant species commonly found within community include red maple (*Acer rubrum*) and green ash (*Fraxinus pensylvanica*); however colonization of exotic species resulting from anthropogenic activities is common throughout the swamp. Trees often form closed canopies, cooling and shading the understory with medium sized shrubs and saplings filling in the understory. The silt loam soils are typically flooded with standing water.

Big Shellbark Hickory

The big shellbark hickory (*Carya laciniosa*), a threatened species in New York, prefers moist to saturated rich alluvium soils of floodplain forests. Populations of big shellbark hickory have been confirmed in the silver maple-ash swamp community in Black Creek Swamp in the town of Chili. Big shellbark hickory can form pure stands, but is usually mixed with other floodplain species such as silver maple (*Acer saccharinum*). There are 14 confirmed populations of big shellbark hickory (*Carya laciniosa*) in New York including one within the Project Corridor.

b. Federally-listed Species

Bog Turtle

The federal- and state-listed bog turtle, is a semi-aquatic species that inhabits shallow, spring-fed fens, sphagnum bogs, swamps, marshy meadows, and pastures with soft, muddy bottoms; slow flowing water; and open canopies (USFWS 2011a). In New York, bog turtles prefer saturated soils fed by seeps or springs of cold groundwater that has been in contact with calcium-rich soils or bedrock (NYSDEC 2011a). Several plant species commonly associated with bog turtle habitats are: alders (*Alnus* sp.), willows (*Salix* sp.), sedges (*Carex* sp.), sphagnum moss (*Sphagnum* sp.), jewelweed (*Impatiens capensis*), rice cut-grass (*Leersia oryzoides*), tearthumb

(*Polygonum sagittatum*), arrow arum (*Peltandra virginica*), red maple (*Acer rubrum*), skunk cabbage (*Symplocarpus foetidus*), and bulrushes (*Juncus* sp. *and Scirpus* sp.) (Bury 1979).

A literature review of one unique ecological community within the Project, the silver maple-ash swamp, identified as state-regulated forested/scrub-shrub wetland complex (Wetland CI-5), determined the swamp does not provide appropriate conditions to the support bog turtle. Additional review of aerial photographs and NYSDEC and USFWS NWI wetlands maps indicate the Project area does not contain the suitable hydrology, vegetation and soils to support bog turtle habitat; a field-based habitat assessment is recommended to corroborate desktop resources. If bog turtle habitat is confirmed within the Project Corridor, additional consultation with USFWS will be initiated in accordance with Section 7(a) of the ESA.

c. Environmental Effects and Mitigation

Peregrine Falcon

Consultation with the NYSDEC Wildlife Manager for Region 8 regarding the status and distribution of the Peregrine Falcon indicated the proposed Project should have little or no threat to nesting birds as there are no known nest sites along the immediate vicinity of the proposed transmission route. The main affect construction and operation of the proposed Project would have on Peregrine Falcons would be potential collisions with structures or wires. This impact can be minimized by placing new lines along the same corridor and replacing lines on existing structures the birds are already familiar with (NYDEC 2011b). Approximately 1,000 feet of the proposed transmission route within the City of Rochester will be underground; therefore, no impact is anticipated as a result of collisions with structures.

Silver Maple-Ash Swamp

Portions of the proposed transmission lines will share an existing right-of-way, which reduces the need for new clearing. A segment of the proposed transmission line will involve construction of a new right-of-way and additional clearing. During final design and subsequent construction, efforts will be made to minimize wetland disturbance. When possible, wetlands will be spanned; however, total avoidance of wetlands is not likely. Erosion and sedimentation measures will be implemented during construction and subsequent maintenance and restoration activities of disturbed areas will be employed to limit long-term impacts to hydrology, vegetation, and soils.

Bog Turtle

Bog turtle habitat was not identified during the desktop assessment; therefore, no impacts are anticipated to bog turtle or its habitat.

4.7 Topography and Soils

4.7.1 Topography

The proposed Project is located within the Eastern Lake Section of the Central Lowlands Erie-Ontario Lowlands (Plains) physiographic province of the Interior Plains (USDA 2006). The topography in Monroe County is nearly level to gently rolling, with slopes generally ranging to less than 10 percent (NRCS-USDA 2009). Significant relief within the Project area is attributed to major drainages such as the Genesee River and the Erie Canal. Surface elevations are steadily 520 to 525 to 565 feet above sea level in the Town of Chili heading north to the City of Rochester and west to the Town of Gates. Elevations gradually slope toward the shores of Lake Ontario to the north. The Project area includes rivers, streams, and creeks; and marshes and wetlands, which are typical of the terrain subjected to glaciation (CUGIR 2009, USFWS, USGS 2010b). The Genesee River generally parallels the proposed routes for circuits 940 and 941 to the east and is crossed by proposed circuit 40 east of new Station 255. .

4.7.2 Geology

The bedrock underlying Monroe County consists of alternating beds of limestone, dolomite, sandstone, and shale of Ordovician to Devonian age. Most of the surface of the area is covered with glacial till or lake sediments of silt, loam, or sand. Stratified drift (eskers and kames) and glacial outwash deposits are in many of the valleys. A large drumlin field occurs in the Finger Lakes Region. Local geology of Monroe County is characterized by Lower and Middle Paleozoic shales and limestones. Silurian-aged limestones, dolostones, and shales compose the sedimentary rock along the right-of-way. Exposed bedrock includes sandstone and dolostone of the Lockport Group; folded Queenston shale; sandstone and shale of the Madina group; sandstone, shale, conglomerate and limestone of the Clinton group; and dolostone and shale of the Salina group (USGS 2008).

Economic geologic resources are presented on Figures 2-1a and 2-1d. Based on a review of data available from the USGS and DEC, a total of 4 sand and gravel pits and a quarry have been identified within three miles of the proposed Project (USGS 2009; NYSDEC Division of Mineral Resources 2009a). These features are listed in Table 4.7-1; the identification number corresponds to the labels on Figures 2-1a and 2-1d.

Table 4.7-1: Geologic Resources

Map Reference	Figure	Name	Location	Category
Geologic Resources				
G01	Figure 2-1a	JF Miller Ent LLC - Giles Mine	Wheatland	Sand and Gravel
G02	Figure 2-1a	USGS Topo Visual	Wheatland	Unspecified Gravel Pit
G03	Figure 2-1d	Dolomite Products Company Inc. - Gates Quarry	Gates	Dolostone
G04	Figure 2-1d	Nory Construction Company Inc.	Gates	Glacial Till
G05	Figure 2-1d	Bell Civil Inc. - 531 Extension Project	Ogden	Sand and Gravel

Source: Tetra Tech, 2011

The closest identified facilities to the Project Corridor are the properties of Dolomite Products Company Inc. (G03) and Nory Construction Company Inc. (G04), both of which are located nearly a mile from the proposed centerlines of circuits 941 and 940, respectively.

No productive oil or gas wells registered with the DEC were identified within the three mile Project area (NYSDEC Division of Mineral Resources 2009).

4.7.3 Soils

A review of county-level soil survey information from the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database has been reviewed to assess the soil types located along the right-of-way. The SSURGO data categorizes soils based on associations. Associated soils share characteristics such as local relief, drainage capability, and a unique natural landscape. Typically, an association consists of one or more major soils and some minor soils. Based on available data, soils along the right-way are derived from Alfisols and Inceptisols of the Udalfs and Udepts suborder. The soils in the area have mixed mineralogy; are deep medium textured or moderately fine; and well drained and moderately well drained. Formation occurred in glacial till high in content of lime (Honeoye, Cazenovia, and Hilton series) and in lacustrine sediments (Schoharie and Galen series). Poorly drained and very poorly drained Endoaquepts (Canandaigua and Lamson series) formed in lacustrine sediments and are common at the lowest elevations in the northern part of the area. Well drained and moderately well drained Eutrudepts (Hamlin and Teel series) formed in alluvial deposits along streams (USDA-NRCS 2006).

Analysis of SSURGO data indicates 39 soil associations occur within the right-of-way, as shown in Table 4.7-2. Generally, soils identified along the right-of way are well drained to moderately well-drained sandy loams or silty clays on uplands. Evaluation of soil characteristics indicates the presence of soils that may make them either particularly sensitive to disturbance or unsuitable for construction. These units include hydric soils; poorly drained soils; prime farmland soils and soils of statewide importance; soils with shallow bedrock; soils with shallow ground water; soils with limitations for shallow excavations; and soils with high risk of corrosion of concrete. A geotechnical program has not been undertaken for the Project; however, soil borings will be obtained at selected structure locations as necessary to support foundation design.

4.7.4 Environmental Effects and Mitigation

Ground disturbance associated with construction of the overhead transmission line segments is characterized by shallow grading for access roads and work areas. Excavations will be limited to structure installation and within the substations for foundations. Substantial alterations of slope and gradient is not anticipated along the overhead portions of the alignment, however minor changes to topography will occur from grading of work areas and construction of temporary access roads. Although minor topographic changes are not expected to be significant, mitigation measures will be implemented to address soil erosion, compaction, and sedimentation during construction. Following construction, the disturbed area will be restored to pre-construction contours to reduce the effects of grading.

Table 4.7-2: Soil Characteristics – Construction Suitability

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Arkport very fine sandy loam (ArB - 0 to 6% slopes)	Glaciofluvial or deltaic deposits with a high content of fine and very fine sand	>5.0	-	Not Hydric	-	Well drained	All areas are prime farmland	Very limited	Moderate
Canandaigua silt loam (Ca)	Silty and clayey glaciolacustrine deposits	>5.0	0	Hydric	Depressions	Very poorly drained	Not prime farmland	Very limited	Low
Cayuga silt loam (CeB - 2 to 6% slopes)	Clayey glaciolacustrine deposits over loamy till derived from limestone, dolomite, sandstone, or shale	>5.0	1.5-3.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Low
Churchville silt loam (ChA - 0 to 2% slopes)	Clayey glaciolacustrine deposits over loamy till	>5.0	0.5-1.5	Not Hydric	-	Somewhat poorly drained	Prime farmland if drained	Very limited	Low

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Claverack loamy fine sand (CkA - 0 to 2 % slopes)	Sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine Deposits	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Moderate
Claverack loamy fine sand (CkB - 2 to 6% slopes)	Sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine deposits	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Moderate

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Colonie loamy fine sand (CoB - 0 to 6% slopes)	Sandy glaciofluvial or eolian deposits	>5.0	-	Not Hydric	-	Well drained	All areas are prime farmland	Very limited	Moderate
Colonie loamy fine sand (CoC - 6 to 12% slopes)	Sandy glaciofluvial or eolian deposits	>5.0	-	Not Hydric	-	Well drained	Farmland of statewide importance	Very limited	Moderate
Cosad loamy fine sand (Cu)	Sandy glaciofluvial or deltaic deposits over clayey glaciolacustrine deposits	>5.0	0.5-1.5	Not Hydric	-	Somewhat poorly drained	Prime farmland if drained	Very limited	Moderate
Cut and fill land (Cw)	Unidentified	>6.0	3.0-6.0	Not Hydric	-	Moderately well drained	Not prime farmland	Very limited	Moderate
Dunkirk silt loam (DuB - 2 to 6% slopes)	Silty and clayey glaciolacustrine deposits	>5.0	-	Not Hydric	-	Well drained	All areas are prime farmland	Somewhat limited	Low

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Eel silt loam (Ee)	Silty alluvium	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Low
Elnora loamy fine sand (ElB - 2 to 6% slopes)	Sandy glaciofluvial, eolian, or deltaic deposits	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Moderate
Fresh water marsh (Fw)	Organic material	>6.0	0	Hydric	Depressions	Very poorly drained	Not prime farmland	Very limited	High
Genesee silt loam (Ge)	Silty alluvium mainly from areas of siltstone, shale, and limestone	>6.0	3.0-6.0	Not Hydric	-	Well drained	All areas are prime farmland	Somewhat limited	Low
Hilton loam (HlA - 0 to 3% slopes)	Calcareous loamy till derived principally from sandstone and limestone	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Moderate

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Hilton loam (HlB - 3 to 8% slopes)	Calcareous loamy till derived principally from sandstone and limestone	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Moderate
Hilton-Cazenovia stony silt loams (HmB - 3 to 8% slopes)	Calcareous loamy till derived principally from sandstone and limestone	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Moderate
Honeoye silt loam (HnC - 8 to 15% slopes)	Loamy till derived from limestone, dolomite, and calcareous shale, and from lesser amounts of sandstone and siltstone	>5.0	3.0-6.0	Not Hydric	-	Well drained	Farmland of statewide importance	Very limited	Low
Lakemont silt loam (Le)	Reddish clayey and silty glaciolacustrine deposits	>5.0	0	Hydric	Depressions	Poorly drained	Farmland of statewide importance	Very limited	Low

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Lamson very fine sandy loam (Lm)	Deltaic or glaciolacustrine deposits with a high content of fine and very fine sand	>5.0	0	Hydric	Depressions	Very poorly drained	Not prime farmland	Very limited	Low
Lima and Cazenovia silt loams, limestone substratum (LoB - 0 to 6% slopes)	Loamy till derived mainly from limestone and calcareous shale	4.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Low
Made land (Mb)	Unidentified	2.0	3.0-6.0	Not Hydric	-	Moderately well drained	Not prime farmland	Very limited	Moderate
Minoa very fine sandy loam (Mn)	Deltaic or glaciolacustrine deposits with a high content of fine and very fine sand	>5.0	0.5-1.5	Not Hydric	-	Somewhat poorly drained	Prime farmland if drained	Very limited	Moderate

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Muck, deep (Mr)	Organic material	>5.0	0	Hydric	Marshes, Swamps	Very poorly drained	Not prime farmland	Very limited	Low
Niagara silt loam (Ng)	Silty and clayey glaciolacustrine deposits	>5.0	0.5-1.5	Not Hydric	-	Somewhat poorly drained	Prime farmland if drained	Very limited	Low
Odessa silt loam (OdA - 0 to 2% slopes)	Reddish clayey and silty glaciolacustrine deposits	>5.0	0.5-1.5	Not Hydric	-	Somewhat poorly drained	Prime farmland if drained	Very limited	Low
Odessa silt loam (OdB - 2 to 6% slopes)	Reddish clayey and silty glaciolacustrine deposits	>5.0	0.5-1.5	Not Hydric	-	Somewhat poorly drained	Prime farmland if drained	Very limited	Low
Ontario fine sandy loam (OfB - 3 to 8% slopes)	Calcareous till high in limestone and sandstone	>5.0	3.0-4.0	Not Hydric	-	Well drained	All areas are prime farmland	Very limited	Low
Ontario fine sandy loam (OfC - 8 to 15% slopes)	Calcareous till high in limestone and sandstone	>5.0	3.0-5.0	Not Hydric	-	Well drained	Farmland of statewide importance	Very limited	Low

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Ontario loam (OnB - 3 to 8% slopes)	Calcareous till high in limestone and sandstone	>5.0	3.0-4.0	Not Hydric	-	Well drained	All areas are prime farmland	Very limited	Low
Ontario loam (OnC - 8 to 15% slopes)	Calcareous till high in limestone and sandstone	>5.0	3.0-4.0	Not Hydric	-	Well drained	Farmland of statewide importance	Very limited	Low
Ontario loam, eroded (OnD3 – 15 to 25 % slopes)	Calcareous till high in limestone and sandstone	>5.0	3.0-4.0	Not Hydric	-	Well drained	Not prime farmland	Very limited	Low
Ontario loam (OnF – 25 to 60 % slopes)	Calcareous till high in limestone and sandstone	>5.0	3.0-4.0	Not Hydric	-	Well drained	Not prime farmland	Very limited	Low
Phelps gravelly fine sandy loam (PhA - 25 to 60% slopes)	Loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Low

Soil Series	Parent Material	Depth to Bedrock (ft)	Depth to Water Table (ft)	Hydric Criteria		Drainage Class	Farmland Class	Shallow Excavations	Risk of Corrosion for Concrete
				Rating	Landform				
Schoharie silt loam (SeB - 2 to 6% slopes)	Reddish clayey and silty glaciolacustrine deposits	>5.0	1.5-2.0	Not Hydric	-	Moderately well drained	All areas are prime farmland	Very limited	Low
Urban Land (Ub)	-	-	-	Not Hydric	-	-	Not prime farmland	-	-
Water (W)	-	-	-	-	-	-	-	-	-
Wayland Silt Loam (Wg)	Silty and clayey alluvium washed from uplands that contain some calcareous drift	>5.0	0	Hydric	Floodplains	Very poorly drained	Not prime farmland	Very limited	Low

Source: U.S. Department of Agriculture-Natural Resource Conservation Service, 2006. Soil Survey Geographic (SSURGO) Data Base for Monroe County, New York.

Of the 38 soil units encountered along the proposed Project routes, 17 are classified as Prime Farmland, 6 are classified as Prime Farmland if drained, and 5 are classified as Farmland of Statewide Importance as defined by the U.S. Department of Agriculture. These soils do not necessarily correspond to active agricultural areas; rather, they simply meet certain physical and chemical parameters that indicate they are of very high quality and can economically sustain high yields of crops when treated and managed according to acceptable farming methods (USDA NRCS 1993). Construction in active agricultural areas will be managed to protect farm soils from erosion, compaction and soil mixing. In agricultural areas, a reasonable attempt will be made to locate drain tiles that cross the right-of-way so that grading and equipment operations avoid damaging the tiles. After construction is complete, any damaged tiles will be repaired or replaced and the right-of-way will be returned to original contours. The forthcoming EM&CP will describe the Best Management Practices (BMPs) and restoration procedures that will be used to minimize impacts to active farmland.

Construction of the underground segments of circuits 940 and 941 would introduce additional geologic considerations (i.e., depth to bedrock and depth to groundwater) not associated with overhead transmission line construction. Of the 38 soil units encountered along the proposed Project routes, only two indicate a depth to bedrock of less than 5 feet. One of these is encountered along circuit 940 near Station 418 and the other is encountered along circuit 941 west of the Greater Rochester International Airport. Depending on actual conditions along the proposed centerline, mechanical rock removal techniques will be implemented to achieve the required trench depth for placement of the proposed duct bank. Blasting, if required, will be performed in accordance with applicable state and local requirements. Best management practices will be implemented to curtail erosion and sedimentation during construction and to manage dewatering activities in excavations that encounter groundwater.

The reconstruction and construction of the proposed transmission lines and substation will not result in cumulative effects relative to topographic and soil conditions along the rights-of-way comprising the Project. There are no geologic concerns 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 proposed route.

Proposed substation and transmission line improvements will be designed, constructed, operated, and maintained to be compatible with on-site geologic conditions and there are no geologic or environmental issues that would have a long-term effect on the integrity of the structures. To mitigate disturbances, soils will be re-graded to reflect pre-construction contours, compacted soils will be restored to their native state, and soil erosion and sediment control techniques will be implemented during construction.

4.8 Water Resources

In accordance with PSL §122(1)(c) and 16 NYCRR §86.5(a) and (b), this section provides an assessment of the potential effects to local water resources resulting from construction and operation of the proposed Project. It identifies efforts undertaken to avoid or minimize these potential impacts, as well as mitigation measures to address unavoidable impacts. These mitigation measures will be reflected in the Project design and incorporated into the EM&CP for the Project. To complete this assessment, a desktop geo-spatial analysis was conducted using the proposed project layout, existing information from federal and state agency data sources, and a literature review of published data to determine likely presence and extent of water resources in the Project corridor. The Project corridor is collectively defined as the existing right-of-way and the new RG&E right-of-way. Floodplains and wetlands are discussed separately in Section 4.3 and Section 4.6, respectively.

Since construction of the Project will disturb more than one acre of soil, NYSDEC will likely require that construction activities obtain coverage under the State Pollutant Discharge Elimination System (SPDES), General Permit (GP) for Stormwater Discharges from Construction Activities (GP-0-10-001) and that a Storm Water Pollution Prevention Plan (SWPPP) be developed to prevent discharges of construction-related pollutants to surface waters. It is the intent of the Applicant to incorporate all applicable conditions required under the SPDES GP into the EM&CP for this Project. The Applicant will provide the NYSDEC with a Notice of Intent (NOI) and Notice of Termination (NOT) for this Project and indicate that all GP-0-10-001 and SWPPP-related requirements will be addressed by the EM&CP for the Project. In conjunction with the Certificate of Environmental Compatibility and Public Need pursuant to Article VII of the Public Service Law, the Applicant also is requesting the issuance of a Water

Quality Certificate pursuant to Section 401 of the Clean Water Act, 33 U.S.C. § 1341(a) (1), and 6 NYCRR Subpart 608.9.

4.8.1 Affected Environment

Information regarding water resources was obtained from topographical maps, the U.S. National Hydrography Dataset (NHD) (USGS 2010b), NYSDEC and Federal database searches, and other existing GIS data available for Monroe County. The NYSDEC database indicates classifications, and standards of quality and purity to the various surface waters identified within the Project Corridor. The NYSDEC *Section 303(d) List of Impaired/TMDL Waters* was reviewed to identify waters that do not support appropriate uses and that may require development of a Total Maximum Daily Load (TMDL) (NYSDEC 2010b).

a. Surface Waterbodies

The Project area is located within the Lower Genesee River Basin (Hydrologic Unit Code 04130003). The Genesee River Basin originates in the Allegheny Plateau highlands of northern Pennsylvania, about 15 south of the New York State-Pennsylvania border. From there the Genesee River flows generally north across western New York State to Lake Ontario. The upper (southern) portion of the basin drains generally lightly populated agricultural and forested lands. Farther downstream (north) the basin becomes more populated and developed and at its mouth, the river flows through the urban center of Rochester. The entire basin drains 2,480 square miles, most of which is in New York State.

Major streams and rivers within the Project area include the Genesee River, Black Creek, Little Black Creek, and Red Creek and their associated tributaries. The Genesee River is classified as a Traditional Navigable Water (TNW) and both Black Creek and Little Black Creek are hydrologically connected to the Genesee River. Figure 4.8-1 illustrates the locations of water resources identified within the Project Corridor. The Erie Canal is also located within the Project corridor. A total of 14 crossings of NYSDEC-regulated streams and their associated tributaries occur within the Project corridors. Interpretation of aerial photography suggests that some of the smaller streams indicated in the NYSDEC database may not actually be crossed by the Project facilities. Results of wetland and stream delineation will be submitted to the NYSDEC and

USACE for a jurisdictional determination and all delineated streams will be shown on the plan and profile drawings as part of the EM&CP for this Project.

Streams and their associated water quality classifications are identified in Table 4.8-1. These surface waters are classified as either Class B or C Fresh Surface Waters according to the NYSDEC Standards (New York Code of Rules and Regulations [NYCRR] 1999). Classification B indicates a best usage for primary and secondary contact recreation and fishing, but not for drinking water. These waters are suitable for fish, shellfish, and wildlife propagation and survival. Classification C is for waters supporting fisheries and suitable for non-contact activities. These waters are suitable for fish, shellfish, and wildlife propagation and survival. The water quality is suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

Table 4.8-1: NYSDEC-Mapped Waterbodies Located within the Project Corridor

Town	Surface Waterbody Name	Crossing Type	Circuit	NYSDEC Class
Henrietta	Unnamed Tributary to Red Creek	Overhead	40	C
Henrietta	Unnamed Tributary to Genesee River	Overhead	40	C
Henrietta/Chili	Genesee River	Overhead	40	B
Chili	Unnamed Tributary to Genesee River	Overhead	940/941	C
Chili	Unnamed Tributary to Black Creek	Overhead	940/941/906	C
Chili	Unnamed Tributary to Black Creek	Overhead	940/941/906	C
Chili	Unnamed Tributary to Black Creek	Overhead	940/941/906	C
Chili	Black Creek	Overhead	940/941	C
Chili	Unnamed Tributary to Genesee River	Overhead	940/941	C
Chili	Unnamed Tributary to Genesee River	Underground	940	C
Gates	Unnamed Tributary to Little Black Creek	Underground	940	B
Gates	Little Black Creek	Underground	940	C

Town	Surface Waterbody Name	Crossing Type	Circuit	NYSDEC Class
Chili	Little Black Creek	Overhead	941	C
Chili	Erie Canal	Overhead	941	B

Source: NYSDEC; Tetra Tech.

b. Stormwater Management

A portion of the Project facilities will be located on existing rights-of-way that are well established and maintained by the Applicant in accordance with their approved vegetation management plan. In the south, land use is generally more rural and suburban in character with residential and commercial and light industrial uses interspersed within large tracts of undeveloped land and/or agricultural uses. In the north, land uses consist primarily of higher density commercial/industrial and mixed urban development, and suburban dominated by single- and multi-family residential uses, interspersed with commercial and recreational uses. Generally, stormwater runoff from these electric transmission rights-of-way is via overland flow, and few structural measures are needed to control stormwater discharges.

4.8.2 Environmental Effects and Mitigation

State-protected watercourses in New York are water basins and watercourses with significant recreational or natural resource value. The NYSDEC has regulatory jurisdiction over these waters. The USACE also has regulatory jurisdiction over Navigable waters of the United States pursuant to Section 10 of the 1899 Rivers and Harbors Act and other potentially jurisdictional waters of the United States including certain lakes, rivers, streams and wetlands pursuant to Section 404 of the Clean Water Act.

The placement of buried transmission line in waters of the United States would constitute a discharge of fill material that would require a permit from the Department of the Army pursuant to Section 404 of the Clean Water Act. In addition, the placement of a transmission line in, on, or over a navigable water body such as the Genesee River, would require a permit pursuant to Section 10. It is anticipated that work would be authorized under USACE Nationwide Permits.

Potential Project-related impacts to surface waters will be associated with clearing and grading for construction access, installation and operation of the transmission line within and downstream of the Project corridor, and danger tree removal in areas adjacent to and within the

Project corridor. Operation of construction equipment and vehicles that require the use of diesel and gasoline fuels, lubricating oils, and cooling fluids may pose a small risk for spills. Spills associated with these sources, should they occur, will likely be small and confined to work sites, thus limiting the potential flow into surface waters.

To the extent possible, vehicular access across streams and other watercourses will be avoided by interrupting access along the right-of-way and precluding construction traffic through these areas. These areas will be designated "No Vehicular Access" on plan and profile drawings. If necessary, stream crossing will be done in the dry to the extent possible or where existing stream crossings are available, access roads will be aligned to make use of these crossings. In certain instances, stream crossings will be installed to accommodate construction vehicles while minimizing disturbance and water quality impacts. Bridges with swamp mats or other minimally-intrusive bridge materials will be used for locations where crossing devices are not in place. Information used to determine the crossing type that will be installed at a particular location includes channel characteristics, stream gradient and flow, channel bottom material, stream bank vegetation, resource value, assessment of erosion potential, and an estimate of potential stream flow during construction. The type of stream crossing for each crossing location will be identified on the plan and profile drawings to be provided as part of the EM&CP. Care will be taken to ensure that stream banks are undamaged during the installation and removal of crossing materials, and that stream flow remains unrestricted.

To further reduce impacts to surface waters, transmission line structures will be located as far as possible from streams, rivers and other major bodies of water to facilitate the preservation or establishment of vegetative buffer strips at these locations. Potential construction impacts, such as minor increases in turbidity, will be short-term and have no long-term effect on the bodies of water. With implementation of the Best Management Practices (BMPs) to be presented in the EM&CP, the Project will have no significant effect on the NYSDEC stream crossings identified in Table 4.8-1. All proposed BMPs will be designed and maintained in accordance with state guidelines.

During construction, dewatering may be required due to the shallow groundwater table along certain portions of the rights-of-way. Should dewatering be necessary, a temporary sedimentation basin will be established to which filtered dewatering effluent would be pumped.

Once filtered and/or settled, clear water will be pumped or allowed to flow onto a vegetated area. Retention structures and basins will be constructed using materials such as straw bales, filter fabric, or other materials. Specific plans for dewatering will be detailed within the EM&CP.

Operation of the Project and associated routine maintenance of the rights-of-way will not result in discharges to surface waters and; therefore, will not jeopardize water quality through thermal or chemical contamination. The Project will not result in an increase in stormwater runoff volumes nor erosion or flooding potential along the existing rights-of-way or surrounding lands. Existing and proposed management practices effectively minimize and control stormwater runoff from these rights-of-way. No perceptible increase in stormwater runoff volume is anticipated as a result of the upgrading the existing transmission structures and installation of the new transmission structures.

4.9 Noise

A screening level acoustic assessment was completed to determine the potential for adverse noise impacts associated with the construction and operation of the Rochester Area Reliability Project, in accordance with PSL §122(1)(C) and 16 NYCRR §§86.5(a), and 86.5(b)(8). The permanent noise sources associated with the Project include corona effect of the transmission line under atmospheric conditions including rain, fog, and high humidity resulting from corona discharge, transformer components associated with new and expanded substations, and the comparatively minor source of routine inspection and maintenance of the transmission line. Noise generated during Project construction is also addressed.

The overall study objectives were to: 1) identify Project sound sources and estimate sound propagation characteristics; 2) computer simulate sound levels using internationally accepted calculation standards; and 3) determine the feasibility of the Project to operate in compliance with applicable noise standards, as defined by the NYSDEC Program Policy guidelines and local noise ordinances.

4.9.1 Acoustic Terminology

Sound is described as a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure creating a sound wave. Sound energy is characterized by the properties of sound waves, which include frequency, wave length, period, amplitude, and velocity. A sound source is defined by a sound power level (L_W), which is independent of any external factors. By definition, sound power is the rate at which acoustical energy is radiated outward and is expressed in units of watts (W). Sound energy propagates through a medium where it is sensed and then 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 the use of a microphone or calculated from information about the source sound power level and the surrounding environment. Sound power, however, cannot be measured directly. It 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. The perception of sound as noise is influenced by several technical factors as intensity, sound quality, tonality, duration, and the existing background levels. Sound levels are presented on a logarithmic scale to account for the large range of acoustic pressures that the human ear is exposed to and is expressed in units of decibels (dB). A decibel is defined as the ratio between a measured value and a reference value usually corresponding to the lower threshold of human hearing defined as 20 micropascals (□Pa). Conversely, sound power is referenced to 1 picowatt (pW). 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), measuring 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. Since 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. Sound levels that are linear are presented as dBL.

To take into account 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 energyaveraged, A-weighted sound level for the complete 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 p.m. to 7:00 a.m.) 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 4.9-1.

Table 4.9-1: Sound Pressure Levels (L_P) and Relative Loudness of Common Noise Sources and Soundscapes

Noise Source or Activity	Sound Level (dBA)	Subjective Impression	Relative Loudness (perception of different sound levels)
Jet aircraft takeoff from carrier (50 ft)	140	Threshold of pain	64 times as loud
50-hp siren (100 ft)	130		32 times as loud
Loud rock concert near stage Jet takeoff (200 ft)	120	Uncomfortably loud	16 times as loud
Float plane takeoff (100 ft)	110		8 times as loud
Jet takeoff (2,000 ft)	100	Very loud	4 times as loud
Heavy truck or motorcycle (25 ft)	90		2 times as loud
Garbage disposal Food blender (2 ft) Pneumatic drill (50 ft)	80	Loud	Reference loudness
Vacuum cleaner (10 ft)	70	Moderate	1/2 as loud
Passenger car at 65 mph (25 ft)	65		
Large store air-conditioning unit (20 ft)	60		1/4 as loud

Noise Source or Activity	Sound Level (dBA)	Subjective Impression	Relative Loudness (perception of different sound levels)
Light auto traffic (100 ft)	50	Quiet	1/8 as loud
Quiet rural residential area with no activity	45		
Bedroom or quiet living room Bird calls	40	Faint	1/16 as loud
Typical wilderness area	35		
Quiet library, soft whisper (15 ft)	30	Very quiet	1/32 as loud
Wilderness with no wind or animal activity	25	Extremely quiet	
High-quality recording studio	20		1/64 as loud
Acoustic test chamber	10	Just audible	
	0	Threshold of hearing	

Adapted from: Beranek (1988) and USEPA (1971a)

4.9.2 Applicable Noise Standards

A review of noise regulations at the federal, state, and county levels was conducted. There are no federal requirements in the United States that specifically refer to transmission lines as noise sources. However, many ordinances, by virtue of their general nature may implicitly include transmission lines, though it may be argued that such regulations may overstate the impact of line noise given that it is limited to a foul weather event. The NYSDEC has issued guidelines under the State Environmental Quality Review Act (SEQRA), which 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 onset of potential of adverse noise impacts. There are also several noise ordinances that were considered for the purposes of assessing regulatory compliance.

The noise standards for the towns of Chili, Gates and Henrietta and the City of Rochester are discussed in the sections below. There are no State of New York noise standards applicable to the Project. There are also no noise requirements specific to Monroe County.

a. Town of Chili

The Town of Chili has a general, nuisance type noise ordinance which prohibits the generation of loud and unnecessary noises. Construction activities are prohibited between the hours of 8 p.m. and 7 a.m. All unnecessary noises are prohibited between the hours of 10 p.m. and 7 a.m.

b. Town of Gates

The Town of Gates has a general, nuisance type noise ordinance which prohibits the generation of loud and unnecessary noises. Construction activities are prohibited between the hours of 7 p.m. and 7 a.m. and all day on Sunday.

c. Town of Henrietta

The Town of Henrietta has a general, nuisance type noise ordinance which prohibits the generation of loud and unnecessary noises. Construction activities are prohibited between the hours of 10 p.m. and 8 a.m. if they disturb the peace and quiet.

d. City of Rochester

The City of Rochester has two ordinances addressing noise, Chapter 75 and Chapter 120. Chapter 75 is a nuisance type ordinance which prohibits unnecessary noise during any hours and prohibits construction which creates excessive noise between the hours of 10 p.m. and 7 a.m.

Chapter 120 addresses noise generated by public utilities, and limits continuous (non-construction related) noise to 66 dBA during the day and 45 dBA during the night at any lot line which is also a lot line of a residential property in a residential or planned development zone district.

e. NYSDEC Noise Guidelines

In 2001, NYSDEC published a program policy titled Assessing and Mitigating Noise Impacts, which is intended to describe an approach for the evaluation of the potential community impacts from a new sound source. 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 that are clearly 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 the following:

> Increases ranging from 0-3 dB should have no appreciable effect on receptors. Increases from 3-6 dB may have potential for adverse noise impact only in cases where the most sensitive receptors are present. Sound pressure increases of more than 6 dB may require closer analysis of impact potential depending on existing sound pressure levels and the character of surrounding land use and receptors.

Based on 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, with receptors below the 6 dBA L_{eq} cumulative increase threshold, having a lower likelihood of disturbance, dependent in part on individual sensitivities. For potential exceedances of the 6 dBA threshold, the program policy suggests a Second Level Noise Impact Evaluation be completed, towards evaluating the potential exceedance conditions. However, further information or guidance on what a second level evaluation may consist of is not explicitly stated.

The NYSDEC program policy further defines a typical background sound level at 45 dBA. If a background sound level of 45 dBA were to be assumed, the total cumulative sound level of 51 dBA or 6 dBA above the NYSDEC typical background sound level would be the threshold of the onset of the potential for an adverse noise impact.

4.9.3 Existing Conditions

The degree of audibility of a new or modified sound source is dependent in a large part upon the relative level of the ambient noise. A wide range of noise settings occurs within the Project area. Variations in acoustic environment are due in part to existing land uses, population density, and proximity to transportation corridors. Elevated existing ambient sound levels in the region occur near major transportation corridors such as interstate highways and in areas with higher population densities. Several nearby rural airstrips and airports, including the Greater Rochester International Airport, also contribute to ambient noise levels in both surrounding urban and rural areas. Portions of the communities traversed by the proposed transmission lines are open land or rural in nature, and will have comparatively lower ambient sound levels, possibly 30 dBA or less during nighttime. Principal contributors to the existing acoustic environment likely include motor vehicle traffic, mobile farming equipment, farming activities such as plowing and irrigation, all-terrain vehicles, local roadways, rail movements, periodic aircraft flyovers, and natural sounds such as birds, insects, and leaf or vegetation rustle during elevated wind conditions. Diurnal effects result in sound levels that are typically quieter during the night than during the daytime, except during periods when evening and nighttime insect noise dominates in warmer seasons.

The analysis area is inclusive of all areas that could be potentially affected by construction or operational noise resulting from the Project. The analysis area for noise around proposed Station 255 was defined as the area bounded by a perimeter extending approximately 1 mile from the substation fence line. In the absence of ambient measurement data, the existing sound level environment in the vicinity of Station 255 was estimated with a method published by the Federal Transit Administration (FTA) in its Transit Noise and Vibration Impact Assessment (Federal Transit Administration, 2006). This document presents the general assessment of existing noise exposure based on the population density per square mile and proximity to area sound sources such as roadways and rail lines. The proposed site for Station 255 is within the town of Chili, and according to the U.S. Census Bureau, the population per square mile in blocks within 1 mile of Station 255 is 417.5 people per square mile. In addition, the New York State Thruway is located within 1 mile of the substation site. Table 4.9-2 indicates the estimated baseline sound levels.

Table 4.9-2: Estimated Baseline Sound Levels in Proximity to Station 255

Average Sound Level (dBA)	L_{eq}[1] Day	L_{eq}[1] Evening	L_{eq}[1] Night	L_{dn}[2]
	45 - 50	40-45	35-40	45-50

[1]L_{eq} – equivalent sound level

[2]L_{dn} – Day-Night Average Noise Level

Source: FTA, 2006

4.9.4 Environmental Effects and Mitigation

a. Construction

Transmission Line

Overhead and underground transmission line construction will generate noise levels that are periodically audible. Noise would be generated along the Project route, access roads, structure sites, conductor pulling sites, and staging and maintenance areas. Additional noise sources may include commuting workers and trucks moving material to and from the work sites. The construction equipment to be used is similar to that used during typical public works projects and tree service operations (e.g., road resurfacing, storm sewer installation, natural gas line installation, tree removal, etc.). Overhead line construction is typically completed in the following stages, but various construction activities may overlap and with multiple construction crews operating simultaneously:

- Site access and preparation;
- Installation of structure foundations;
- Erecting of support structures;
- Stringing of conductors, shield wire and fiber optic ground wire; and
- Cleanup and site restoration.

Underground line construction will typically include the following activities:

- Trenching and duct laying;
- Manhole installation;
- Cable pulling/splicing;
- Horizontal boring/jacking (if required);
- Backfilling and right-of-way restoration;

Noise levels from overhead transmission line construction were evaluated using a screening level analysis approach. The calculation methodology requires the input of the number and type of construction equipment by phase as well as a 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 4.9-3 summarizes results for the five conceptual construction phases.

Table 4.9-3: Construction Phase Noise Levels for Overhead Line Construction

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 15 m (50 ft), dBA	Composite Noise Level at 15 m (50 ft), dBA	Composite L_{eq} Noise Level at 1000 feet, dBA
1	Site Access and Preparation	Bulldozer Grader Roller – Compactor Loader Water Truck Dump Truck	86 82 73 78 80 80	85	51
2	Installation of Structure Foundations	Bulldozer Loader Backhoe-Loader Fork Lift Mobile Crane Mobile Crane Auger Rig Drill Rig Compressor Pump Portable Mixer Jackhammer Cement Mixer Truck Dump Truck Slurry Truck Specialty Truck Water Truck	86 78 80 80 82 82 85 87 81 83 82 90 80 80 80 75 80	91	56

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 15 m (50 ft), dBA	Composite Noise Level at 15 m (50 ft), dBA	Composite L_{eq} Noise Level at 1000 feet, dBA
3	Erecting of Support Structures	Forklift Mobile Crane Compressor Flatbed Truck Flatbed Truck Water Truck	80 82 81 75 75 80	85	50
4	Stringing of Conductors, Shield Wire and Fiber Optic Ground Wire	Tracked Dozer Backhoe-Loader Compressor Line Puller Mixed Trucks Specialty Truck Specialty Truck Water Truck	86 80 81 81 80 75 75 80	86	52

Data compiled in part from the following sources: Federal Highway Administration. 2006, Bolt Beranek and Newman, Inc. 1977, Federal Highway Administration. 1992.

A variety of equipment sources will also be associated with each phase of underground line construction. Provided in Table 4.9-4 is a listing of typical ranges of equipment sound levels from the construction equipment associated with each phase of underground line construction at a standard distance of 50 feet and a distance of 1,000 feet.

Table 4.9-4: Construction Phase Noise Levels for Underground Line Construction

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 15 m (50 ft), dBA	Composite Noise Level at 15 m (50 ft), dBA	Composite L_{eq} Noise Level at 1000 feet, dBA
1	Trenching	Trencher Backhoe Excavator	82 80 85	84	49
2	Duct Laying/Manhole Installation	Mobile Crane Welder Specialty Truck	85 73 78	80	45
3	Backfilling	Backhoe Paver Roller	80 85 85	84	50
4	Cable Pulling/Splicing	Line Puller Splicing Rig Wire Truck and Trailer Mixed Trucks Compressor	81 80 78 80 61	83	49

As demonstrated in the tabulated results, construction sound will be attenuated with increased distance from the source. Other factors, such as vegetation, terrain and obstacles such as buildings 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 type, and separation distances between source and receiver. The variation in power and usage imposes additional complexity in characterizing construction noise levels and the analysis conservatively assumes all phased construction equipment operating simultaneously; however, equipment is generally not operated continuously. As a general construction practice, functional mufflers will be maintained on all equipment to maintain noise levels as low as reasonably achievable.

While underground line construction noise levels are expected to be greater than ambient conditions for the closest receivers, a significant reduction in the potential impact of construction noise associated with the underground line construction will result from construction occurring over relatively short 50-400 foot stretches. Work in the proximity of any single general location along the underground portion of the transmission lines will likely last no more than a few days to one week, as construction activities move along the corridor. Therefore, no single receptor will be exposed to significant noise levels for an extended period.

Horizontal Directional Drilling

A potential method to minimize ground disturbance in installation of an underground line is to use horizontal directional drilling (HDD) techniques. Typically HDD might be used to minimize disturbance to areas in proximity to residences, waterbodies, wildlife habitat, and other sensitive areas. HDD uses a directional boring technique over relatively long distances compared to conventional boring techniques. HDD is a process that allows for trenchless construction across an area by drilling a hole well below the depth of a conventional transmission line or pipeline lay and pulling the line through the predrilled borehole.

Equipment used at the HDD sites varies somewhat depending on the length and depth of each drill, and subsurface soil and bedrock conditions. For longer HDD crossings with deeper bedrock penetration, equipment would include a drill rig, hydraulic crane, mud pump, generators, a screening/filter system for drill cuttings, and mobile support equipment. The primary HDD equipment would be powered by diesel engines ranging from 150 to 600 hp. The majority of equipment would be located on the drill entry site whereas the equipment at the exit location would likely consist of an excavator, centrifugal pumps, and a mud pump and rig. The estimated unmitigated sound power level for HDD equipment operating at the entry and exit points ranges from approximately 110 to 121 dBA, depending on horsepower and equipment configuration. With mitigation measures such as temporary noise barriers, enhanced mufflers, or engine enclosures a 10 dBA reduction can be reasonably achieved in practice.

Blasting

The 345-kV transmission tower foundations will normally be installed using drilled shafts or piers; however, if hard rock is encountered within the planned drilling depth, blasting may be required to loosen or fracture the rock in order to reach the required depth to install the structure foundations. Locations where blasting may be required will be identified during geotechnical engineering study. Blasting creates a sudden and intense airborne noise potential as well as local ground vibration. The ground vibration and airblast overpressures that cause concern or annoyance to residents are generally lower than relevant building damage threshold limits. Modern blasting techniques include electronically controlled ignition of multiple small explosive charges in an area of rock. The detonations are timed so that the energy from individual detonations destructively interferes with each other, which is called wave canceling. Impulse (instantaneous) noise from blasts could reach up to 140 dBA at the blast location attenuating to approximately 90 dBA at a distance of 500 feet from the blast.

Blasting is a short duration event as compared to rock removal methods such as using track rig drills, rock breakers, jack hammers, rotary percussion drills, core barrels, and/or rotary rock drills. Blasting plans will be required of all contracted blasting specialists, demonstrating compliance with all applicable state and local blasting regulations, including the use of properly licensed personnel and obtaining all necessary authorizations.

Substation

Modifications to Station 80, Station 418 and Station 23 will include equipment modification and installation of certain new equipment and is not anticipated to be a significant source of construction noise. New Station 255 will require more extensive construction activity.

Creation of permanent access road will be required for Station 255 as well as clearing of all vegetation and grading the site until it is essentially flat. Secure fencing and a grounding system must also be in place prior to the foundation installation. The substation equipment such as the transformers and circuit breakers can then be mounted directly to the foundations. The control building is constructed and high voltage conductors are installed. Construction equipment and resulting received sound levels are expected to be similar or less than that produced during transmission line construction.

Construction work on the substations will generally occur in the one or more of the following phases as needed depending on the extent of site work required:

- site clearing;
- site grading and compaction;
- trenching and foundations;
- equipment pads; and
- equipment installation.

Equipment utilized for construction will differ from one phase to another. In general, heavy equipment (bulldozers, dump trucks, cement mixers) will be used during excavation and concrete pouring activities. Average site sound levels for each phase of construction, which accounts for the estimated time that equipment are in operation, are presented in Table 4.9-5 below.

Table 4.9-5: Typical Site Average Noise Levels by Construction Activity (dBA)

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 15 m (50 ft), dBA	Composite Noise Level at 15 m (50 ft), dBA	Composite L_{eq} Noise Level at 1000 feet, dBA
1	Site Clearing	Brush Cutters Tracked Dozer Wheeled Tractor Wheeled Loader Wood Chipper Water Truck	81 88 80 80 91 80	91	56
2	Site Grading and Compaction	Scraper Tracked Dozer Grader Roller-Compactor Wheeled Loader Backhoe-Loader Water Truck	85 88 82 75 80 80 80	88	53

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 15 m (50 ft), dBA	Composite Noise Level at 15 m (50 ft), dBA	Composite L_{eq} Noise Level at 1000 feet, dBA
3	Trenching and Foundations	Excavator Backhoe-Loader Skid-Steer Loader Wheeled Loader Auger Rig Tracked Dozer Cement Mixer Truck Water Truck	80 80 70 80 85 88 80 80	87	53
4	Equipment Pads	Wheeled Loader Mobile Crane Forklift Flatbed Truck Dump Truck Cement Mixer Truck Water Truck	80 82 80 75 80 80 80	84	49
5	Equipment Installation	Compressor Mobile Crane Forklift Wheeled Loader Dump Truck Specialty Truck Water Truck	81 82 80 80 80 75 80	84	49

b. Operations

Transmission Line

Noise generated by transmission lines typically contribute little to area noise levels when compared to other common sources such as that from vehicles, aircraft and industrial sources; however, with increasing transmission line voltages audible noise produced by corona on the transmission line conductors has become a concern. Audible noise from transmission lines occurs primarily in foul weather. In dry conditions, corona sources are limited to insects, scratches, and vegetation. These sources are such that the corona threshold is barely exceeded, and the audible noise generated is very low. Generally, the fair-weather audible noise of transmission lines cannot be distinguished from ambient noise at the edge of the right-of-way. Conversely, in wet conditions water drops impinging or collecting on the conductors produce a large number of corona discharges, each of them creating a burst of noise.

Audible noise generated by corona on power transmission lines is composed of two major components. The first is a broadband component that has a significant 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 significant high-frequency content results in the crackling, frying, 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 motion establishes a sound-pressure wave having a frequency twice that of the voltage, namely, 120 Hz for a 60-Hz system. Higher harmonics, 240 Hz, may also be present, but they are of generally less significance. In different weather conditions the relative magnitudes of random noise and hum may be different. Noise levels in fog and snow usually do not attain the elevated level as compared to rain, and when attained, are usually for a shorter duration in proportion of the event.

In conditions of foul weather, there exists the potential for a large concentration of corona sources in the form of water drops or snowflakes that stick to the conductor surface. Noise levels in rain may vary over a wide range. In the initial stages of a rain, when the conductors are not thoroughly wet, there may be a considerable fluctuation in the noise level as the rain intensity varies. When the conductors are thoroughly wet, the noise fluctuations will often be less significant because, even as the rain intensity lessens, the conductors will still be saturated with water drops that act as corona sources. The variation in noise levels during rain depends greatly on the condition of the conductor surface and on the voltage gradient at which the conductors are operating. At high operating gradients, the audible noise is less sensitive to rain rate than at low gradients. Consequently, the dispersion of noise levels is less for the higher gradients.

As a component of the Rochester Area Reliability Project, a 345 kV transmission line (circuit 40) will be built to connect the existing Station 80 to the proposed Station 255. Circuit 40 will parallel the existing NYPA 345 kV lines and it is expected that these lines would generate similar audible noise levels with minimal variation related to such factors as line geometry and/or conductor-surface conditions. The addition of circuit 40 may cause an estimated increase in existing transmission line sound levels in the range of 2 to 6 dBA, depending on orientation of the receptor to the new line. The lateral attenuation of noise from a line source of noise 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 waves propagate through the air results in additional attenuation. Atmospheric absorption is a function of frequency, temperature, and relative humidity. The absorption effect increases with frequency, and thus, at farther distances from the line, the frequency spectrum will shift towards the lower end of the spectrum as greater attenuation of the high frequency sound component will occur.

During meteorological conditions favorable to sound propagation and very quiet background ambient sound conditions, and meteorological conditions conducive to corona noise generation, corona noise may be periodically audible at more distant locations. Conversely, corona noise may be partially or fully masked by elevated ambient sound levels generated by rainfall events. 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. With the existing NYPA transmission line and separation distance of approximately half a mile to the nearest receptors, both absolute and incremental sound impacts related to the addition of circuit 40 are expected to be low level and generate corona sound levels which will be below recommended guideline limits to avoid the potential for adverse noise impacts on public health and safety in accordance with the NYDEC Policy limits. When audible, corona sound from overhead lines will likely not be deemed excessive or unusually loud and will be consistent with sound generated from existing transmission lines successfully sited and operating throughout the state of New York employing similar overhead transmission line separation distances.

Substations

Substations have switching, protection and control equipment and typically one or more transformers, which generate the sound generally described as a low humming. There are three main sound sources associated with a transformer: core noise, load noise and noise generated by the operation of the cooling equipment. The core vibrational noise is the principal noise source and does not vary significantly with electrical load. Transformers are designed and catalogued by megavolt ampere (MVA) ratings. Just as horsepower ratings designate the power capacity of an electric motor, a transformer's MVA rating indicates its maximum power output capacity. The National Electrical Manufacturers Association (NEMA) published NEMA Standards TR1-1993 (R2000), which establish the maximum noise level allowed for transformers, voltage regulators, and shunt reactors based on the equipment's method of cooling its dielectric fluid (air-cooled vs. oil-cooled) and the electric power rating.

Transformer noise is generated and will attenuate with distance at different rates depending on the transformer dimensions, voltage rating, and design. The noise produced by substation transformers is primarily caused by the load current in the transformer's conducting coils (or windings) and consequently the main frequency of this sound is twice the supply frequency. The characteristic humming sound consists of tonal components generated at harmonics of 120 Hz. Most of the acoustical energy resides in the fundamental tone (120 Hz) and the first 3 or 4 harmonics (240, 360, 480, 600 Hz). This tonal noise is the predominant audible sound produced during Oil Natural Air Natural (ONAN) cooling method operation. In addition to core vibration noise, transformer cooling fans may generate broadband noise, limited to periods when high heat loads require additional cooling capacity. During Oil Natural Air Forced cooling method (ONAF) operational scenarios, cooling fan noise is produced in addition to core noise. The resulting audible sound is a combination of tonal hum and the broadband fan noise. Circuit-breaker operations may also cause audible noise, particularly the operation of air-blast breakers which is characterized as an impulsive sound event of very short duration, and expected to occur only a few times throughout the year, and was therefore not considered in this analysis.

Audible noise caused by corona is not generally an issue with substations. The presence of equipment such as circuit breakers, switches, and measuring devices reduces the gradient on the buses to a great extent. In addition, the distance from most of the buses to the perimeter of the substation is considerable (on the average, greater than 100 m). Consequently, low levels of corona noise would likely not be readily detectable immediately outside the substation fence line.

Acoustic Modeling Analysis

As the principal sound source of the Rochester Area Reliability Project, operational sound associated with Station 255 was evaluated employing a computer simulation. DataKustic GmbH's CadnaA, the computer-aided noise abatement program (v 4.1.137) was used for the acoustic modeling analysis. CadnaA is a comprehensive software model that conforms to the Organization for International Standardization (ISO) standard ISO 9613-2 Attenuation of Sound during Propagation Outdoors. The engineering methods specified in this standard consist of full (1/1) octave band algorithms that incorporate geometric spreading due to wave divergence, reflection from surfaces, atmospheric absorption, screening by topography and obstacles, ground effects, source directivity, heights of both sources and receptors, seasonal foliage effects, and meteorological conditions. A three-dimensional rendering of the facility is created directly from the site plan drawing by defining the height and extent of all significant noise sources. Sound power levels are assigned to each source in a manner that best represents their expected acoustic performance. For example, transformer walls are defined as vertical area sources and smaller sources such as pumps and fans are defined by point sources.

Terrain conditions, vegetation type, ground cover, and the density and height of foliage can influence the absorption that takes place when sound waves travel over land. The ISO 9613-2 standard accounts for ground absorption rates by assigning a numerical coefficient of G=0 for acoustically hard, reflective surfaces and G=1 for absorptive surfaces and soft ground. If the ground is hard-packed dirt, typically found in industrial complexes, pavement, bare rock or for sound traveling over bodies of water, the absorption coefficient is defined as G=0 to account for reduced sound attenuation and higher reflectivity. In contrast, ground covered in vegetation, including suburban lawns, livestock and agricultural fields will be acoustically absorptive and aid in sound attenuation, i.e., G=1.0. For the acoustic modeling analysis, a conservative ground absorption rate was selected, accounting for a semi-reflective ground surface. Topographical information was imported into the acoustic model using the official United States Geological Survey (USGS) digital elevation dataset to accurately represent terrain in three dimensions. Sound attenuation through foliage and diffraction around and over existing anthropogenic structures such as buildings were ignored under all acoustic modeling scenarios. The results are therefore representative of defoliate winter time conditions.

The American National Standards Institute (ANSI) and the International Electrotechnical Commission (IEC) have established methodologies for measurement of noise from transformers and other electrical devices. Measurements involve taking reference sound level measurements using microphones positioned 0.3 m (1 ft) from a tautly drawn string that encircles the device at a height above grade set at one-half the overall height of the device. The transformer noise output is the average of all measurements taken around the perimeter, incorporating contributions from both cooling fans and auxiliary equipment. The sound power radiated is calculated from the NEMA rating with total sound energy integrated over the total surface area of the transformer's four sides. Currently, the Project substation design is only at a schematic level. Broadband transformer sound source levels were provided by an equipment manufacturer's test report for a similar size unit. It is expected that the transformer installed will exhibit sound source characteristics similar to the sound data used in the acoustic modeling analysis; however, it is possible that the final warranty sound data could vary slightly. It is reasonable to expect that any transformer installed will conform to all relevant NEMA standards. Representative octave band center frequencies were derived from standardized engineering technical guidelines based on measurements from similar equipment types. Source levels are provided in Table 4.9-6 for the ONAN and ONAF1 (low fan) and ONAF2 (high fan) operating scenarios. The overall A-weighted sound power levels calculated for each transformer unit are listed in the last column of Table 4.9-6.

Table 4.9-6: Transformer Sound Power Levels (L_W) for Three Operational Scenarios

Operational Scenario	Octave Band Sound Power Data (dBL)									Overall dBA
	31.5	63	125	250	500	1000	2000	4000	8000	
ONAN	99	105	107	102	102	96	91	86	79	102
ONAF1	112	116	112	112	111	105	101	95	87	111
ONAF2	113	117	114	114	113	107	103	96	89	113

Received sound levels were evaluated at the nearest receptor locations within 1/2 mile of the substation fence line. The resultant sound contour plot displaying operational broadband (dBA) sound levels associated with Station 255 are presented as color-coded isopleths in Figure 4.9-1 (ONAN) and Figure 4.9-2 and 4.9-3 (ONAF1 and ONAF2 scenarios) inclusive of an engineering safety factor. Results from acoustic modeling are projected in 5 dBA increments on scaled USGS orthophotos maps. Results are independent of the existing acoustic environment, representative of Project-generated sound levels only. The sound contour isopleths are plotted at a height of 1.52 meters above ground level (AGL), about the height of the ears of a standing person. Sound levels were also calculated at discrete receptor locations at a height of 4 meters AGL, the approximate height of a second story window, and results summarized in Table 4.9-7.

Table 4.9-7: Noise Sensitive Receptors within Operational Analysis Area for Station 255

Sound Pressure Level	Number of Receptors		
	ONAN	ONAF1	ONAF2
>=50 dBA	-	-	2
45 to 50 dBA	-	5	7
40 to 45 dBA	-	9	6
35 to 40 dBA	6	2	1
30 to 35 dBA	8	-	-
< 30 dBA	-	-	-

The modeling results show that the ONAN cooling option generate the lowest received sound levels with the ONAF2 cooling method generating the highest levels, as would be expected. Under the ONAN operating scenario, received sound levels at all existing receptor locations are below 40 dBA.

Results presented in Table 4.9-8 indicate that if the NYSDEC typical background sound level of 45 dBA is assumed, two potential exceedance conditions of the NYSDEC 6 dBA incremental increase criterion may occur under the ONAF2 operating scenario. Referring to these two exceedances as “potential” is noteworthy because actual ambient noise levels will vary with location in addition to contribution of sound sources at those locations, which could translate to a higher 6 dBA guidance threshold used to determine possible impact. Therefore, results could change based on adjustments to equipment components, the development of noise mitigation measures in the substation design, or based on assumptions employed to estimate background sound levels within the Station 255 acoustic study area.

Table 4.9-8: Acoustic Modeling Results for Station 255 with Comparison to NYSDEC Guideline

Incremental Increase in (dBA)	ONAN	ONAF1	ONAF2	Expected Effect on Receptors
0 – 3	16	11	7	No appreciable effect
3 - 6	0	5	7	Potential for adverse noise impact limited to cases where only the most sensitive receptors are present.
> 6	**0**	**0**	**2**	Potential noise impact. Requires a closer analysis of impact potential depending on existing SPLs and the character of sound emissions, land use and receptors.

Based on the available data and acoustic modeling results, the Project can be adequately designed to meets all established noise limits and operate in compliance with NYSDEC Program Policy guidelines and local noise ordinances. However, increases greater than 6 dBA are identified as potential noise impacts and should be further analyzed during the final equipment design stage.

c. Maintenance Activities

Routine Project inspections and maintenance will occur annually, but are not expected to result in significant noise generation. Traffic noise generated during Project maintenance and inspection 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.

Right-of-way vegetation maintenance may require the use of chain saws. The amount of sound energy generated by a chainsaw depends on several factors including size rating, manufacturer, and equipment condition. Typically, a larger chainsaw necessitates a larger engine due to stronger friction force and this effect may result in a somewhat higher sound source level. Chain sawing activities would occur in many different locations within the right-of-way but all of these locations would not be known until site clearance and maintenance activities begin. 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. A short term event, chainsaw activities would be limited to daytime periods only.

4.10 Electric and Magnetic Fields

A study has been performed which, through the use of computer models, assesses the expected electric and magnetic field (EMF) effects using Winter Normal Ratings as required by the New York State Public Service Commission. The results of the study demonstrate that both the electric and magnetic field levels of the Project are well below the maximum levels at the edge of the right-of-way as recommended by Commission guidelines for electric transmission lines. A detailed summary of the study and its results are included as Appendix C of this Application.

4.11 Summary of Environmental Impacts

The Project's anticipated environmental impacts are summarized as follows:

Land Use**:** Circuits 40, 940, 941 and the partial relocation of circuit 906 are proposed to be located within and along existing transmission and railroad corridors to minimize land use impacts and subsequent mitigation through active agricultural land and suburban and urban development consisting of residential and industrial land uses. The use of existing corridors and the underground configurations of some portions of the circuits minimize impacts on surrounding land uses. Additionally, agreements between local farm operators and RG&E allow for the co-existence of active farmland and transmissions lines. Proposed Station 255 will have a direct impact on land use because the proposed site is active agricultural land which will cease following site acquisition and development of the substation.

The proposed Project is consistent with the goals of the 2009 New York State Open Space Conservation Plan in that the plan recognizes that energy production and distribution capacity are important to New York State and the Northeast as a whole, and the Project makes use of a statewide planning and siting process that takes into consideration natural and recreational open spaces as well as the state's natural and cultural heritage. Local land use plans or policies of the towns of Chili, Gates, Henrietta, and the city of Rochester within Monroe County were heavily considered to guide routing, locations and configurations of the proposed circuit and substation to promote compatibility with existing and future land use.

Visual Resources: The Project study area for visual resources includes 95 county and municipal parks, 8 state and 1 national recreational resources, and 100 NRHP listed and eligible properties. Considering the use of existing electric transmission and railroad corridors for proposed circuits 40, 940 and 941 and the limited number of public viewpoints due to the relative isolation of these corridors, potential impacts to visual and recreational resources will be minimal. In the southern portion of the study area south of Station 67, the relatively level topography and intervening vegetation associated with wetland areas limit potential views of the new circuits to only a few road crossings. North of Station 67, the urban context and industrialized railroad corridor to be used by circuit 941 will minimize potential visual impacts. Although the development of Station 255 at the proposed site will result in a major new utility use in an agricultural landscape, only middle ground views of the substation will be available from Scottsville Road to the west and Milewood Road to the north, and the new substation will be viewed in the context of the existing 345 kV transmission lines along with the new transmission lines.

Cultural Resources: There are 49 archeological sites and 12 recorded historic sites within a 1 mile radius of the Project, none of which are within the Project's immediate footprint. Additionally, there are 104 known historic resources within a 3 miles radius, approximately 70% of which are within a 1 mile radius of the Project and are located in the historical urbanized neighborhoods of Rochester. Review of the historical development of the Project areas suggests that construction of circuits 40, 940 and 941 and associated Project elements is unlikely to impact significant historic resources in nearly all areas of the preferred alignment.

Terrestrial Ecology and Wetlands: The dispersion and density of vegetation land cover throughout the Project Corridor correlate with adjacent land use, development and existing natural resources, and includes cultivated cropland, wetland communities, intermixed forested upland communities, and invasive plant species along transmission line rights-of-way and railroad beds. The most significant effect to vegetation is the long-term conversion of existing forested communities to managed grassland or shrubland within cleared areas of the proposed rights-of-way.

Five NYSDEC-regulated wetlands that total approximately 14.9 acres are located at multiple locations within the proposed Project Corridor, and regulated adjacent areas comprise another 27.7 acres. The most significant wetland areas occur at the Project's crossings of the Genesee River, Black Creek and their tributaries. Potential effects to wetland areas may occur directly or indirectly during construction and operation. Long-term effects to wetlands would only occur if the wetland could not be spanned, if dredging or filling was required for structure installation, or where clearing would convert and fragment forested wetlands. Every practical attempt will be made to avoid wetlands and minimize the disturbance area.

Wildlife habitats are associated with suburban, rural residential and agricultural areas. Many species likely to occur are those that have adapted to interactions with humans and in environments that have been disturbed by land use practices. Species in active agricultural land and that favor edge and early successional habitats are likely experience temporary displacement during construction and will return once construction is complete. The greatest impact to wildlife will result from conversion of forested habitat to early successional shrubland which may adversely affect some species.

The New York Natural Heritage Program identified several Federal and State-level protected threatened and endangered species in the vicinity of the proposed Project, including the Peregrine Falcon (*Falco peregrines*), big shellbark hickory (*Carya laciniosa*), and the silver maple-ash swamp as occurring or having the potential to occur within the Project area. Consultation with the NYSDEC Wildlife Manager for Region 8 regarding the status and distribution of the Peregrine Falcon indicated the proposed Project should have little or no threat to nesting birds as there are no known nest sites along the immediate vicinity of the proposed transmission route. Additionally, the use of existing rights-of-way reduces the need for clearing big shellbark hickory and silver maple-ash swamp, and efforts will be made during final design and subsequent construction to minimize wetland disturbance.

Topography and Soils: The topography in Monroe County is nearly level to gently rolling; significant relief within the Project area is attributed to major drainages such as the Genesee

River, the Erie Canal and Lake Ontario to the north. Analysis of SSURGO data indicates 38 soil associations occur within the right-of-way. Substantial alterations of slope and gradient are not anticipated along the overhead portions of the alignment and mitigation measures will be implemented to address any soil erosion, compaction, and sedimentation during construction. The underground segments would introduce additional topographic disturbances and best management practices will be implemented to curtail soil erosion and sedimentation during construction and the areas will be restored to pre-construction conditions. Proposed substation and transmission line improvements will be designed, constructed, operated, and maintained to be compatible with on-site geologic conditions and there are no geologic concerns 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 proposed route.

Water Quality: The Project area is located within the Lower Genesee River Basin and includes a total of 14 crossings of NYSDEC-regulated streams and their associated tributaries within the Project corridors. Major streams and rivers within the Project area include the Genesee River, Black Creek, Little Black Creek, and Red Creek. The Erie Canal is also located within the Project corridor. Potential Project-related impacts to surface waters will be associated with clearing and grading for construction access, installation and operation of the transmission line within and downstream of the Project corridor, and danger tree removal in areas adjacent to and within the Project Corridor. Operation of the Project and routine maintenance of the rights-of-way will not result in discharges to surface waters, increases in stormwater runoff volumes nor erosion or flooding potential along the existing rights-of-way or surrounding lands.

Noise: Construction of overhead and underground transmission lines will generate noise levels that are periodically audible along the Project route, access roads, structure sites, conductor pulling sites, and staging and maintenance areas. Construction equipment will be similar to that used during typical public works projects and tree service operations. Construction at substations will include equipment modification and installation of new equipment and is not anticipated to be a significant source of construction noise. New Station 255 will require more extensive construction activity, including the creation of a permanent access road, clearing of vegetation and grading at the site. All construction activities will occur during daytime hours.

Noise generated by operation of transmission lines typically contribute little to area noise levels when compared to other common sources such as that from vehicles, aircraft and industrial sources; although the noise is greater with increasing transmission line voltages. The operation of substations have switching, protection and control equipment and typically one or more transformers, which generate the sound generally described as a low humming, which will attenuate with distance at different rates depending on the transformer dimensions, voltage rating, and design. Substation maintenance will generate short-term, day time traffic noise during Project maintenance and inspection that are not expected to result in adverse noise impacts.

Electric and Magnetic Fields: These EMF calculations considered the operation of both existing and proposed transmission facilities within the transmission corridors at their Winter Normal ratings. The results of the study demonstrate that both the electric and magnetic field levels of the Project are well below the maximum levels at the edge of the right-of-way as recommended by Commission guidelines for electric transmission lines.

Conclusion

The proposed Rochester Area Reliability Project presents limited adverse environmental impact, particularly because it proposes to utilize existing transmission and railroad corridors, overhead and underground configurations, and protection measures that will effectively avoid or minimize environmental impacts. These protection measures will be specified in the forthcoming Project EM&CP.

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