NextEra Energy Transmission New York, Inc.

Marcy to Pleasant Valley Project

Part A Application – Appendix A

Preliminary Scoping Statement and Schedule

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1.0 INTRODUCTION

NextEra Energy Transmission New York, Inc. (NEETNY) is proposing to construct and operate a new approximately 148-mile 345-kilovolt (kV) single-circuit alternating current (AC) transmission line between the existing Marcy Substation in Oneida County and the existing Pleasant Valley Substation in Dutchess County (Marcy to Pleasant Valley Project or the Project) with an expected in-service date of September 2017 . The Project corridor parallels existing transmission corridors through Oneida, Herkimer, Fulton, Montgomery, Schenectady, Albany, Greene, Columbia, and Duchess Counties.

The Project will utilize, to the extent practical, the existing rights-of-way (ROWs) to minimize the additional ROW acquisitions; however, the proposed transmission line will be generally located on a new ROW up to 100 feet wide and located adjacent to and parallel to existing transmission corridors.

This Preliminary Scoping Statement (PSS) was designed to satisfy the Article VII Part A Application (Part A Application) process set forth in the New York State Public Service Commission's (Commission) orders in Case 12-T-0502 on April 22, 2013 and September 19, 2013. The Commission requested that applicants file:

> "A scoping statement and schedule describing how and when the applicant will comply with the following sections:
>
> - 86.4 – Exhibit 3: Alternatives
> - 86.5 – Exhibit 4: Environmental Impact
> - 86.7 – Exhibit 6: Economic Effects of Proposed Facility
> - 86.8(1), (3), (5), (6) – Exhibit 7: Local Ordinances
> - 86.9 – Exhibit 8: Other Pending Filings
> - 86.10 – Exhibit 9: Cost of Proposed Facility
> - 88.1(e) and (f) – Exhibit E-1: Description of the Proposed Transmission Line
> - 88.2 – Exhibit E-2: Other Facilities
> - 88.3 – Exhibit E-3: Underground Construction
> - 88.5 – Exhibit E-5: Effect on Communications

- 88.6 – Exhibit E-6: Effect of Transportation"[1]

The results of the studies presented in the PSS would be the basis for the preparation of the Article VII Part B Application (Part B Application) to be filed at a future date as set forth by the Commission.

[1] Case 12-T-0502, *Proceeding on Motion to Examine Alternating Current Transmission Upgrades, Order Establishing Procedures for Joint Review under Article VII of the Public Service Law and Approving Rule Changes*, at Appendix A (April 22, 2013) and supplemented on September 19, 2013.

2.0 BRIEF OVERVIEW OF THE PROPOSED PROJECT AND SCHEDULE

2.1 Proposed Project

The Project consists of a new approximately 148-mile 345-kV single-circuit AC transmission line between the existing Marcy and Pleasant Valley Substations. This Project will be constructed primarily on spun concrete pole structures. Where appropriate, self-supported structures, steel structures, and hybrid concrete/steel structures or lattice towers will be used. The Project would interconnect at the Marcy Substation in Oneida County and run through Herkimer, Fulton, Montgomery, Schenectady, Albany, Greene, and Columbia Counties, and terminate at the Pleasant Valley Substation in Dutchess County. From the Marcy Substation, the Project would run to the New Scotland Substation, with an aerial crossing of the Mohawk River, the New York State Thruway, and an operational railroad line. From New Scotland Substation, the line would run south to the Leeds Substation, cross the Hudson River and continue south before terminating at the Pleasant Valley Substation. NEETNY is evaluating both underground/submarine and aerial crossings of the Hudson River from the Town of Athens, Greene County, on the west bank to the Town of Greenport, Columbia County, on the east, crossing under an operational railroad line on the eastern bank.

NEETNY is evaluating various alternate routes, some of which require new substations, which offer the potential to mitigate and/or avoid sensitive resources and environmental areas of concern, as well as provide opportunities to reduce construction and operational costs and to ensure that the optimal comprehensive solution is delivered. NEETNY will conduct further analyses of alternative routes as part of developing its Part B Application. An alternate route would run from Marcy to Princetown to New Scotland, with a new substation at Princetown and new 230-kV lines to Rotterdam. Alternative 1 includes a route that would replace the New Scotland to Pleasant Valley portion of the line with a 345-kV transmission line running from a new 345-kV Knickerbocker Substation in the Town of Schodack, Rensselaer County, to the Pleasant Valley Substation. Under Alternative 1, no new crossing of the Hudson River would be required because the new line would tie in at both ends to the existing Alps line. NEETNY is also evaluating other Hudson River crossings as part of Alternatives 2, 3, 5, and 6. Other alternate routes are under review as well. Further information regarding alternate routes and substations may be found in Exhibit 2 of this Part A Application. For the purpose of this PSS, only the existing setting of the Preferred Route is described. An environmental analysis of the

alternative routes that NEETNY intends to pursue in Part B will be undertaken and presented in the Part B Application.

2.2 Proposed Project Schedule

The field activities and supporting studies described in this PSS will be completed between October 2013 and August 2014 in support of the Part B Application that is expected to be submitted to the Commission in the summer of 2014. A proposed schedule showing the timing of field programs and other milestones for the Project is included as Figure PSS-1.

In preparing the schedule, NEETNY has assumed that it will have obtained necessary access to properties in the Project study area. If access is not granted, or only limited access is available, and field studies cannot be completed as proposed, portions of the Part B Application would be supported by publicly or commercially available desktop information only. All or part of the proposed field surveys would then be completed when access to the site becomes available, likely after the Certificate is issued but prior to construction.

3.0 PROPOSED SCOPE OF ARTICLE VII STUDIES - EXHIBIT 4

The Exhibit 4 scope of work described in this section was developed to meet the requirements of 16 NYCRR Section 86.5. The studies outlined in this section have been designed to assess the impact of the construction and operation of the Marcy to Pleasant Valley Project on environmental resources including:

- Present and future land uses and land use plans;
- The viewshed;
- Scenic, recreational and historical areas;
- Physical or biological process of plants and wildlife and their habitat;
- Forested areas;
- Vegetation and topsoil;
- Fish and aquatic life; and
- Local noise levels.

Figure PSS-2 (Sheets 1 through 219) provide aerial photographs highlighting the environmental resources identified below, including mapped wetlands and protected streams, scenic areas, State lands, historic sites and areas of known occurrences of rare, threatened and endangered species.

3.1 Land Use and Public Policy

In accordance with the requirements of 16 NYCRR Section 86.5, this section provides a brief description of the existing land use setting and public policies, and the proposed analysis to be performed to evaluate existing land uses and compliance with identified public policies in the vicinity of the Project ROW.

New York State has given cities, towns, and villages the power to enact local zoning laws. These laws all require that zoning laws be adopted in accordance with a comprehensive plan and that the plan should provide the backbone for the local zoning law (New York State Department of State 2009). While New York State has enabling laws to provide a general definition of the comprehensive plan, the local adoption of a formal plan under these laws is voluntary.

3.1.1 Existing Setting

The Project route extends through nine counties in New York (from east to west): Oneida, Herkimer, Fulton, Montgomery, Schenectady, Albany, Greene, Columbia and Dutchess. Within these counties the route traverses 27 towns (from east to west): Marcy, Deerfield, Schuyler, Herkimer, Little Falls, Manheim, Oppenheim, Ephratah, Johnstown, Mohawk, Glen, Florida, Duanesburg, Princetown, Guilderland, New Scotland, Coeymans, New Baltimore, Coxsackie, Athens, Greenport, Livingston, Clermont, Milan, Clinton, Hyde Park and Pleasant Valley. The route also crosses a section of the Village of Voorheesville within the Town of New Scotland.

The Project will be located within or adjacent to and parallel to existing transmission corridors. The Project corridor traverses a variety of land uses including: agricultural, rural, residential, forested and commercial. The corridor also crosses several highway and railroad ROWs. Land cover designations for the Project route are reported by the United States Geological Survey (USGS) as part of the National Land Cover Dataset (NLCD) (2006). Table PSS-1 identifies the types of land cover data from USGS NLCD that is crossed by the Project corridor. As shown in Table PSS-1, 25.7% of the ROW has the existing land cover of pasture/hay. All forest cover types (deciduous, evergreen, and mixed forest and scrub shrub) equate to 40.5% of the total ROW. According to the USGS NLCD, the ROW also consists of 43.2% farmland (pasture/hay, cultivated crop and grassland/herbaceous), 11.9% of wetlands and waterbodies (emergent herbaceous wetlands, woody wetlands and open water), 3.2% of barren land or open space and 1.2% of developed land.

Local Land Use Planning and Policies

A preliminary review was conducted as part of this Part A Application to identify existing comprehensive planning documents, town codes, and zoning ordinances. Table PSS-2 summarizes the zoning districts the Project corridor traverses within each municipality.

Master Plans

Master plans, also referred to as Comprehensive Plans, are prepared by municipalities and counties to help guide decisions for the future and act as a long term strategy to help reach the goals of a community. Master plans often contain information about land use, development, business, and growth. Of the 28 municipalities traversed by the Marcy to Pleasant Valley transmission line, 14 have master plans that were found during a preliminary desktop search,

including: Town of Marcy (2009); Town of Ephratah (in draft); Town of Johnstown (2008); Town of Florida (1996, amended 2011); Town of Princetown (2009); Town of Guilderland (2001); Town of New Scotland (2012); Town of Coeymans (2011); Town of Athens (2007); Town of Clermont (2002); Town of Milan (2004); Town of Clinton (2012); Town of Hyde Park (2005); and the Town of Pleasant Valley (2007).

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 districts encourage improvement and 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 influenced municipal comprehensive plans and zoning regulations. County agricultural and farmland protection boards may develop protective plans in collaboration with county soils and water conservation districts. The Agricultural Districts Law protects farmers against local laws that may unreasonably restrict farm operations located within an agricultural district.

The State Legislature enacted the Agricultural Districts Law in 1971 to protect and promote the availability of land for farming purposes. The purpose of agricultural districting is to encourage the continued use of farmland for agricultural production. The law provides a locally initiated mechanism at the county level for creating, modifying, and approving Agricultural Districts.

The Project corridor traverses or run parallel to a designated Agricultural District in every municipality, with the exception of where the transmission line traverses the Towns of Herkimer and Manheim.

Coastal Zone Management

The land along the Hudson River in the counties of Albany, Greene, Columbia, and Dutchess has been designated as a Coastal Management Zone. Accordingly, the Marcy to Pleasant Valley Project will be reviewed for consistency with the New York State Coastal Management Program (NYSCMP), which was established in 1981 by the Waterfront

Revitalization and Coastal Resources Act (Article 42 of the Executive Law) and is administered by the New York State Department of State (NYSDOS) under the authority of the Federal Coastal Zone Management Act (CZMA) of 1972. The principal function of the NYSCMP is to provide a framework for government decision making in the coastal area. The NYSCMP is based on 44 policies which can be grouped into 10 categories that address: 1) Development; 2) Fish and Wildlife; 3) Flooding and Erosion; 4) Public Access; 5) Recreation; 6) Historic Resources; 7) Visual Quality; 8) Agricultural Lands; 9) Energy and Ice Management; and 10) Water and Air Resources.

Under the NYSCMP, additional review of a project is required if it traverses an area with an approved Local Waterfront Revitalization Program (LWRP). The Marcy to Pleasant Valley Project corridor crosses the southern portion of the Village of Athens LWRP boundary. Therefore, the Project will need to document consistency with the approved Village of Athens LWRP Coastal Policies as well as applicable State policies.

3.1.2 Proposed Program Studies

The land use and public policy study will include the identification and mapping of existing land use conditions and zoning designations; verification that the Project is consistent with local land use plans and policies; and the performance of an impact analysis and the identification and development of proposed mitigation and best management practices as applicable.

Land uses along the Project's corridor will be inventoried to characterize the area to be traversed. Major land use categories will include: residential (single-family and multi-family); commercial; industrial; public facilities and institutions (schools, parks, correctional facilities, etc.); open land (forested areas, wetlands); agricultural lands (including designated New York State Agricultural Districts); recreation (trout fishing, snowmobiling, etc.); New York City aqueduct system priority areas; transportation (railroad and highway facilities), and conservation easements. Data sources will include existing maps (USGS and Hagstrom), aerial photographs (as available from the New York State GIS clearinghouse), and local planning documents. Following the performance of the desktop study, land uses will be verified through a windshield survey of the Project corridor.

Sensitive land uses will be identified within the study corridor to assess potential impacts such as construction noise. Sensitive land uses include: public and private schools; hospitals; churches and synagogues; public beaches; public parkland; public recreational areas, including

local walking, hiking and biking trails; and other facilities where increased noise and construction activities could pose a disruption. At this time, construction noise is not expected to be a major issue along the transmission corridor inasmuch as construction activities will typically be undertaken during daylight hours.

Local land use plans, including local comprehensive/future land use master plans for the municipalities traversed by the Project will be obtained and reviewed. Compatibility of the Project with identified land use master plans and applicable zoning regulations will be evaluated.

NEETNY will use publicly available mapping to identify the specific designated Agricultural Districts traversed by the Project. As appropriate, consultations will be held with the New York State Department of Agriculture and Markets and other appropriate agencies.

For the Hudson River crossing, NEETNY will review the Project for compliance with the NYSCMP regulations and, more specifically, the adopted Village of Athens LWRP.

The results of the land use assessment will be summarized in Exhibit 4: Environmental Impact in the Part B Application and generalized land use and zoning maps will be prepared at an appropriate scale. The Exhibit will also identify measures to avoid and minimize potential impacts to existing land uses and planned mitigation measures, as appropriate.

3.2 Visual Resources

In accordance with the requirements of 16 NYCRR Section 86.5, the visual setting and the proposed studies to be performed are described in this section. The studies will be designed to assess the visual impacts of the Project and determine what, if any, measures can be taken to minimize or mitigate potential visual impacts.

3.2.1 Existing Setting

The landscape surrounding the Project area is predominantly characterized as agricultural, rural residential and forest land. The rural and forested nature of the area has scenic value and there is the potential for recreation (e.g., hiking or hunting), bed and breakfasts, and farms in the area. NEETNY plans to construct the Project within existing electric transmission corridors and ROWs, or adjacent to the ROWs, to the greatest extent practical. This approach will minimize visual impacts and disturbance to the surrounding built and natural environments.

A preliminary inventory of aesthetic resources of statewide significance, including historical structures and other cultural resources was conducted within a three-mile radius surrounding the Project and identified resources that would warrant specific consideration in

terms of potential visual impacts. The specific categories of aesthetic resources inventoried were determined based on the New York State Department of Environmental Conservation (NYSDEC) Program Policy *Assessing and Mitigating Visual Impacts* (NYSDEC Visual Policy) goals (NYSDEC 2000). Identified resources within the three-mile buffer of the Project area are listed in Table PSS-3.

Scenic Area of Statewide Significance

In recognition of the scenic value of the State's coast, the NYSCMP provides for the protection of scenic areas through the designation of Scenic Areas of Statewide Significance (SASS). The NYSCMP further protects the coast's scenic quality by requiring that proposed actions located outside a designated SASS must protect, restore, or enhance the overall scenic quality of the coastal area.

As shown on Table PSS-3 the Project is located within three miles of two SASS Regions: the Catskill/Olana Region and the Columbia/Greene North Region. According to the NYSDOS, these regions are of statewide aesthetic significance because they exhibit an unusual variety and unity of major landscape components (NYSDOS Hudson River Scenic Areas of Statewide Significance, Accessed September 2013).

Catskill/Olana Region

The Catskill/Olana Region includes landforms such as floodplains and steep ravines that rise 250 feet above the Catskill and Kaaterskill Creeks; Rogers Island and Ramshorn Marsh; forested bluffs along the Hudson River and the Roeliff Jansen Kill; plateaus and rolling farmland south of Catskill Village and the promontory of Church's Hill. In addition to its many undisturbed natural features, the Catskill/Olana Region also has historic associations and diverse cultural character, rendering this area unique in the Hudson River coastal area, New York State and the nation.

Columbia/Greene North Region

The Columbia/Greene landscape is composed of alluvial plains and steep bluffs along the Hudson River, especially around several small drumlin-like hills along the east shore. Behind the bluffs lie expansive level plains cut by ravines through which several creeks flow before emptying into the Hudson River. The shoreline of the Hudson in this area is extremely varied, incorporating a number of large and small islands, coves, mud flats and creek mouths.

Scenic Byways

Based on a preliminary review of the New York State Department of Transportation (NYSDOT) Scenic Byways inventory there are three listed scenic byways within a three-mile radius of the Marcy to Pleasant Valley transmission corridor as shown on Table PSS-3: 1) the Revolutionary Trail; 2) the Southern Adirondack Trail; and 3) the Adirondack Trail.

Designated Scenic Trails

The Hudson River Valley Greenway Act of 1991 was developed as a State-sponsored program to support local and regional planning efforts striving to address natural and cultural resource protection, economic development, including tourism, agriculture and the redevelopment of urban areas and commercial waterfronts, public access, regional planning, and heritage and environmental education. The Greenway Program works with communities on a voluntary basis to assist in the development of local land use plans related to Greenway criteria.

There are several municipalities that the Project corridor traverses that are identified as Greenway Communities, including: the Village of Voorheesville, and the Towns of Guilderland, New Scotland, Coeymans, Coxsackie, Athens, Hudson, Greenport, Livingston, Milan, Clinton, Hyde Park and Pleasant Valley.

In addition, just south of the Mohawk River crossing, the Project corridor also crosses the Erie Canal Trail, a scenic trail created by the NYS Canal Corporation and the Erie Canalway National Heritage Corridor.

Federal Recreation Areas

As shown on Table PSS-3, a preliminary desktop review of publicly available data identifies one federally designated recreation area within a three-mile radius of the Marcy to Pleasant Valley Project corridor: the Eleanor Roosevelt National Historic Site in the Town of Hyde Park.

State Parks and Conservation Areas

As shown on Table PSS-3, there are 22 NYSDEC-designated Unique Areas, State Forests, Wildlife Management Areas and State Parks within three-miles of the Marcy to Pleasant Valley Project corridor.

County and Local Parks and Recreation Areas

A preliminary desktop review of publicly available map sources identified a number of local and county parks and recreation areas located within a three-mile radius of the Project as shown in Table PSS-3. There are 33 County and local parks and recreation areas within three miles of the Marcy to Pleasant Valley Project corridor.

Historic Resources

A preliminary desktop review of the National Register of Historic Places (NRHP) and State Register of Historic Places (SRHP) data was conducted to identify historical, architectural, archeological or cultural landmarks within the Project corridor. As shown on Table PSS-4, the review identified 171 properties, complexes and historic districts listed in the NRHP and eligible or listed on the SRHP within a three-mile radius of the Marcy to Pleasant Valley Project corridor.

3.2.2 Proposed Program Studies

In order to comply with Commission requirements, NEETNY will conduct a visual resource assessment of the potential visibility of the proposed transmission line to determine the effect or difference in the visual character of the landscape before and after the Project is completed. NEETNY proposes to assess potential visual impacts in accordance with the NYSDEC Visual Policy goals (NYSDEC 2000). This evaluation includes both quantitative (how much is seen) and qualitative (what it will look like) aspects of potential visual impact. The procedure employed relies on criteria derived from relevant laws, regulations, and applicable government policies.

NEETNY will complete a viewshed analysis and prepare photo simulations from select sensitive receptors, such as historic sites, within the zone of visual impact (ZVI), and summarize the results of the visual assessment and identify the potential visually impacted receptors and efforts made to assure that the Project avoids scenic, recreational, and historic areas and minimize its visibility from areas of public view to the maximum extent practicable. NEETNY will also describe what plans have been made to locate and design towers and other ancillary structures to minimize environmental impacts, including visual impacts of the Project. NEETNY's analysis will identify those sensitive receptors within the Project vicinity where there is potential for the transmission structures to be seen or to be viewed.

NEETNY will summarize the results of the visual assessment and identify the potential visual impacts and efforts made to assure that the Project avoids scenic, recreational and historic areas and minimize its visibility from areas of public view to the maximum extent practicable in Exhibit 4: Environmental Impacts of the Part B Application.

3.3 Cultural Resources

The National Historic Preservation Act (NHPA) (Public Law 89-665, as amended by Public Law 96-515; 16 USC 470 et seq.) Section 106 requires that federal agencies with jurisdiction over a proposed federal project take into account the effect of the undertaking on cultural resources listed, or eligible for listing on the NRHP, and afford the State Historic Preservation Offices (SHPOs) and the Advisory Council on Historic Preservation an opportunity to comment with regard to the undertaking.

The New York Historic Preservation Act (NYHPA) of 1980 (Chapter 354 of Parks, Recreation and Historic Preservation Law) established a review process for state agency activities affecting historic or cultural properties, requiring state agencies to consult with the Commissioner of the Office of Parks, Recreation, and Historic Preservation (OPRHP).

The NYHPA requires project sponsors to consult with SHPO if it appears that a project which is being planned may or will cause any change, beneficial or adverse, in the quality of any historic, architectural, archeological, or cultural property that is listed on the NRHP or property listed on the SRHP, or that is determined by the Commissioner to be eligible for listing on NRHP or SRHP. It requires that project sponsors to the fullest extent practicable, consistent with other provisions of the law, to avoid or mitigate adverse impacts to such properties, to fully explore all feasible and prudent alternatives and to give due consideration to feasible and prudent plans that will avoid or mitigate adverse impacts. Identification of cultural resources typically consists of two phases: Phase IA Literature Review and Sensitivity Assessment and Phase IB Archeological Identification Survey.

3.3.1 Existing Setting

As shown on Table PSS-4, a preliminary review of properties listed on the NRHP and properties eligible and listed on the SRHP identified 171 NRHP and SRHP identified within a three-mile radius of the Marcy to Pleasant Valley transmission corridor.

The Project crosses through the NRHP and SRHP–listed Onesquethaw Valley Historic District in the Town of New Scotland just south of the New Scotland Substation. The

Onesquethaw Valley Historic District was listed on the NRHP on January 17, 1974 and consists of 25 contributing buildings; most notable are eight 18th-Century stone houses, and three contributing archaeological sites. The archaeological sites consist of a grist mill site, sawmill site, and a prehistoric Indian site. The Historic District also encompasses farmsteads and properties within the Valley of Onesquethaw Creek, a tributary of Coeymans Creek (Cornelia and Huey 1973).

While the Project corridor does not cross any other NRHP or SRHP-listed properties, it is within 0.1 miles of the following properties: Gifford Grange Hall in the Town of Guilderland; McNiven Farm Complex in the Town of Guilderland; the VanBergen House in the Town of New Baltimore; the Bronk Farm 13-sided Barn in the Town of Coxsackie; and the Pieter Bronk House in the Town of Coxsackie. Another notable landmark is the Hudson/Athens Lighthouse, which is located in the Hudson River approximately 0.5 mile northeast of the Project's crossing of the Hudson River.

3.3.2 Proposed Program Studies

Cultural resource investigations will begin by completing a Phase IA literature review, coordinating with the SHPO, coordinating with Native American groups, and developing a Phase IB work plan. All proposed studies will adhere to the New York Archaeological Council's *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections* (1994), which are endorsed by OPRHP. The proposed studies will cover an area of direct potential effect (APE) that encompasses the existing and new ROWs as well as any laydown areas, access roads, crossings, and other locations where construction activities associated with the Project may result in ground disturbance that has the potential to affect archeological resources. In addition, the APE will include an area of indirect potential effect, which is the area of visual effect on above-ground architectural properties listed or eligible for listing on the NRHP and SRHP. This APE will center on the proposed transmission line and will be determined in consultation with OPRHP and based on the engineering design of the Project.

Phase IA Literature Review and Sensitivity Assessment

The Phase IA report will contain the following information:

- Project information including the project size, location, and plans. The Project area will be identified on the most recent USGS quadrangle(s) and, if available, maps of Project plans will be included.
- Environmental information including a description of mapped soils, bedrock geology, physiography and hydrology in the vicinity of the Project area.
- A description of previously reported archeological and historical resources. This information will be obtained during research at the OPRHP and will include:
  - National Register listed and eligible structures and districts within one mile of the Project area;
  - Archaeological sites within 500 feet of the Project area;
  - Underwater archaeological sites within 500 feet of the Hudson River crossing;
  - Previous archeological surveys which intersect with the Project area; and,
  - Structure inventory forms for properties for which no NRHP eligibility determination has been made or which have been determined to be not eligible.
- Historical maps and an interpretation of potential historic resources within the Project area.
- A general discussion of existing conditions within the Project area including present land use and evidence of prior disturbance.
- An assessment of the archaeological sensitivity and potential of the Project area.

Phase IB Work Plan and Survey

The Phase IB work plan will outline the steps to be undertaken to implement archaeological and architectural field investigations within the APE. The work plan will address:

- Subsurface archaeological testing within the Direct APE, including shovel testing at systematic intervals and any deep testing requirements,
- Survey parameters for aboveground architectural/built resources within the Indirect APE,

- Analysis of computer modeling of ZVI and identification of vantage points within the Indirect APE for visual simulations. This activity will be completed in coordination with the visual assessment described in Section 3.2.

The Phase IB archaeological and architectural field investigations will be implemented per the methodology developed in consultation with the SHPO and outlined in the Phase IB work plan. Archaeological testing of expanded ROW areas will be carried out by means of hand-excavated shovel tests at a reasonable interval as agreed upon with the SHPO and deep testing (e.g. backhoe trenching) in areas of deep alluvium. In the existing ROW, the archaeological subsurface testing will take place at the location of new proposed towers.

SHPO Consultation

NEETNY will hold two consultation meetings with OPRHP after the Phase 1A portion of the study is completed. The first will be to obtain concurrence on the Phase 1B work plan and the second will be to discuss the need for further studies or other mitigation measures, if any, based on Phase 1B findings.

Native American Consultation

NEETNY will also consult with Native American groups by taking the following steps:

- Draft and distribute correspondence to the Tribal Historic Preservation Officers (THPO) of potentially interested Native American groups. The initial correspondence will notify the THPOs of proposed projects and provide basic project information.
- Coordinate responses to any comments or requests for information received from THPOs.

3.4 Terrestrial Ecology and Wetlands

In accordance with the requirements of 16 NYCRR Section 86.5, a terrestrial ecology and wetlands assessment will be conducted to characterize existing ecological conditions and evaluate the potential effects of construction and operation of the Project on biological and natural resources and identify measures that can be taken to avoid, minimize, and/or mitigate potential impacts associated with the Project. Specific resource areas to be evaluated as part of this assessment are: vegetation, wetlands, wildlife, and threatened and endangered species. This

work plan has also been designed to assure that all Project activities are conducted in accordance with applicable regulatory requirements.

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. New York State wetland regulations are administered by the NYSDEC. NYSDEC also categorizes wetlands as Class I, II, III, or IV depending on the characteristics and benefits of each wetland. Additionally, New York also regulates a wetland's adjacent area or those areas of land or water that are outside a wetland and within 100 feet of the wetland boundary. All wetlands, including those regulated by NYSDEC, are also federally regulated under the Clean Water Act, Sections 401 and 404. Section 404 is administered by the U.S. Army Corps of Engineers (USACE) and Section 401 is administered by NYSDEC for projects under its jurisdiction.

The NYSDEC also administers the state endangered species regulations (6 NYCRR Part 182). Under the New York regulations, any "take" or adverse impact to individual organisms or habitat for listed species requires an incidental take permit from NYSDEC. The Endangered Species Act (ESA) protects federally listed species. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS). Coordination with the USFWS or NOAA, NMFS is required for any action that has the potential to affect federally listed species.

3.4.1 Existing Setting

Vegetation

Recent aerial photographs and USGS NCLD were reviewed to complete a preliminary assessment of the terrestrial habitat within the Project corridor. The Project corridor generally traverses residential, agricultural properties and undeveloped forest within Oneida, Herkimer, Fulton, Montgomery, Schenectady, Albany, Greene, Columbia, and Dutchess Counties.

The Marcy to Pleasant Valley Project corridor is located adjacent to and parallel to an existing transmission ROW that has been cleared and is maintained. Within the existing transmission ROW, vegetative communities are comprised of scrub-shrub and emergent communities. Along the edges and adjacent to the existing transmission ROW, the Project corridor is generally located within undeveloped forested areas, except where it traverses agricultural fields.

The Marcy to Pleasant Valley Project corridor traverses three significant natural communities, as listed by the NYSDEC Natural Heritage Program (NHP). These include: Maple-Basswood Rich Mesic Forest; Red Maple-Hardwood Swamp; and Tidal River (Hudson River).

Maple-Basswood Rich Mesic Forest

The Maple-Basswood Rich Mesic Forest community is a terrestrial system of forested uplands. It is identified by a consistent presence and abundance of basswood in association with sugar maple and the high diversity of rich-soil herbaceous species. The herbaceous flora of this community includes maidenhair fern (*Adiantum pedatum*), bulblet fern (*Cystopteris bulbifera*), Goldie's fern (*Dryopteris goldiana*), silvery spleenwort (*Deparia acrostichoides*), glade fern (*Diplazium pycnocarpon*), and plantain-sedge (*Carex plantaginea*). The NYSDEC NHP lists the following characteristic species within this community type:

Trees > 5m

Sugar Maple (*Acer saccharum*)
Yellow Birch (*Betula alleghaniensis*)
American Hornbeam (*Carpinus caroliniana*)
White Ash (*Fraxinus americana*)
Hophornbeam (*Ostrya virginiana*)
Red Oak (*Quercus rubra*)
American Basswood (*Tilia americana*)

Shrubs 2-5m

Mountain Maple (*Acer spicatum*)
Alternate-leaf Dogwood (*Cornus alternifolia*)
American Witch-hazel (*Hamamelis virginiana*)

Herbs

Northern Maidenhair-fern (*Adiantum pedatum*)
Small White Leek (*Allium tricoccum*)
Southern Lady Fern (*Athyrium filix-femina*)
Plantain-leaved Sedge (*Carex plantaginea*)
Blue Cohosh (*Caulophyllum thalictroides*)
Virginia Springbeauty (*Claytonia virginica*)
Bulblet Fern (*Cystopteris bulbifera*)
Dutchman's Breeches (*Dicentra cucullaria*)
Marginal Wood Fern (*Dryopteris marginalis*)
Yellow Trout-lily (*Erythronium americanum*)
Large False Solomon’s-seal (*Maianthemum racemosum*)
Christmas Fern (*Polystichum acrostichoides*)
Early Meadow-rue (*Thalictrum dioicum*)
Nodding Trillium (*Trillium cernuum*)

Red Maple-Hardwood Swamp

The Red Maple-Hardwood Swamp community is a palustrine community of forested mineral soil wetlands. This community occurs in poorly drained depressional areas, usually on inorganic soils with a thin layer of peat, if any. Based on the description from the NYSDEC NHP, the vegetation within this community varies in that red maple is either the only canopy dominant, or it is co-dominant with one or more hardwoods. Blackgum (*Nyssa sylvatica*) and sweetgum (*Liquidambar styraciflua*) may be present, but typically in smaller quantities. The shrub stratum within this community is typically well-developed and may be quite dense, and the herbaceous stratum may be diverse and is often dominated by ferns. The NYSDEC NHP lists the following characteristic species within this community type:

Trees > 5m

Red Maple (*Acer rubrum*)
Yellow Birch (*Betula alleghaniensis*)
Green Ash (*Fraxinus pennsylvanica*)
American Elm (*Ulmus americana*)
Slippery Elm (*Ulmus rubra*)

Shrubs 2-5m

Speckled Alder (*Alnus incana ssp. rugosa*)
Common Winterberry (*Ilex verticillata*)
Highbush Blueberry (*Vaccinium corymbosum*)
Southern Arrowwood (*Viburnum dentatum*)
Possumhaw (*Viburnum nudum*)

Shrubs < 2m

Spicebush (*Lindera benzoin*)
Highbush Blueberry (*Vaccinium corymbosum*)

Herbs

False Nettle (*Boehmeria cylindrica*)
Tussock Sedge (*Carex stricta*)
Spotted Jewelweed (*Impatiens capensis*)
Sensitive Fern (*Onoclea sensibilis*)
Cinnamon Fern (*Osmunda cinnamomea*)
Royal Fern (*Osmunda regalis*)
Skunk Cabbage (*Symplocarpus foetidus*)
Tall Meadow-rue (*Thalictrum pubescens*)

Tidal River (Hudson River)

The Tidal River (Hudson River) community is a subtidal estuarine system. The community is an aquatic community of continuously flooded substrates that support no emergent vegetation. Within the river there are two zones; the deepwater zone includes areas in which substrates are usually over two m (six feet) deep at low tide, the shallow zone includes

submerged areas less than two m (six feet) deep at low tide that lack rooted aquatic vegetation. The NYSDEC NHP lists the following characteristic species within this community type:

Emergent aquatics	**Submerged aquatics**
Kidneyleaf Mud-plantain (*Heteranthera reniformis*)	Common Hornwort (*Ceratophyllum demersum*)
Clasping-leaf Pondweed (*Potamogeton perfoliatus*)	Nuttall's Waterweed (*Elodea nuttallii*)
Eel-grass (*Vallisneria americana*)	Southern Water-nymph (*Najas guadalupensis*)
	Clasping-leaf Pondweed (*Potamogeton perfoliatus*)
	Sago Pondweed (*Stuckenia pectinata*)

Wetlands

Based on a preliminary review of NYSDEC wetland mapping, there are 23 mapped NYSDEC-regulated wetlands located within the Marcy to Pleasant Valley Project corridor. These include: NYSDEC R-3 (Class 1), R-6 (Class 2), R-7 (Class 2), TH-21 (Class 2), RJ-4 (Class 2), RJ-8 (Class 2), V-19 (Class 1), and V-32 (Class 3), C-26 (Class 3), D-34 (Class 1), R-301 (Class 1), HN-105 (Class 1), HN-108 (Class 1), HN-115 (Class 2), HS-2 (Class 1), HS-6 (Class 2), HS-18 (Class 2), CL-26 (Class 2), RC-11 (Class 2), SP-15 (Class 2), SP-21 (Class 1), SP-35 (Class2), and PV-2 (Class 2). The corridor also crosses the adjacent area of NYSDEC Wetland RC-70 (Class 3).

Publicly available GIS mapping of USFWS National Wetland Inventory (NWI) maps were preliminarily reviewed to identify existing wetlands regulated by the USACE within the Project transmission corridor. There are 65 NWI wetlands mapped within the Marcy to Pleasant Valley Project corridor, consisting of the following types:

- 16 Palustrine emergent (PEM) wetlands;
- 8 Palustrine scrub-shrub (PSS) wetlands;
- 28 Palustrine forested (PFO) wetlands;
- 3 PEM/PSS wetlands;
- 7 PEM/PFO wetlands;
- 2 PSS/PFO wetlands; and,
- 1 PEM/PSS/PFO wetland.

Of the NWI mapped wetlands identified, 25 are located within the boundaries of NYSDEC-regulated wetlands since NYSDEC only regulates wetlands 12.4 acres or larger.

According to the NWI maps reviewed, there are also 14 freshwater ponds (PUBH) and 2 riverine (R) wetlands within the Marcy to Pleasant Valley Project corridor.

Wildlife

The Marcy to Pleasant Valley Project corridor is located within and adjacent to an existing transmission corridor that has been cleared and is maintained. Wildlife habitat along the proposed transmission corridor is already fragmented by the existing transmission ROW and agricultural use. The Marcy to Pleasant Valley Project corridor does not cross any federal wildlife refuges but it does traverse the NYSDEC Black Creek Marsh Wildlife Management Area (WMA)/Bird Conservation Area (BCA).

The Black Creek Marsh WMA/BCA consists primarily of wetland communities, including as emergent marsh and silver maple-ash swamp habitats. According to the NYSDEC website, the wildlife that inhabits the WMA include white-tailed deer, wild turkey, ruffed grouse, gray squirrel, fox, raccoon, fisher, otter, and an occasional bobcat. Waterfowl regularly breeding on Black Creek Marsh include Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), and wood duck (*Aix sponsa*). Several hundred waterfowl are seen during migration, including pied-billed grebe (*Podilymbus podiceps*- threatened). Within the marsh areas, American bittern (*Botaurus lentiginosus*- special concern), least bittern (*Ixobrychus exilis* - threatened), Virginia rail (*Rallus limicola*), and sora (*Porzana carolina*) have been observed. Within the surrounding grasslands and agricultural fields, grassland birds including savannah sparrow (*Passerculus sandwichensis*), bobolink (*Dolichonyx oryzivorus*), eastern meadowlark (*Sturnella magna*), and American kestrel (*Falco sparverius*) are present. Short-eared owls (*Asio flammeus* - endangered) have been observed during the winter. Black Creek Marsh offers foraging habitat for northern harrier (*Circus cyaneus* - threatened) during migration. Rusty blackbird (*Euphagus carolinus*) and common nighthawk (*Chordeiles minor* - special concern) are also regularly seen during spring and fall migration. Early successional species found on the WMA include American woodcock (*Scolopax minor*), blue-winged warbler (*Vermivora cyanoptera*), prairie warbler (*Setophaga discolor*), yellow warbler (*Setophaga petechia*l), common yellowthroat (*Geothlypis trichas*), chestnut-sided warbler (*Setophaga pensylvanica*), eastern towhee (*Pipilo erythrophthalmus*), alder flycatcher (*Empidonax alnorum*), willow

flycatcher (*Empidonax traillii*), black-billed cuckoo (*Coccyzus erythropthalmus*), and brown thrasher (*Toxostoma rufum*).

Endangered, Threatened, Special Concern, and Rare Species

Based on a preliminary review of the Project corridor and publicly available databases, NEETNY has identified the threatened and/or endangered species documented by NYSDEC and USFWS within the vicinity of the Project. Federally-listed species that may be found along the Project corridor were identified using USFWS's listing of Federally Listed Endangered and Threatened Species and Candidate Species (by County), last updated July 16, 2012. Species lists were obtained for Oneida, Herkimer, Fulton, Montgomery, Schenectady, Albany, Greene, Columbia, and Dutchess Counties. A preliminary review of NYSDEC NHP data was reviewed to identify State-listed species in the vicinity of the Project corridor. These species and associated distribution are provided in Table PSS-5.

As shown in the table, within the Project corridor, the NYSDEC NHP maps 8 state endangered plant species, 11 state threatened plant species, 3 state rare species, 1 dragonfly species which is currently not listed as protected in New York, but identified, and 2 animal assemblages. The USFWS list by County identifies 2 federally-endangered, 1 federally threatened, 1 candidate species, and 1 delisted species within the 9 counties traversed by the Project corridor. Of these federally-protected species identified by USFWS, three are also listed by NYSDEC as state endangered species and one is listed as state special concern species that were not mapped by the NYSDEC NHP within the Project corridor.

Invasive Species

The New York State Invasive Species Task Force (Task Force) defines invasive species as species that are nonnative to the ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health, with the added provision that the harm must significantly outweigh any benefits. Invasive species have the potential to adversely affect freshwater and tidal wetlands, waterbodies and waterways, forests, agricultural lands, grasslands, and other natural systems by out-competing native species, diminishing biological diversity, altering community structure and ecosystem processes. Further, invasive species have the potential to detrimentally affect parks and preserves; rare, threatened, or endangered species; water supplies; and recreational and agricultural sectors of New York's economy.

Invasive species are commonly found in areas that have been disturbed by human activities. NYSDEC has developed a list of invasive plant species that are ranked via a four-tier system. Invasive plant species of concern were identified in accordance with the NYSDEC Revised Interim List of Invasive Plant Species in New York State, revised May 14, 2012. Table PSS-6 provides the listing of invasive plant species in New York compared to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) online PLANTS database to identify which counties traversed by the Project corridor have documented the presence of these species.

3.4.2 Proposed Program Studies

General Vegetation and Habitat Survey

A vegetative cover type map will be prepared that depicts the locations of the identified plant communities present along the Project corridor. In addition, a general plant species list will be prepared for the vegetation noted. The species survey will note, in particular, whether any protected native plant species listed as endangered, threatened, rare or exploitable vulnerable (6 NYCRR Part 193.3) exist within the Project corridor.

The first step in the assessment will be to complete a more detailed desktop analysis designed to identify the areas that may provide suitable habitat conditions for threatened and endangered plant species located in the Project area. The desktop analysis will be followed by a field survey. If habitat suitable for a threatened and endangered species is identified, USFWS and/or NYSDEC will be consulted to determine if a baseline field study for the identified species needs to be performed.

The desktop analysis will identify and prioritize survey areas using aerial imagery, topographic data, land cover data, NWI data, soil maps, surficial and bedrock geologic maps, land cover data, and other relevant datasets. A GIS analysis will be used to compare and integrate information from different sources to ultimately identify suitable survey areas for listed species. The NYDEC NHP database will also be queried to identify specific locations of known threatened and endangered species and exemplary natural communities, which may provide suitable habitat for these species within the Project area.

Once these areas are identified, an additional desktop screening will be conducted to identify smaller-patches that may be of ecological interest, such as wetlands, drainages, floodplains, enriched forests, rocky ridges and outcrops, and steep slopes. This identification

will primarily be conducted by reviewing aerial photography of those areas identified during the initial desktop screening.

Field data collection will be conducted in the areas identified by the landscape analysis, mapping reviews and initial agency consultations as having the highest potential for the habitat types where those threatened and endangered plant species with potential occurrence in the Project area are likely to be found. During field surveys, data will be collected at locations representative of the surrounding natural community. The specific route of travel will be modified on the ground to investigate small-scale habitat conditions not apparent from the landscape analysis (i.e., seeps, small areas of enrichment, rocky outcrops), as these areas have a higher potential to contain threatened or endangered plant species.

The survey crew will record the occurrence of any federal or state rare, threatened or endangered plant species encountered during the survey process. Occurrence will typically be documented by collecting adequate diagnostic photographs for each species. The boundaries of the population will be located using a handheld Global Positioning System (GPS) receiver. No flagging will be used to demarcate the occurrence of any state or federally listed species.

Data will also be collected at specific locations called observation points (OPs) during field surveys. As site conditions allow, the following information will typically be collected at most OPs:

- Natural community system type, following Sperduto (2011);
- Natural community type, following Sperduto and Nichols (2011);
- Identification of all native and non-native plant species;
- Percent coverage visual estimates for all plant species; and
- Other descriptive notes, including information on soils and other physical site characteristics, evidence of human disturbance, size of the community, and wildlife evidence.

Targeted follow-up surveys for specific species will be determined in coordination with the NYSDEC and USFWS.

Wetlands

NEETNY will conduct a wetland delineation of all wetlands identified along the length of the Project corridor. This survey will be conducted in a manner that meets Section 401/404 of

the Clean Water Act (CWA) permit requirements, as administered by the USACE New York and Buffalo Districts. NEETNY will identify and map wetlands based on the three-parameter wetlands criteria—vegetation, soils, and hydrology—established in the USACE Wetland Delineation Manual (USACE, Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeast Region (USACE January 2012). Wetland boundaries will be identified in accordance with the USACE methodology. A GPS unit, capable of sub-meter accuracy, will be used to capture the flagged wetland boundary locations. A wetland datasheet will be completed and its location mapped with the GPS for each wetland community type within the wetland as well as a corresponding upland location for each wetland surveyed. Additionally, all stream crossings and associated characteristics (e.g., width and observed high water mark) will be documented and recorded and the centerline will be mapped using the GPS unit. The mapped streams will be evaluated in accordance with the field sheets for rapid assessment of habitat condition in either high- or low-gradient streams, as stipulated in NYSDEC's Standard Operating Procedure: Biological Monitoring of Surface Waters in New York State (NYSDEC 2009).

NEETNY will survey a corridor width of approximately 100-feet, but may survey up to 150-feet in some areas, which is wider than the Project corridor. By surveying a corridor larger than the necessary construction area, NEETNY will be able to accommodate minor adjustments to the route and ensure that Project facilities could be located outside of wetland boundaries and sensitive ecological communities without the need to conduct additional fieldwork. Surveys will be conducted in the spring and summer of 2014.

NEETNY will provide a summary of the identified wetland resources and potential impacts of the Project within Exhibit 4: Environmental Impact of the Part B Application. This section will also identify both measures to avoid and/or minimize potential impacts to wetlands.

Invasive Species

The State of New York's invasive species management strategy is based on a combined adaptive management and ecosystem management approach. Generally, this approach is a continuous cycle of monitoring for invasive species, evaluating the findings, developing a plan to address invasive species identified, and then implementing the plan. After implementing a plan, monitoring occurs and the cycle begins again. It is an ongoing and iterative process.

A baseline survey for those invasive species identified by NYSDEC will be conducted prior to the start of construction activities. Areas along the ROW containing invasive species

will be flagged and/or surveyed using a GPS. This data will be used to create a map that will establish the baseline condition of invasive species. Invasive species data will be used in coordination with construction plans to develop an invasive species management plan that incorporates adaptive management control plan. The invasive species management control plan will be developed as part of the environmental monitoring and construction plan (EM&CP) process. If required, an invasive species plan will also be developed.

3.5 Topography and Soils

In accordance with the requirements of 16 NYCRR Section 86.5, a desktop analysis will be conducted to characterize existing topography and soil conditions of the Project area and evaluate the potential for these conditions to impact construction activities.

3.5.1 Existing Setting

Regional Geology

A preliminary review of publicly available data identified that the bedrock geology in the area of the Project corridor predominantly belongs to three geologic provinces: the Erie-Ontario Lowland, the Hudson-Mohawk Lowland, and the New England Upland-Taconic Mountains. Several small portions of the Project extend into the fringes of the Adirondack geologic province.

Erie-Ontario Lowlands

Most of the Erie-Ontario Lowlands are underlain by sandstone, shale, and limestone. These rocks crop out in east-west trending belts across the State. The area is a plateau-like region that lies south of Lake Erie and Lake Ontario and has a maximum elevation of approximately 1,500 feet above mean sea level. The land rises gently eastward and southward away from the lakes.

Hudson-Mohawk Lowlands

Most of the Hudson-Mohawk Lowlands are underlain by sandstone, shale, and limestone. These rocks underlie irregular northeast-trending areas disrupted by faults. These lowlands provide a break between the northern and southern Appalachian Mountains and are located in the

northern Hudson Valley in the greater Albany area. The region follows the Hudson and Mohawk Rivers.

New England Upland Province and Taconic Mountains

The northern New England Upland is mostly underlain by Cambrian and Ordovician sedimentary rocks that are intensely deformed by folds and faults into a series of fault-bounded thrust slices. These thrust slices are elongated to the northeast and form the Taconic Mountains. The grade of metamorphism increases from west to east. The New England Upland contains several diverse mountain and hilly terrains including the Taconic Mountains, the Hudson Highlands, and the Manhattan Prong. Topography is hilly and maximum relief is seen in the Hudson Highlands, with elevations from approximately sea level in the Hudson River Valley to over 1,500 feet above sea level in the adjacent mountains.

Adirondacks

The Adirondacks are a complex sequence of Proterozoic sedimentary, volcanic, and igneous plutonic rocks. To the south of the High Peaks region within this province are charnockitic gneiss and quartz-poor gneiss. These rocks underlie about a quarter of the Adirondacks and are infolded with metasedimentary rocks and granitic gneiss. Large areas of metasedimentary rocks line on the outermost rim.

The New York State Museum has bedrock geology mapping available for the entire state of New York. Table PSS-7 outlines the different bedrock formations that are traversed by the Project corridor and their bedrock attributes.

Topography

Topography along the Project corridor varies widely. Topography in the Erie-Ontario Lowlands ranges from generally flat valleys to moderately sloped regions consisting of glacial drumlin fields and moraines. The Project corridor through the Hudson-Mohawk Lowlands is predominantly gently sloping with areas of moderate slopes. Topography in the Hudson River Valley varies greatly. Elevations in this portion of the Project area range from approximately sea level in the Hudson River Valley to approximately 1,000 feet above mean sea level (msl) in the adjacent mountains.

The lowest elevations of the Marcy to Pleasant Valley Project corridor are found at the Mohawk River/Erie Canal crossing in the Town of Schuyler and at the Hudson River crossing. Elevations at the Mohawk River/Erie Canal crossing are at approximately 120 feet above msl and the Hudson River crossing is at approximately 9 feet above msl.

The highest elevations in the Project corridor are generally within the area of the Town of Princetown at approximately 1,420 feet above msl and near the Towns of Clinton and Milan at approximately 700 feet above msl.

Soils

Soil types also vary widely throughout the Project area. The majority of soils within the State of New York are classified in three main orders—Alfisols, Inceptisols, and Spodosols—although Entisols, Ultisols, and Histosols are also found in significant amounts (U.S. Soil Conservation Service, 1987). Soils in the northern part of the Erie-Ontario Lowland and the Hudson-Mohawk Lowland are Alfisols derived from glacial lake and marine sediments. These soils are generally silty to clayey in texture and therefore have moderate to low permeability. Soils in the remainder of the Erie-Ontario and Hudson-Mohawk Lowlands are Alfisols developed on glacial till derived from limestone, dolomite, and shale. These soils typically range from loamy to finely loamy in texture and are slowly to moderately permeable.

Soils of the New England Upland are shallow to deep Inceptisols developed on glacial till derived from carbonate rocks and metasedimentary rocks as well as sandstones and shales. Soils classified as wet are less common in this region as these soils are typically moderately to well drained. In the Adirondack province, soils are mostly Spodosols and that have been derived from mafic metamorphic rocks, metasediments, some granites and granitic gneisses, and glacial deposits derived from these rocks. Most are coarse loamy or sandy in texture and those developed in glacial till are stony or bouldery.

A preliminary review was performed to determine the general soil types that exist within the Project area. Table PSS-8 provides a description of each soil association found within the Project corridor.

3.5.2 Proposed Program Studies

NEETNY will further review county-level soil survey information from the USDA-NRCS Soil Survey Geographic (SSURGO) database to assess the soil types located within the Project corridor. Soil associations will be analyzed to determine the presence and extent of

prime farmlands, hydric soils, poorly drained soils, soils with shallow bedrock, soils with shallow groundwater, and soils with high risk of erosion. Mines, quarries, and other geologic resources of economic importance will also be identified using data from the U.S. Geological Survey and NYSDEC.

NEETNY will conduct geotechnical investigations and seismic analyses prior to the submittal of the EM&CP to explore bedrock and soil conditions to properly design foundations for the proposed transmission structures as required.

NEETNY will also conduct a desktop review of available NOAA navigational charts and previous benthic surveys conducted within the vicinity of the proposed Hudson River crossing to characterize existing conditions within the river. Sediment characterization surveys, including riverbed geotechnical studies, magnetometer surveys and benthic grab sampling may be considered to supplement the desktop review, as needed.

NEETNY will provide a summary of the desktop assessment and field surveys and identify potential impacts of the Project on geology, topography and soils that occur within the Project area for inclusion in Exhibit 4: Environmental Impact of the Part B Application.

3.6 Water Resources

In accordance with the requirements of 16 NYCRR Section 86.5, an assessment of water resources will be conducted to characterize existing ecological conditions and evaluate the potential of construction and operation of the Project on water resources. Measures that can be taken to avoid, minimize, and mitigate potential impacts associated with the Project will also be identified. Specific resource areas to be evaluated as part of this assessment are: surface waters, groundwater resources, floodplains and aquatic resources. This work plan has also been designed to assure that all Project activities are conducted in accordance with applicable regulatory requirements described below.

The USACE regulates waters of the United States under both Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the CWA. Under Section 10, a USACE permit is required to do any work in, over or under a Navigable Water of the United States. Waterbodies have been designated as Navigable Waters of the United States based on their past, present, or potential use for transportation for interstate commerce. Under Section 404, a USACE permit is required for the discharge of dredged or fill material into waters of the U.S.

The NYSDEC Surface Water Quality Standards (SWQS) classifies surface waters according to the following water quality criteria:

- Class AA Fresh Surface Waters – Best usages are water supply source for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. These waters shall be suitable for fish, shellfish, and wildlife propagation and survival. This classification may be given to those waters that, if properly treated, meet or will meet New York State Department of Health drinking water standards and are or will be considered safe and satisfactory for drinking water purposes.
- Class A Fresh Surface Waters – Best usages are a water supply source for drinking, culinary, or food processing purposes; primary and secondary contact recreation; and fishing. Waters shall be suitable for fish propagation and survival.
- Class B Fresh Surface Waters – Best usages are primary and secondary contact recreation and fishing. Waters shall be suitable for fish propagation and survival.
- Class C Fresh Surface Waters – Best usage is fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.
- Class D Fresh Surface Waters – Best usage is suitable for primary and secondary contact recreation, including fishing, but there are limiting factors. Due to such natural conditions as intermittency of flow and stream bed conditions, conditions are not conducive to propagation of game fishery and will not support fish propagation.
- Trout Waters – Some streams may be suitable and/or designated as trout waters. These streams are designated with (T) after the classification. If trout spawning is suitable in a stream, it will be designated with (TS).

The NYSDEC regulates disturbances to the beds and banks of these Class AA, A, B, C(T), C(TS)streams, and navigable waters. In addition, Class AA, A, B, and C waters are subject to NYSDEC's water quality standards that prohibit visible turbidity impacts.

In addition, the NYSDEC administers a permit program regulating activities in tidal wetlands and their adjacent areas under the Tidal Wetlands Act of 1973. Tidal wetlands are the areas where the land meets the sea. These areas are periodically flooded by seawater during high or spring tides or, are affected by the cyclic changes in water levels caused by the tidal cycle.

Salt marshes and mud flats are some typical types of tidal wetlands found along New York's marine shoreline, which includes the Hudson River.

3.6.1 Existing Setting

Surface Water Bodies

Based on NYSDEC SWQS GIS mapping, there are 68 streams mapped within the Marcy to Pleasant Valley Project corridor. Of these 68 streams, 25 are NYSDEC-protected streams with a SWQS Classification of C(T) or higher, including: 12 Class C(T) streams; 3 Class C(TS) streams; 5 Class B streams; three Class A streams; 1 Class AA stream; and 1 Class A(T) stream. These streams are within three HUC-8 subbasins: the Mohawk, Middle Hudson, and Hudson-Wappinger Subbasins. A full listing of the streams traversed by Project corridor, including the number of crossings per stream, is presented in Table PSS-9.

There is one stream mapped within the Marcy Substation property, a tributary of Crane Creek, which is classified as a Class C stream. As such, this stream is not regulated by the NYSDEC.

In addition, according to NWI mapping, there are 14 freshwater ponds and 2 riverine wetlands located within the Project transmission corridor.

A preliminary review of the most recent available 100-year floodplain mapping was conducted, and those maps are provided as Figure 7-2 in Exhibit 7 of this Part A Application.

Groundwater

Groundwater characteristics vary over the area of the Project due to the distance spanned. Depending upon the location within the Project corridor, depth to the seasonal high water table can range between zero feet to greater than six feet from the surface. Even within the same soil association, depth to the seasonal high water table can vary by several feet as indicated in Table PSS-10.

The Project corridor traverses through two major river basins: the Mohawk River Basin and the Lower Hudson River Basin. The boundary between these two river basins is located just south of the City of Schenectady, close to the border of Schenectady and Albany Counties. The surficial material throughout the Mohawk River Basin consists of till covering the uplands and ice-contact, deltaic, fluvial-, and alluvial sand and gravel and lacustrine silt and clay are present in the valleys. Till and lacustrine silt and clay deposits generally have low yields of water, whereas the well-sorted, coarse-grained deposits form productive aquifers in the basin (U.S.

Department of the Interior, U.S. Geological Survey. 2011). The surficial material throughout the Lower Hudson River Basin consists of till covering bedrock in the uplands and ice-contact and lacustrine sediments, outwash and alluvium in the valleys. Ice-contact and outwash sand and gravel form productive aquifers in the basin (U.S. Department of the Interior, U.S. Geological Survey. 2008).

Aquatic Resources

The Project corridor will cross the Hudson River, a significant waterbody with documented aquatic resources and habitat opportunities within New York State. According to the NYSDOS, Office of Communities and Waterfronts NYS Coastal Boundary Map, there are four Significant Coastal Fish and Wildlife Habitats mapped within the vicinity of the proposed transmission line crossing of the Hudson River: Vosburgh Swamp and Middle Ground Flats, Brandow Point Marsh and Flats, South Bay Creek and Marsh and Rogers Island.

Vosburgh Swamp and Middle Ground Flats

The Vosburgh Swamp and Middle Ground Flats habitat area extends for approximately four miles along the western shore of the Hudson River, from the Village of Athens in Greene County to just north of Fourmile Point. This 1300-acre fish and wildlife habitat area is comprised of extensive mudflats and shallows, open water areas, hardwood swamp, a freshwater impoundment (Vosburgh Swamp), freshwater tidal marsh, spoil bank islands, and submerged aquatic vegetation beds primarily consisting of water celery (*Vallisneria americana*). Aquatic species known to inhabit the area include American shad (*Alosa sapidissima*), Shortnose sturgeon (*Acipenser brevirostrum* - endangered), alewife (*Alosa pseudoharengus*), American eel (*Anguilla rostrata*), blueback herring (*Alosa aestivalis*) and striped bass (*Morone saxatilis*). Atlantic sturgeon (*Acipenser oxyrhynchus*) has also been documented in deeper water areas of the Hudson River.

Brandow Point Marsh and Flats

The Brandow Point Marsh and Flats habitat are is located on the west side of the Hudson River, south of the Village of Athens in Greene County. This 427-acre area includes freshwater tidal marsh, freshwater tidal shrub-swamp and submerged aquatic vegetation beds. Shallow and intertidal areas contain beds of submerged and emergent aquatic vegetation, dominated by wild celery. The submerged aquatic vegetation provides spawning and juvenile fish forage and refuge

habitat for a variety of resident and coastal migratory fish species, including American shad, striped bass, largemouth (*Micropterus salmoides*) and smallmouth bass (*Micropterus dolomieui*).

South Bay Creek and Marsh

The South Bay Creek and Marsh habitat area is a 121-acre basin of tidal wetlands and uplands located on the east side of the Hudson River, south of the city of Hudson in Columbia County. The South Bay Creek and Marsh habitat contains rare ecological communities including freshwater tidal creek, freshwater tidal marsh, intertidal swamp, supratidal swamp, and submerged aquatic vegetation beds.

Rogers Island

Rogers Island is located approximately two miles south of the City of Hudson, on the east side of the Hudson River, in the Town of Greenport in Columbia County. The fish and wildlife habitat is an approximate 680-acre area, encompassing tidal freshwater swamp on Rogers Island, and a secondary channel, Hallenbeck Creek, on the east side of the island which contains extensive mudflats, freshwater tidal marshes and vegetated shallow areas that provide spawning and juvenile fish forage and refuge habitat for a variety of resident and migratory fish species. Littoral zone areas are documented spawning, nursery, and feeding habitats for American shad, alewife, blueback herring, striped bass, white perch (*Morone americana*), shortnose sturgeon and a variety of resident freshwater species. Extensive tidal mudflats and vegetated shallows exist to the north, south, and west of the island. The submerged aquatic vegetation of this area is generally comprised of water celery.

According to the Essential Fish Habitat (EFH) Mapper provided by the NOAA NMFS, there are no EFH areas mapped within the vicinity of the proposed Hudson River crossing.

The Hudson River also contains tidal wetlands in the vicinity of the proposed crossing.

3.6.2 Proposed Program Studies

Surface Waters

Prior to undertaking field surveys along the Project corridor, NEETNY will perform a desktop review of publicly available resources to determine where waterways and floodplains might be anticipated along the Project corridor. These resources, as available, include USFWS NWI Maps, NYSDEC wetland maps (including tidal wetland maps), the U.S. Department of

Agriculture/Soil Conservation Service Soil Surveys, USGS topographic maps, the Hydric Soils of the United States List, and Federal Emergency Management Agency (FEMA) floodplain maps. Further, state and federal lists of Wild and Scenic Natural Rivers, New York's Clean Water Act, Section 303(d) list of "impaired water bodies," and the NRI will be further reviewed to verify whether any streams or rivers along the Project corridor are identified in these databases. NEETNY will also identify any trout streams found within the Project corridor, including sensitive trout streams where there is the potential for change to stream shading as a result of vegetation clearing.

This desktop assessment will not only assist field staff in identifying waterways along the corridor prior to performance of field work, but will be useful in planning access points (to support development of a construction access plan, which will be a key element of the Project's EM&CP, and to minimize impacts to regulated wetlands and waters) and anticipating where crossing large wetlands and/or stream systems may be encountered. This desktop review will greatly enhance the efficiency of the field work effort to be performed.

As part of the wetland delineation previously described in Section 3.4.2, all surface waters will be identified and located by GPS. In addition, field documentation will include a description of the water quality, flow, and other characteristics of surface water features, including intermittent streams and vernal pools.

NEETNY will provide a summary of the identification of surface waters along the Project corridor and potential impacts of the Project on surface waterways and floodplains that occur within the Project areas for inclusion in Exhibit 4: Environmental Impact of the Part B Application. The section will also outline the efforts that have been undertaken to site and design the Project to avoid and/or minimize potential impacts to these resources.

Groundwater Resources

NEETNY will conduct a more detailed desktop review to determine depths to water tables or the presence of groundwater in soils along the Project corridor. Resources that will be utilized include the Soil Surveys for the areas traversed by the Project.

NEETNY will provide a summary of the desktop assessment and potential impacts associated with construction of the Project on groundwater resources that occur within the Project areas for inclusion in Exhibit 4: Environmental Impact of the Part B Application. The section will also outline the efforts that have been undertaken to site and design the Project to avoid and/or minimize potential impacts to these resources.

Aquatic Resources

NEETNY will conduct a more detailed desktop review of aquatic resources along the Project corridor, specifically in the area of the Hudson River crossing. NEETNY will utilize publicly available mapping including NOAA, NMFS EFH mapping, NYSDEC tidal wetlands mapping and other databases to further identify protected species, tidal wetlands, submerged aquatic vegetation communities, and EFH known to be present in the area of the proposed crossing. Tidal wetlands and their adjacent area (AA) are mapped along the shorelines of the Hudson River at the proposed point of crossing. Further, the Hudson River is mapped as EFH for a number of fish that utilize this portion of the Hudson River for spawning and/or winter habitat. NEETNY will consult with NMFS to determine if the Project will be held to seasonal restrictions and to confirm and identify other critical concerns or issues to be addressed in the Project's Part B Application, as well as its EM&CP.

NEETNY will provide a summary of the identified resources and potential impacts of the Project on aquatic resources within Exhibit 4: Environmental Impact of the Part B Application. NEETNY will compile a list of species mapped as EFH for the Hudson River and will identify any protected species documented by NMFS.

3.7 Noise

In accordance with the requirements of 16 NYCRR §86.5, a noise assessment will be conducted to characterize existing conditions of the Project area and evaluate the potential for these conditions to impact construction activities and operation of the proposed facilities.

In 2001, the NYSDEC published a Program Policy titled *Assessing and Mitigating Noise Impacts*, which intended to describe a methodology for the evaluation of the potential community impacts from any new noise source. The NYSDEC method is based on the perceptibility of environmental noise at the nearest residences, or other potentially sensitive receptors (i.e., schools, churches, etc.). In areas that are not sensitive to noise or undeveloped areas, the application of the NYSDEC criteria would not be appropriate. The NYSDEC guidelines have been applied as a basis of assessment for several energy and transmission line development projects in the State of New York in localities with no noise ordinances or bylaws.

The State of New York does not have environmental noise regulations with numerical decibel limits directly applicable to Project construction. The operation of any new substations

proposed under the NEETNY alternative route options will be evaluated against the NYSDEC and local ordinances, as applicable.

3.7.1 Existing Setting

The Marcy to Pleasant Valley Project corridor will run from the Town of Marcy and extend southeast adjacent to and parallel to existing transmission ROW terminating in Pleasant Valley. The transmission line corridor will run through a variety of land uses. A majority of the corridor is either rural/agricultural areas with some residences in the vicinity, or rural residential areas. A small portion of the corridor is located in commercial/industrial areas.

Ambient noise levels along the route will vary with the land use setting. Areas far removed from major sources of sound (i.e., no industrial uses and no major roadways nearby) would have low ambient noise levels, while areas proximate to major roadways/interstates or industrial uses would have higher ambient sound levels.

General ambient noise levels in a setting can be estimated by land use. The American National Standards Institute (ANSI) Standard 12.9-1993/Part 3 provides estimates of existing ambient daytime and nighttime L_{eq} levels based on detailed descriptions of land use categories. The ANSI standard noise estimation divides land uses into six distinct categories. These categories, their descriptions and the estimated ambient sound levels are provided in Table PSS-11.

3.7.2 Proposed Program Studies

Potential noise during construction of the transmission facilities is expected to be limited. Construction activities along the transmission line are expected to be short-term, primarily during daytime hours, and conducted in accordance with local ordinances (unless considered unduly restrictive). Accordingly, potential noise impacts from the Project's transmission line will be addressed qualitatively, and no noise monitoring or modeling is anticipated or proposed for the Project. It is NEETNY's intention to comply with all local and state noise regulations. A summary of the existing conditions and a statement of compliance with local and state noise regulations will be provided in Exhibit 4: Environmental Impact of the Part B Application.

Supplemental Noise Studies

In the event NEETNY selects one of the alternative route options that would include the construction of a new substation, NEETNY will prepare a noise impact assessment that will

provide documentation that construction and operation of the new 345-kV substation will not cause a significant impact to nearby sensitive receptors and that anticipated facility noise levels will be in compliance with local and state noise level standards and guidelines, including the NYSDEC's program policy "Assessing and Mitigating Noise Impacts".

NEETNY will identify the Project's construction activities and operations that could affect noise levels in the vicinity of the Project. NEETNY will identify potential sensitive noise receptors within 200-feet and assess potential noise effects of construction activities on these receptors. NEETNY will describe the efforts made to locate and design appurtenant structures to avoid or minimize any potential for noise disturbance in the adjoining areas during construction and operation of the Project.

NEETNY will conduct a short-term ambient noise monitoring program at up to four sensitive receptor locations at the property boundary of any proposed new 345-kV substation. The monitoring program will be required in order to establish existing noise levels in the vicinity of the new substation site. Future project noise levels will be evaluated against existing levels in accordance with the NYSDEC Noise Policy. The program will include:

- Identification of the contributing noise sources;
- Measurement of the L_{eq}, L_{90} and L_{10} noise levels;
- One-third octave band measurements at each of the chosen locations;
- Short-term measurements will be conducted during the day and late at night (1 a.m. to 5 a.m.)

Computer modeling of the major facility sources will be performed for any proposed substation site and its planned operation in order to determine the projected contribution of the new substation. A receptor grid which includes the noise sensitive areas will be prepared for inclusion in the CadnaA noise model. Topographic features of the sites will also be included in the model. The model will be used to generate a noise contour map of the entire area. In addition, discrete receptor points (the actual noise monitoring locations) will be included in the model such that direct comparison of calculated facility noise levels can be made to existing ambient noise levels.

Detailed noise data for each major source (e.g., transformers) in any proposed substation will be obtained from NEETNY and/or associated equipment vendors. The noise model will be used as a design tool in order to determine the degree of noise mitigation may be required. Noise

control measures for a new substation typically include specifications for low-noise design transformers and/or noise barrier walls.

A technical noise study report will be prepared for any proposed substation by NEETNY that characterizes the existing noise environment, discusses the noise modeling methodology, including noise abatement measures considered, if any, and/or incorporated into each substation's engineering design and presents future calculated facility sound levels for the substations. The study results will be included within Exhibit 4: Environmental Impacts of the Part B Application.

3.8 Electric and Magnetic Fields

In accordance with the requirements of 16 NYCRR Section 86.5, an electric and magnetic field (EMF) assessment will be conducted to characterize existing conditions within the transmission corridor. NEETNY will subsequently evaluate EMF relative to the new 345-kV transmission line in relation to existing electric transmission line information. Commission Guidelines limit electric fields to 1.6 kilovolts per meter (kV/m) at the edge of the ROW, and 11.8 kV/m on the ROW, with further limitations of 11 kV/m and 7 kV/M for maximum levels for private road crossings and highway crossings, respectively (Commission Opinion No. 78-13, issued June 19, 1978). They also limit magnetic field strengths to 200 mG at the edge of the ROW (Commission's Interim Policy Statement on Magnetic Fields, issued September 11, 1990, [Interim Policy]).

3.8.1 Existing Setting

NEETNY proposes to construct the Marcy to Pleasant Valley Project within, adjacent to and parallel to existing transmission lines.

3.8.2 Proposed Program Studies

An evaluation of potential EMF impacts associated with the construction of the new 345-kV transmission line as well as its operation will be required. Components of the assessment include desktop identification location of the new electrical transmission line, other nearby electrical facilities, and any other existing facilities that could have an impact on the EMF strength in the area around the proposed transmission line.

Following the desktop identification, field measurements will be obtained and electric fields, magnetic fields, and corona effects as a function of position relative to project facilities will be calculated.

The results and calculations of EMF produced by the new electric transmission line across the ROWs will be presented in Exhibit 4: Environmental Impacts of the Part B Application. The Project will be designed to comply with the magnetic field standards established by the Commission as set forth in the Commission's Interim Policy Statement on Magnetic Fields, issued September 11, 1990, (Interim Policy).

3.9 Air Quality

The quality of the air within New York is administered by the NYSDEC Division of Air Resources through regulations codified in 6 NYCRR Parts 200 and 201, and others, which regulate air contaminant emissions from point sources. The proposed project will not have any air emissions from point sources and as such will not be regulated under Part 200 or 201. Construction activities will result in temporary, localized emissions of regulated air contaminants and greenhouse gasses that will last only for the duration of the construction period. There will be effectively no operational emissions, with the exception of transient maintenance activities which include line maintenance, and clearing brush and tree-trimming within the ROW.

3.9.1 Proposed Program Studies

The proposed project will not have any air emissions from point sources. Potential greenhouse gas emissions will be limited to construction activities which will result in temporary, localized emissions that last for the duration of the construction period. NextEra will follow BMPs to minimize emissions practical during construction. The BMP's will be described in the Part B application. The Part B Application will also discuss what efforts, if any, have been made to minimize the emissions of greenhouse gases during the construction, operation and maintenance of the proposed facility.

3.10 Environmental Benefits

In addition to the studies outlined in this section, NEETNY will identify in Exhibit 4: Environmental Impact of the Part B Application the environmental benefits of the Project. Specifically, environmental benefits identified will include regional air pollution and greenhouse gas emission reductions. The Project will support New York State's goal to connect additional

renewable power sources into the grid and to provide renewable energy to its residents. This and other benefits will be described in greater detail in NEETNY's Part B Application.

3.11 Engineering Considerations

NEETNY will identify the engineering design efforts being made to ensure the Project will be resilient to potential effects of climate change (including sea level changes, underground facilities design considerations, severe weather conditions, storm events and floodplain location design criteria). Specifically, NEETNY will identify within Exhibit 4: Environmental Impact of the Part B Application:

- What plans, if any, have been made to ensure any portion of the Project that would be constructed underground would be resilient to rising water tables, including potential salt water intrusion in coastal areas;
- What plans, if any, have been made to ensure any portion of the Project that would be constructed within the 0.2 (1 in 500-year storm) percent floodplain would be resilient to flooding, including enhanced storm surge in coastal areas;
- What plans, if any, have been formulated to ensure that the Project would be resilient to severe snow and/or ice storms; and
- What plans, if any, have been formulated to ensure that the proposed facility would be resilient to periods of extreme heat.

4.0 PROJECT ALTERNATIVES – EXHIBIT 3

4.1 Introduction

In October 2012, the New York State Energy Task Force issued the New York State Energy Highway Blueprint (the Energy Highway Blueprint), which included 13 recommended actions to modernize New York's statewide energy system. One of those recommended actions is to provide additional transmission capacity to relieve congestion along the Central East and Upper New York to Southeast New York (UPNY/SENY) interfaces. This Project is being designed to increase the transmission capacity from the existing Marcy Substation to the existing Pleasant Valley Substation to relieve the identified congestion.

Consistent with the recommendation of the Energy Highway Blueprint, the primary siting criteria that NEETNY used was to follow the existing ROW to the greatest extent practical in order to minimize disturbance to ecological resources and reduce visual impacts. During the preliminary siting and engineering design studies, it was determined that technical considerations could limit the use of structures or land within the existing transmission corridor along portions of the route, but that Project infrastructure could be accommodated if the corridor was expanded a distance adjacent to the existing ROW. Based on the performance of the field studies detailed in Section 3 of this PSS, further technical details on the existing structures, operations, and land within the existing ROW and access thereto, the continued refinement of the Project's engineering design, and modifications to the transmission corridor to minimize Project-related impacts to specific resources will be examined.

In accordance with the requirements of 16 NYCRR Section 86.4, NEETNY will provide a statement explaining any alternative routes, designs/layouts or technologies that are considered during the development of the Project as Exhibit 3: Alternatives of the Part B Application.

4.2 No Build/No Action Alternative

The no build/no action alternative assumes that the Project would not be constructed. The no build alternative is not considered a viable alternative to address existing congestion and reliability concerns associated with the State's high voltage electric transmission system, as well as strengthening the State's high voltage electric transmission system to meet current and future power needs as detailed in the Energy Highway Blueprint and recommendations to Governor Cuomo. Energy efficiency and demand side management alternatives will be addressed in the Part B Application.

4.3 Alternative Routes

As previously mentioned, NEETNY has identified alternative route options, as presented in Exhibit 2 of this Part A Application. NEETNY is continuing its review of the Project route using a team of experienced transmission line engineers and environmental professionals. The route selected will best meet the objectives of the New York Energy Highway Blueprint (the Energy Highway Blueprint) and the Commission directives—including maximizing the use of existing facilities and ROW to the extent practicable, minimizing the creation of new ROW, minimizing impacts to environmentally/ecologically sensitive resources and landowners, upgrading the transmission system to improve reliability—all while providing the most benefit at the least cost to ratepayers. As part of this process, with respect to alternatives that NEETNY proposes to advance to Part B, NEETNY is planning to:

- Identify the location and elevation of existing road, rail, and other existing corridors that have the potential to be used for the Project and space limitations in these areas;
- Identify the location of existing or planned telecommunication cables, power cables, pipeline, or other engineering/construction activities that may impact placement of a new power cable in existing ROWs;
- Identify construction limitations and planning requirements related to use of the Project corridor;
- Identify sensitive resources that would result in construction restrictions;
- Evaluate potential interference with existing adjoining transmission line(s);
- Identify any access road/transportation restrictions; and
- Identify known site contamination or other hazardous material storage areas so they are avoided in the Project's engineering design.

4.4 Alternative Project Design/Layout Options

In addition to the alternative routing assessment presented above, NEETNY will evaluate alternative transmission line design configurations to determine their feasibility. NEETNY may evaluate different design/layout options in preparation of the final transmission design for the

Project. The results of this evaluation will be used to assist NEETNY in the finalization of the Project design.

4.5 Alternative Technologies

A limited evaluation of alternative technologies including alternative pole designs will be conducted as appropriate as part of the design phase of the Project. Because it is a requirement of the Energy Highway Blueprint and the Commission's April 22, 2013 order in Case No. 12-T-0502 that transmission capacity be increased through AC technology, no DC alternatives will be evaluated. NEETNY will also review the advantages and disadvantages of different types of pole designs and their potential for use as appropriate in the Project's engineering design.

5.0 OTHER EXHIBITS

5.1 Economic Effects – Exhibit 6

NEETNY will evaluate the economic conditions located along and adjacent to the Marcy to Pleasant Valley Project. This evaluation will begin with a review of Census data for tracts intersecting the Project corridor to document the existing demographics in the area.

NEETNY has calculated the number of jobs created to support the construction and operation of the Project to be at least 200 full-time equivalent years of employment. NEETNY will consider the available construction force in the region to maximize the number of construction hires in the region. In addition, NEETNY is evaluating the use of regional manufacturers to further reduce costs, shipping and handling and provide direct local jobs.

In addition to the job market benefits of the Marcy to Pleasant Valley Project, the Project improves the New York tax base. The construction of the transmission line and associated facilities represents the purchase of real properties and the placement of new personal properties within the nine counties spanned by the new facilities. The new facilities are incremental additions to county property tax digests, thereby giving rise to additional annual property tax revenues.

NEETNY expects that there will be additional economic benefits associated with the purchase of construction materials and supplies and other economic activity associated with the project (e.g., use of local hotels and restaurants by construction workers). NEETNY will update and provide a more detailed economic analysis in Exhibit 6: Economic Effect of the Part B Application.

5.2 State and Local Laws and Regulations Review

5.2.1 Local Laws and Regulations – Exhibit 7

NEETNY will review local land use plans, local zoning requirements, comprehensive/future land use plans, and building codes for the municipalities and counties traversed by the Project. NEETNY will consult with officials from the municipalities and other local agencies to ensure that it has correctly identified all applicable requirements.

NEETNY will evaluate the compatibility of the Project with local laws and regulations. As part of the ordinance review, NEETNY will identify the specific provisions that are anticipated to be considered unduly restrictive and cannot be met by the Project and for which

waivers would be required. Potential land use impacts from construction and operation of the Project will be identified and evaluated for presentation in the Part B Application.

NEETNY will present a summary of the Project's consistency with local land use plans, including local zoning requirements, to the Commission in Exhibit 7: Local Ordinances of the Part B Application. NEETNY will identify any regulations that are considered unduly restrictive and/or cannot be met, discuss such regulations with the municipality, and seek exemption(s) from these requirements, as necessary.

5.2.2 Other Anticipated Permit Filings – Exhibit 8

NEETNY will identify other regulatory approvals, permits or other determinations that will be required and/or potentially be required based on changes to the Project's engineering design in addition to obtaining the Commission's Article VII approval. The permits and approvals to be obtained, based on the Project's approximately 148-mile 345-kV transmission line route, include a NYSDEC SPDES General Permit for Stormwater Discharge during Construction Activities GP-0-10-001); Use and Occupancy of Lands Underwater Easement from the New York Office of General Services (NYSOGS); Coastal Zone Consistency Determination from the NYSDOS; Canal Permit from the New York State Canal Corporation; a Utility Work Permit from the NYSDOT (for highway crossings); a Work Permit from the New York Thruway Authority (for crossing of New York State Thruway) and the USACE Section 10/404 approval associated with the Hudson River crossing. The need for NYSDEC wetland permits and/or Section 404 permits from the USACE will be determined based on the performance of the field studies identified and the ability to refine the Project's engineering design to avoid ecologically sensitive resources. NEETNY may also be required to obtain work permits and/or easements for the crossings of railroads.

NEETNY will identify the possible or likely need for any additional permits and approvals within Exhibit 8: Other Filings of the Part B Application.

5.3 Cost of Proposed Facility – Exhibit 9

To develop a cost estimate for the Marcy to Pleasant Valley Project, NEETNY will first conduct an engineering analysis to assess existing conditions, including technical details associated with the substations, switchyards, transmission lines and structures, geotechnical conditions, and transportation access. NEETNY will then set a preliminary design for the Project, which

will be used to calculate the Project cost estimate. NEETNY's cost estimate will reflect relevant costs for the Marcy to Pleasant Valley Project, including the following elements:

1. ROW;
2. Surveys;
3. Materials (including an escalation factor);
4. Labor (including an escalation factor);
5. Engineering and inspection;
6. Administrative overhead;
7. Fees for legal and other services;
8. Allowance for funds used during construction (AFUDC) during construction (based on the preliminary construction schedule); and
9. Contingencies.

The cost estimate will also include a statement providing the information source used as the basis for the elements listed above. The estimate will incorporate NEETNY's recent experience with costing other transmission lines. NEETNY has proposed that the Commission require parties to submit binding bids for capital costs on December 16, 2013. Under NEETNY's proposal, the capital cost binding bid for Applicants that complete the Article VII certification process would be updated at the end of the Part B process and prior to certification solely to reflect any changes in scope that occur as part of the certification process (such as changes in design, route, or schedule) and government-required changes that have an impact on Project costs, as is typical in connection with the submittal of binding bids.

5.4 Exhibit E-1 Description of the Proposed Transmission Line

NEETNY will provide a description of the construction materials and design standards for each type of tower and tower foundation to be used on the Project within Exhibit E-1: Description of Proposed Transmission Line of the Part B Application.

5.5 Exhibit E-2 Other Facilities

The Marcy to Pleasant Valley Project will run from a dead-end structure located at or adjacent to the existing Marcy Substation to a dead-end structure located at or adjacent to the

existing Pleasant Valley Substation. As part of the proposed case, Marcy to Pleasant Valley Project, NEETNY does not propose any new substations. However, as discussed, alternate cases would result in the need for other facilities.

If further development of the Project's engineering design, ROW and route details, or electrical interconnection study results indicates the needs for new substations, or one of the Project alternatives are found to be a preferred route in the final Project design, NEETNY will provide an explanation for the necessity and a description of the equipment of any substations or other associated facilities, to be installed within Exhibit E-2: Other Facilities of the Part B Application.

5.6 Exhibit E-3 Underground Construction

The majority of the Marcy to Pleasant Valley Project will be constructed as an overhead single-circuit transmission line, with the possible exception of the proposed Hudson River crossing. At this time, NEETNY is evaluating both underground/submarine and aerial crossings of the Hudson River. If NEETNY determines to propose an underground/submarine crossing, a description of the proposed crossing will be provided as Exhibit E-3: Underground Construction of the Part B Application. The description will include: the type of cable system to be used; the design standards; the number and size of conductors; and the installation methodology. In addition, NEETNY will provide profile drawings and construction details of the crossing that shows the proposed depth of the cable and separation from existing facilities including the current overhead lines and the Iroquois natural gas pipeline within the Exhibit.

5.7 Exhibit E-5 Effect on Communication

To determine whether or not there will be any impacts to communication facilities as a result of the Project, NEETNY will first identify all communication infrastructure and communication receptors in close proximity to the proposed transmission line. NEETNY will undertake an analysis of infrastructure in proximity to the line will be conducted to avoid, to the extent practical, impacts to existing telecommunications cables and wires and other infrastructure in the vicinity of the proposed line. NEETNY will then conduct a corona evaluation to evaluate potential impacts to TV and radio signal strength. As part of this evaluation, NEETNY will look at their operating frequencies and modulation schemes and signal levels of receptors near the proposed transmission line route then compare with calculated radio frequency (RF) noise from

the corona on the new line. Transmission lines do not interfere with cellular phones or wi-fi networks.

5.8 Exhibit E-6 Effect on Transportation

NEETNY will inventory all transportation infrastructure in the vicinity of the Project. All major roads within five miles of the Project corridor will be identified and evaluated to determine potential effects of the Project on the existing infrastructure. Further, all railroad crossings within the Project corridor will be identified.

The number of road crossings will be identified and a breakdown of the type of roads (state, county, local, and private) as well as a list of the railroads identified will be included in the Exhibit E-6: Effect on Transportation of the Part B Application. With the identification of the potentially affected roadways and railroads, NEETNY will evaluate the planned engineering design; construction sequencing and timing; and construction contractor requirements. As appropriate, NEETNY will prepare Maintenance and Protection of Traffic (MPT) Plans that will ensure construction will be done in accordance with applicable regulations and policies.

To the extent practical, NEETNY will avoid placement of towers within existing road or highway ROWs and will span all road crossings at a height that will not affect traffic on existing roads. NEETNY does not intend to excavate or alter existing roadways and does not plan to permanently or temporarily close or disrupt traffic on existing roads. Impacts to roadways will result in temporary changes to traffic patterns, construction vehicles and equipment, which are expected to be minor.

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Zoning Maps. Town pdf maps. Obtained 2013 by request.

TABLES

Table PSS-1. Land Cover within the Marcy to Pleasant Valley Project Corridor		
Land Cover Type	**Acres within Corridor**	**Percentage of Total Corridor**
Barren Land	0.64	0.0%
Cultivated Crop	295.67	16.4%
Deciduous Forest	387.11	21.5%
Developed, High Intensity	1.53	0.1%
Developed, Low Intensity	17.42	1.0%
Developed, Medium Intensity	2.72	0.2%
Developed, Open Space	57.79	3.2%
Emergent Herbaceous Wetlands	11.26	0.6%
Evergreen Forest	50.01	2.8%
Grassland/Herbaceous	19.47	1.1%
Mixed Forest	80.12	4.5%
Open Water	10.08	0.6%
Pasture/Hay	463.04	25.7%
Shrub/Scrub	210.91	11.7%
Woody Wetlands	192.22	10.7%
Total	1,799.96	100.0%
Source:	USGS NLCD 2006	

Table PSS-2. Zoning Districts Traversed by the Marcy to Pleasant Valley Project Corridor	
Municipality	**Zoning District(s) Crossed**
Town of Marcy	Agricultural, Residential
Town of Deerfield	Residential Agricultural, Planned Development, Residential, Agriculture
Town of Schuyler	Residential Agricultural, Residential, Planned Development, Commercial Industrial, Conservation
Town of Herkimer	Agricultural
Town of Little Falls	No Zoning Enacted
Towns of Manheim	Agricultural
Town of Oppenheim	No Zoning Enacted
Town of Epharatah	No Zoning Enacted
Town of Johnstown	Industrial
Town of Mohawk	Agricultural, Residential
Town of Glen	Rural/ Rural-Residential, Commercial-Industrial
Town of Florida	Agricultural
Town of Duanesburg	Residential/Agricultural
Town of Princetown	Residential, Commercial-Industrial
Town of Guilderland	Rural/Rural-Residential
Town of New Scotland	Residential Agricultural, Commercial-Industrial
Village of Voorheesville	Residential
Town of Coeymans	Residential Agricultural, Commercial-Industrial, Recreation
Town of New Baltimore	Residential Agricultural, Commercial-Industrial, Residential
Town of Coxsackie	Residential, Residential-Agricultural
Town of Athens	Agricultural, Commercial-Industrial, Conservation, Rural/Rural-Residential, Residential
Town of Greenport	No Zoning Enacted
Town of Livingston	Rural/Rural-Residential, Commercial-Industrial
Town of Clermont	Residential, Conservation, Residential Agricultural, Commercial-Industrial
Town of Milan	Commercial-Industrial, Rural/Rural-Residential, Conservation
Town of Clinton	Residential Agricultural, Conservation
Town of Hyde Park	Rural/Rural-Residential
Town of Pleasant Valley	Agricultural, Residential, Commercial-Industrial

Table PSS-3. Visual and Recreational Resources Located within a Three-mile Radius of the Marcy to Pleasant Valley Project Corridor	
Name	**Category**
Catskill/Olana Region	SASS
Columbia/Green North Region	SASS
Revolutionary Trail	NYSDOT Scenic Byway
Southern Adirondack Trail	NYSDOT Scenic Byway
Adirondack Trail	NYSDOT Scenic Byway
Erie Canal Trail	Scenic Trail
Eleanor Roosevelt National Historic Site	National Historic Recreation Area
Utica Marsh State Wildlife Management Area	NYSDEC Land
Lock 18 State Wildlife Management Area	NYSDEC Land
State Forest Preserve	NYS Forest
State Forest Preserve	NYS Forest
Featherstonhaugh State Forest	NYS Forest
State Reforestation Area	NYS Forest
State Reforestation Area	NYS Forest
State Reforestation Area	NYS Forest
State Reforestation Area	NYS Forest
State Reforestation Area	NYS Forest
Louise E Keir State Wildlife Management Area	NYS Wildlife Management Area
Rogers Island State Wildlife Management Area	NYS Wildlife Management Area
Nutton Hook State Unique Area	NYS Unique Area
Roeliff Jansen Kill State Multiple Use Area	NYS Multiple Use Area
Lafayetteville State Multiple Use Area	NYS Multiple Use Area
Five Rivers State Environmental Education Center	NYS Education Center
Lock 9 State Canal Park	NYS Park
Schodack Island State Park (undeveloped)	NYS Park
State Land Of Exceptional Scenic Beauty	NYS Recreation Area
Moccasin Kill County Sanctuary	County Park
Plotter Kill County Nature Preserve	County Park
Fallkill County Park (undeveloped)	County Park
Lawsons Lake County Park	County Park
Greene County Environmental Education Center	County Recreational Area
Toby Road Park	Local Park
Wilderness Park	Local Park
Hillhurst Park	Local Park
Rotterdam Kiwanis Park	Local Park
Maalwyck Park	Local Park
Collins Park	Local Park
Old Maids Woods City Preserve	Local Park
Memorial Park	Local Park
Schuyler Town Park	Local Park

Table PSS-3. Visual and Recreational Resources Located within a Three-mile Radius of the Marcy to Pleasant Valley Project Corridor	
Name	**Category**
Riverside Park	Local Park
New Scotland Town Park	Local Park
Elm Avenue Town Park	Local Park
Feura Bush Park	Local Park
South Bethlehem Town Park	Local Park
Joraleman Town Park	Local Park
Mosher Park	Local Park
Mc Quade Park	Local Park
Athens Nature Park	Local Park
Oakdale Park	Local Park
Dutchmans Landing Park	Local Park
Livingston Recreation Park	Local Park
Milan Recreation Park	Local Park
Clinton Hollow Road Park	Local Park
Helen Aldrich Park	Local Park
Greenfields Park	Local Park
Bower Park	Local Park
Beck Park	Local Park
Cady Recreation Park	Local Park
Source:	NYSDOT. New York State Scenic Byways. Website: https://www.dot.ny.gov/scenic-byways. OPHRP NYS National Register Sites (polygons). Data date: 2013. http://nysparks.com/shpo/. OPRHP. State parks (New York State Historic Sites and Park Boundaries). Data date: 2013. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=430

Table PSS-4. Historic Resources Located within a Three-mile Radius of the Marcy to Pleasant Valley Project Corridor		
Name	**Municipality**	**Category**
Amsterdam City Hall	Amsterdam	NRHP
Herkimer House	Danube	NRHP
Reformed Church, The	Herkimer	NRHP
Stockade Historic District	Schenectady	NRHP, SRHP
Stone Grist Mill Complex	St. Johnsville vicinity	NRHP, SRHP
Erie Canal	Fort Hunter	NRHP, SRHP
Green, Joseph, Farmhouse	Duanesburg	NRHP, SRHP
Lasher, George, House	Duanesburg	NRHP, SRHP
Menge House Complex	Dolgeville	NRHP. SRHP
Fort Klock	St. Johnsville	NRHP, SRHP
General Electric Research Laboratory	Schenectady	NRHP, SRHP
Butler, Walter, Homestead	Fonda	NRHP, SRHP
Mabee House	Rotterdam Junction	NRHP, SRHP
Barney, H. S., Building	Schenectady	NRHP, SRHP
Mariaville Historic District	Duanesburg	NRHP, SRHP
Central Fire Station	Schenectady	NRHP, SRHP
US Post Office--Scotia Station	Scotia	NRHP, SRHP
US Post Office--St. Johnsville	St. Johnsville	NRHP, SRHP
Hotel Van Curler	Schenectady	NRHP, SRHP
Bates--Englehardt Mansion	St. Johnsville	NRHP, SRHP
Nellis Tavern	St. Johnsville	NRHP, SRHP
Schenectady Armory	Schenectady	NRHP, SRHP
Herkimer County Trust Company Building	Little Falls	NRHP, SRHP
Herkimer County Courthouse	Herkimer	NRHP, SRHP
Herkimer County Historical Society	Herkimer	NRHP, SRHP
Herkimer County Jail	Herkimer	NRHP, SRHP
First Baptist Church of Deerfield	Utica	NRHP, SRHP
US Post Office--Little Falls	Little Falls	NRHP, SRHP
US Post Office--Herkimer	Herkimer	NRHP, SRHP
US Post Office--Frankfort	Frankfort	NRHP, SRHP
Weaver, Gen. John G., House	Utica	NRHP, SRHP
Frankfort Town Hall	Frankfort	NRHP, SRHP
Glen Historic District	Glen	NRHP, SRHP
Enlarged Lock No. 33, Old Erie Canal	St. Johnsville vicinity	NRHP. SRHP
Palatine German Frame House (Wilder House)	Herkimer vicinity	NRHP, SRHP
Snells Bush Church and Cemetery	Manheim vicinity	NRHP, SRHP
Breckwoldt-Ward House	Dolgeville	NRHP, SRHP
Sanders, James, House	Little Falls	NRHP, SRHP
Italian Community Bake Oven	Little Falls	NRHP, SRHP
Enlarged Double Lock No. 23, Old Erie Canal	Rotterdam vicinity	NRHP, SRHP

Table PSS-4. Historic Resources Located within a Three-mile Radius of the Marcy to Pleasant Valley Project Corridor		
Name	**Municipality**	**Category**
Athens Lower Village Historic District	Athens	NRHP, SRHP
Bennett Hill Farm	New Scotland	NRHP, SRHP
Blaisdell, Fletcher, Farm Complex	Coeymans	NRHP, SRHP
B'nai Israel Synagogue	Woodbourne	NRHP, SRHP
Bouwerie	Clermont	NRHP, SRHP
Brick Row Historic District	Athens	NRHP, SRHP
Brodhead, Thomas, House	Clermont	NRHP, SRHP
Bronck Farm 13-Sided Barn	Coxsackie	NRHP, SRHP
Bronck, Pieter, House	Coxsackie	NRHP, SRHP
Bronk--Silvester House	Coxsackie	NRHP, SRHP
Bronson, Dr. Oliver, House and Stables	Hudson	NRHP, SRHP
Bronson, Dr. Oliver, House and Stables	Hudson	NRHP, SRHP
Clermont Academy	Clermont	NRHP, SRHP
Clermont Civic Historic District	Clermont	NRHP, SRHP
Coeymans School	Coeymans	NRHP, SRHP
Coeymans, Ariaanje, House	Coeymans	NRHP, SRHP
Coeymans--Bronck Stone House	Coeymans	NRHP, SRHP
Cole, Thomas, House	Catskill	NRHP, SRHP
Columbia Turnpike--West Tollhouse	Greenport	NRHP, SRHP
Crum Elbow Meeting House and Cemetery	East Park	NRHP, SRHP
District School No. 11	Catskill	NRHP, SRHP
District School No. 7	Coeymans Hollow	NRHP, SRHP
Dubois, Henry A., and Evanlina, House	Hudson	NRHP, SRHP
East Side Historic District	Catskill	NRHP, SRHP
ELEANOR (Sailing Sloop)	Catskill	NRHP, SRHP
Evans, Cornelius H., House	Hudson	NRHP, SRHP
Front Street-Parade Hill-Lower Warren Street Historic District	Hudson	NRHP
Heermance Farmhouse	Red Hook	NRHP, SRHP
Hickory Hill	Clermont	NRHP, SRHP
Houghtaling, Abraham, House	Coeymans	NRHP, SRHP
Houghtaling, Peter, Farm and Lime Kiln	West Coxsackie	NRHP, SRHP
Houses at 37-47 North Fifth St.	Hudson	NRHP
Hudson Historic District	Hudson	NRHP, SRHP
Hudson/Athens Lighthouse	Hudson	NRHP, SRHP
Leeds Dutch Reformed Church	Leeds	NRHP, SRHP
Linlithgo Reformed Church of Livingston	Livingston	NRHP, SRHP
Livingston Memorial Church and Burial Ground	Linlithgo	NRHP, SRHP
Livingston, Henry W., House	Livingston	NRHP, SRHP
Ludlow, William Henry, House	Claverack	NRHP, SRHP

Table PSS-4. Historic Resources Located within a Three-mile Radius of the Marcy to Pleasant Valley Project Corridor		
Name	**Municipality**	**Category**
Ludlow--Van Rensselaer House	Claverack	NRHP, SRHP
Lynch Hotel	Nutten Hook, Town of Stuyvesant	NRHP, SRHP
Marquardt Farm	Wurtemburg	NRHP, SRHP
New Baltimore Hamlet Historic District	New Baltimore	NRHP, SRHP
Newkirk Homestead	Leeds	NRHP, SRHP
Oak Hill	Linlithgo	NRHP, SRHP
Olana	Church Hill	NRHP, SRHP
Old Parsonage	Clermont	NRHP, SRHP
Onesquethaw Valley Historic District	Albany	NRHP, SRHP
Pelham Parkway Station (Dual System IRT)	Bronx	NRHP
Phillips, Harriet, Bungalow	Claverack	NRHP, SRHP
Progue House	Rhinebeck	NRHP, SRHP
Pultz Farmhouse	Wurtemburg	NRHP, SRHP
Pulver, William and Victoria, House	Snyderville	NRHP, SRHP
Quaker Lane Farms	Hyde Park	NRHP, SRHP
Reed Street Historic District	Coxsackie	NRHP, SRHP
Richmond Hill	Livingston	NRHP, SRHP
Roosevelt, Eleanor, National Historic Site	Hyde Park	NRHP, SRHP
Rossman--Prospect Avenue Historic District	Hudson	NRHP, SRHP
Scott, R. and W., Ice Company Powerhouse and Ice House Site	Stuyvesant	NRHP, SRHP
Shear, Israel, House	Ravena	NRHP, SRHP
Slate Quarry Road Dutch Barn	Rhinebeck	NRHP, SRHP
Slingerlands, Albert, House	Slingerlands	NRHP, SRHP
Snyderville Schoolhouse	Snyderville	NRHP, SRHP
St. John's Evangelical Lutheran Church	Livingston	NRHP, SRHP
St. Luke's Church	Clermont	NRHP, SRHP
St. Paul's Lutheran Church, Parsonage and Cemetery	Wurtemburg	NRHP, SRHP
Stoutenburgh, William, House	Hyde Park	NRHP, SRHP
Stranahan-DelVecchio House	Athens	NRHP, SRHP
Strawberry Hill	Rhinebeck	NRHP, SRHP
Stuyvesant Railroad Station	Stuyvesant	NRHP, SRHP
Teviotdale	Linlithgo	NRHP, SRHP
Top Cottage	Hyde Park	NRHP, SRHP
Traver, John H., Farm	Wurtemburg	NRHP, SRHP
Turtle House	Greenport	NRHP, SRHP
US Post Office--Hudson	Hudson	NRHP, SRHP
Van Bergen House	New Baltimore	NRHP, SRHP
Van Der Zee, C., House	Coeymans Hollow	NRHP, SRHP
Van Derheyden House	Delmar	NRHP

Table PSS-4. Historic Resources Located within a Three-mile Radius of the Marcy to Pleasant Valley Project Corridor		
Name	**Municipality**	**Category**
Van derzee, Cornelius and Agnietje House	Coeymans	NRHP, SRHP
Van Loon, Albertus, House	Athens	NRHP, SRHP
Van Rensselaer, Henry (Hendrick) I., House	Greenport	NRHP, SRHP
Van Vechten, John, House	Leeds	NRHP, SRHP
Williams Farm	Rhinebeck	NRHP, SRHP
Williams, Elisha, House	Hudson	NRHP, SRHP
Willis, Alexander, House	Coeymans	NRHP, SRHP
Windswept Farm	Clinton	NRHP, SRHP
Wiswall, Oliver, House	Hudson	NRHP, SRHP
Zion Lutheran Church	Athens	NRHP, SRHP
South Ann Street-Mill Street Historic District	Little Falls	SRHP
St. Mary's Cemetery	Little Falls	SRHP
Emmanuel Episcopal Church	Little Falls	SRHP
Kilts Farmstead	Palatine	SRHP
Margaret Reaney Memorial Library	St. Johnsville	SRHP
Overlook	Little Falls	SRHP
The Oppenheim & St. Johnsville Union Society Church	Oppenheim	SRHP
Caspar Getman Farmstead	Palatine	SRHP
Little Falls City Hall	Herkimer	SRHP
Mica Insulator Company	Schenectady	SRHP
Little Falls Historic District	Little Falls	SRHP
First Methodist Episcopal Church of St. Johnsville	St. Johnsville	SRHP
Herkimer House	Danube	SRHP
Glen, Abraham, House	Scotia	SRHP
Balloon Farm	Frankfort	SRHP
Old Courthouse Complex	Fonda	SRHP
New Courthouse	Fonda	SRHP
Reformed Church, The	Herkimer	SRHP
Brandan, William, House	Athens	SRHP
Clarksville Elementary School	Clarksville	SRHP
Coyn- Van Rensselaer House	Claverack	SRHP
Croswell-Parsons Paper Mill Ruin	New Baltimore Vicinity	SRHP
Dr. Wesely Blaisdell (John Colvin) Home	Coeymans	SRHP
Forth House	Livingston	SRHP
Franklin Delano Roosevelt High School (Former)	Hyde Park	SRHP
Haxton-Griffin Farm	Athens	SRHP
House at 698 Kenwood Avenue	Slingerlands	SRHP
Hudson Almshouse	Hudson	SRHP
Lynch, James, House	Nutten Hook	SRHP
Moore-Howland Estate	Catskill	SRHP

Table PSS-4. Historic Resources Located within a Three-mile Radius of the Marcy to Pleasant Valley Project Corridor		
Name	**Municipality**	**Category**
New Scotland Church & Cemetery	New Scotland	SRHP
Parker Training Academy Dutch Barn	Red Hook vicinity	SRHP
Rowe Farm	Bethlehem	SRHP
Rushmore Family Farm 03902.000279	Athens	SRHP
Slingerlands Historic District	Slingerlands	SRHP
St. Patrick's Roman Catholic Church Complex	Ravena	SRHP
Susquehannah Turnpike	Catskill	SRHP
Taconic State Parkway	Clinton	SRHP
Van Salsbergen House	Greenport	SRHP
Vanderheyden House	Delmar vicinity	SRHP
Warren Masonic Lodge No. 32	Schultzville	SRHP
Source:	National Park Service. Register of Historic Places (points). Data date: 2012 http://www.nps.gov/nr/research/data_downloads.htm OPRHP. State parks (New York State Historic Sites and Park Boundaries). Data date: 2013. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=430	

Table PSS-5. Endangered, Threatened, Special Concern and Rare Species Identified Within the Vicinity of the Marcy to Pleasant Valley Transmission Corridor			
Name	**Subgroup**	**Distribution Status**	**Protection Status**
Plants			
American Waterwort *Elatine americana*	Other Flowering Plants	Historically Confirmed	State Endangered
Back's Sedge *Carex backii*	Sedges	Recently Confirmed	State Threatened
Button-bush Dodder *Cuscuta cephalanthi*	Other Flowering Plants	Recently Confirmed	State Endangered
Carey's Smartweed *Persicaria careyi*	Other Flowering Plants	Historically Confirmed	State Endangered
Carolina peat moss *Sphagnum carolinianum*	Peat Mosses	Recently Confirmed	State Rare
Cloud Sedge *Carex haydenii*	Sedges	Historically Confirmed	State Endangered
Delmarva Beggar-ticks *Bidens bidentoides*	Asters, Goldenrods and Daisies	Recently Confirmed	State Rare
Downy Lettuce *Lactuca hirsuta*	Asters, Goldenrods and Daisies	Possible but not Confirmed	State Endangered
Golden Club *Orontium aquaticum*	Other Flowering Plants	Recently Confirmed	State Threatened
Green Rock-cress *Boechera missouriensis*	Other Flowering Plants	Recently Confirmed	State Threatened
Heartleaf Plantain *Plantago cordata*	Other Flowering Plants	Recently Confirmed	State Rare
James' Sedge *Carex jamesii*	Sedges	Recently Confirmed	State Threatened
Long's Bittercress *Cardamine longii*	Other Flowering Plants	Recently Confirmed	State Threatened
Marsh Valerian *Valeriana uliginosa*	Other Flowering Plants	Possible but not Confirmed	State Endangered
Rattlebox *Crotalaria sagittalis*	Other Flowering Plants	Historically Confirmed	State Threatened
Rough Avens *Geum virginianum*	Other Flowering Plants	Historically Confirmed	State Threatened
Shrubby St. John's-wort *Hypericum prolificum*	Other Flowering Plants	Recently Confirmed	State Threatened
Smooth Bur-marigold *Bidens laevis*	Asters, Goldenrods and Daisies	Recently Confirmed	State Threatened
Stiff-leaf Goldenrod *Oligoneuron rigidum var. rigidum*	Asters, Goldenrods and Daisies	Recently Confirmed	State Threatened
Sweet Coltsfoot *Petasites frigidus var. palmatus*	Asters, Goldenrods and Daisies	Recently Confirmed	State Endangered
Tidal Spikerush *Eleocharis aestuum*	Sedges	Historically Confirmed	State Endangered
Virginia Snakeroot *Endodeca serpentaria*	Other Flowering Plants	Possible but not Confirmed	State Threatened
Animals			
Bald Eagle *Haliaeetus leucocephalus*		Listed in Fulton, Albany, Greene, Columbia, and Dutchess Counties*	Federal Delisted

Table PSS-5. Endangered, Threatened, Special Concern and Rare Species Identified Within the Vicinity of the Marcy to Pleasant Valley Transmission Corridor			
Name	**Subgroup**	**Distribution Status**	**Protection Status**
Bog Turtle *Clemmys muhlenbergii*		Listed in Columbia and Dutchess Counties and historically in Albany County*	Federal Threatened State Endangered
IndianaBat *Myotis sodalis*		Listed in Oneida, Schenectady, Albany, Greene, Columbia, and Dutchess Counties*	Federal Endangered State Endangered
Karner blue butterfly *Lycaeides Melissa samuelis*		Listed in Schenectady and Albany, Counties*	Federal Endangered State Endangered
New England Cottontail *Sylvilagus transitionalis*		Listed in Columbia and Dutchess Counties*	Federal Candidate Species State Species of Concern
Russet-tipped Clubtail *Stylurus plagiatus*	Dragonflies	Recently Confirmed	Not Listed
Animal Assemblages			
Anadromous Fish Concentration Area	Animal Assemblages	Recently Confirmed	
Raptor Winter Concentration Area	Animal Assemblages	Recently Confirmed	
Notes:	*USFWS lists threatened and endangered species by county.		
Source:	NYSDEC Nature Explorer Database. http://www.dec.ny.gov/natureexplorer/app/location/county. Accessed September 2013. USFWS List of Threatened, Endangered, Proposed and Candidate Species in New York. Rev. July 16, 2012.		

Table PSS-6. Invasive Species Identified within the Vicinity of the Marcy to Pleasant Valley Project Corridor (by County)												
Common Name	**Scientific Name**	**Draft Rank**	**County**									
			Albany	**Columbia**	**Dutchess**	**Fulton**	**Greene**	**Herkimer**	**Montgomery**	**Oneida**	**Schenectady**	**N/A**
Floating & Submerged Aquatic												
Water Thyme	*Hydrilla verticillata*	Very High										X
Common Frogbit	*Hydrocharis morsus-ranae*	Very High										X
Floating Primrose Willow	*Ludwigia peploides*	Very High										X
Broadleaf Water-milfoil	*Myriophyllum heterophyllum*	Very High			P	P	P	P		Y	P	
Eurasian Water-milfoil	*Myriophyllum spicatum*	Very High		P	Y	P					P	
Water Chestnut	*Trapa natans*	Very High	Y	Y	Y	P	P		P		Y	
Rock Snot (diatom)	*Didymosphenia geminata*	Not Ranked										X
Carolina Fanwort	*Cabomba caroliniana*	High		P	P		P					
Brazilian Waterweed	*Egeria densa*	High			P							
Parrot-feather	*Myriophyllum aquaticum*	High										X
Yellow Floating Heart	*Nymphoides peltata*	High		Y	P	P	P				P	
Curly Pondweed	*Potamogeton crispus*	High	Y	Y	Y	P	Y	P		Y	Y	
Emergent Wetland & Littoral												
Uruguayan Primrose-willow	*Ludwigia grandiflora spp. hexapetala*	Very High										X
Floating Primrose-willow	*Ludwigia peploides spp. glabrescens*	Very High										X
Purple Loosestrife	*Lythrum salicaria*	Very High	Y	Y	Y	P	Y	P		Y	P	
European Common Reed Grass	*Phragmites australis*	Very High	P	Y	Y	P	Y	P	Y	Y	Y	
Tall Glyceria	*Glyceria maxima*	High										X
Yellow Iris	*Iris pseudacorus*	High		Y	Y	P	P	Y	Y	P	Y	
Broad-leaf Pepper-grass	*Lepidium latifolium*	High				Y			Y			
Marsh Dewflower	*Murdannia keisak*	High										X
Reed Canary-grass	*Phalaris arundinacea*	High	Y	Y	Y	P	Y	Y	Y	Y	Y	
Terrestrial – Herbaceous												
Garlic Mustard	*Alliaria petiolata*	Very High	Y	Y	Y	P	Y	P	P	Y	Y	
Slender False Brome	*Brachypodium sylvaticum*	Very High										X
Black swallow-wort	*Cynanchum louiseae*	Very High	Y	Y	Y		Y	P	P	Y	Y	
Pale Swallow-wort	*Cynanchum rossicum*	Very High										X
Japanese Knotweed	*Fallopia japonica*	Very High	Y	P	Y	P	Y	P	P	Y	Y	
Japanese Stilt Grass	*Microstegium vimineum*	Very High		P	Y		P					
Lesser Celandine	*Ranunculus ficaria*	Very High		P	P	P	P				P	
Wild Chervil	*Anthriscus sylvestris*	High		P	Y		P					
Mugwort	*Artemisia vulgaris*	High										X (Consider)
Small Carpgrass	*Arthraxon hispidus*	High										X
Narrowleaf Bittercress	*Cardamine impatiens*	High			P							
Spotted Knapweed*	*Centaurea stoebe ssp. MICRANTHOS*	High	Y	Y	Y	P	P	Y	P	Y	Y	
Canada Thistle	*Cirsium arvense*	High	Y	Y	P	P	Y		P	P	Y	
Chinese Yam	*Dioscorea polystachya*	High										X
Cut-leaf Teasel	*Dipsacus laciniatus*	High	Y	Y	P	P	P		P		Y	
Winter Creeper	*Euonymus fortunei*	High										X (Consider)

Table PSS-6. Invasive Species Identified within the Vicinity of the Marcy to Pleasant Valley Project Corridor (by County)												
Common Name	**Scientific Name**	**Draft Rank**	**County**									
			Albany	**Columbia**	**Dutchess**	**Fulton**	**Greene**	**Herkimer**	**Montgomery**	**Oneida**	**Schenectady**	**N/A**
Cypress Spurge	*Euphorbia cyparissias*	High	Y	Y	Y	P	P	Y	P	Y	P	
Leafy Spurge	*Euphorbia esula*	High	Y	Y	Y	P	P	Y	P	P	P	
Giant Hogweed	*Heracleum mantegazzianum*	High						P		Y		
Japanese Hops	*Humulus japonicus*	High	Y	P	Y	P	P	P	P	Y	Y	
Cogon Grass	*Imperata cylindrica*	High										X
Chinese Lespedeza	*Lespedeza cuneata*	High										X
Garden Loosestrife	*Lysimachia vulgaris*	High	Y	P	P	P	Y	Y	P	P	P	
Chinese Silver Grass	*Miscanthus sinensis*	High						P		Y		
Wavyleaf Basketgrass	*Oplismenus hirtellus*	High										X
Cup-plant	*Silphium perfoliatum*	High								P		
Terrestrial - Vines												
Oriental Bittersweet	*Celastrus orbiculatus*	Very High	Y	P	Y	P	P	P	P	Y	Y	
Japanese Honeysuckle	*Lonicera japonica*	Very High	Y	P	P		P			P	P	
Mile-a-minute Weed	*Persicaria perfoliata*	Very High			P							
Kudzu	*Pueraria montana*	Very High										X
Porcelain Berry	*Ampelopsis brevipedunculata*	High			P							
Japanese Virgin's-bower	*Clematis terniflora*	High			P							
Terrestrial – Shrubs & Trees												
Norway Maple	*Acer platanoides*	Very High	Y	P	Y	P	P	P	P	Y	P	
Japanese Angelica Tree	*Aralia elata*	Very High										X
Japanese Barberry	*Berberis thunbergii*	Very High	Y	P	P	P	P	P	P	Y	P	
Autumn Olive	*Elaeagnus umbellata*	Very High	Y	P	Y		P				P	
Winged Euonymus	*Euonymus alatus*	Very High	P	P	Y							
Amur Honeysuckle	*Lonicera maackii*	Very High			P							
Morrow's Honeysuckle	*Lonicera morrowii (incl. xbella)*	Very High	Y	Y	Y		P	P		Y	P	
Common Buckthorn	*Rhamnus cathartica*	Very High	Y	Y	Y	P	P	P	P	Y	P	
Black Locust	*Robinia pseudoacacia*	Very High	Y	P	P	P	Y		P	P	P	
Multiflora Rose	*Rosa multiflora*	Very High	Y	P	P	P	P		P		Y	
Wineberry	*Rubus phoenicolasius*	Very High	Y	P	P		P				P	
Rusty Willow	*Salix atrocinerea*	Very High			P							
Sycamore Maple	*Acer pseudoplatanus*	High	Y	Y	P		P				P	
Smooth Buckthorn	*Frangula alnus*	High			P	P		Y	Y	P	P	
Border Privet	*Ligustrum obtusifolium*	High	Y	Y	P		P				P	
Amur Cork Tree	*Phellodendron amurense*	High										X
Beach vitex	*Vitex rotundifolia*	High										X
Notes:	P: Potentially found within the County, via surrounded by Proven Counties Y: Proven to be found within the County, proven by the USDA website X: Not found within any of the listed Counties X (Consider): Not found within any of the listed Counties, but species is found frequently in the field											
Source:	USDA NRCS. Online PLANTS database. http://plants.usda.gov/java/. Accessed August 2013. NYSDEC. Nuisance & Invasive Species List. http://www.dec.ny.gov/animals/265.html. Accessed August 2013.											

Table PSS-7. Bedrock Formations in the Marcy to Pleasant Valley Project Corridor		
Code	**Description**	**Type**
Q	--	Glacial And Alluvial Deposits
Oag	Austin Glen Formation	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
On	Normanskill Shale	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
Oc	Canajoharie Shale	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
Of	Frankfort Formation	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
Osc	Schenectady Formation	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
Ou	Utica Shale	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
Otbr	Dolgeville Formation	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
Cbk	Beekmantown Group	Beekmantown & Wappinger & Stockbridge Groups & Potsdam Sandstone & Poughquag Quartzite & Vermont Valley Sequence And Metamorphic Equivalents
Obk	Beekmantown Group	Beekmantown & Wappinger & Stockbridge Groups & Potsdam Sandstone & Poughquag Quartzite & Vermont Valley Sequence And Metamorphic Equivalents
Cth	Theresa (Galway) Formation	Beekmantown & Wappinger & Stockbridge Groups & Potsdam Sandstone & Poughquag Quartzite & Vermont Valley Sequence And Metamorphic Equivalents
bqpq	Biotite-quartz-plagioclase, Commonly Leucocratic	Metamorphic Rocks Of Sedimentary Origin (Probably Includes Some Metavolcanics) Adirondacks
qt	Quartzite, Quartz-biotite Schist And Graphitic Schist	Metamorphic Rocks Of Sedimentary Origin (Probably Includes Some Metavolcanics) Adirondacks
mu	Undivided Metasedimentary Rock And Related Migmatite	Metamorphic Rocks Of Sedimentary Origin (Probably Includes Some Metavolcanics) Adirondacks
Cp	Potsdam Sandstone	Beekmantown & Wappinger & Stockbridge Groups & Potsdam Sandstone & Poughquag Quartzite & Vermont Valley Sequence And Metamorphic Equivalents
OCw	Wappinger Group	Beekmantown & Wappinger & Stockbridge Groups & Potsdam Sandstone & Poughquag Quartzite & Vermont Valley Sequence And Metamorphic Equivalents
Dhg	Port Ewen Formation	Helderberg Group
Otm	Taconic Melange	Lorraine & Trenton & Black River Groups And Metamorphic Equivalents
Dgl	Glenerie Formation	Onondaga Limestone And Tristates Group
Dou	Onondaga Limestone	Onondaga Limestone And Tristates Group
Cg	Germantown Formation	Taconic Overthrust (Allochthonous) Sequence
Cn	Nassau Formation	Taconic Overthrust (Allochthonous) Sequence
Omi	Mount Merino Formation	Taconic Overthrust (Allochthonous) Sequence
Osf	Stuyvesant Falls Formation	Taconic Overthrust (Allochthonous) Sequence
OCe	Elizaville Foundation	Taconic Overthrust (Allochthonous) Sequence
Source:	New York State Museum, New York State Geological Survey, GIS Data of Bedrock Attributes Version 1.0, July 26, 1999.	

Table PSS-8. General Soil Types within the Marcy to Pleasant Valley Project Corridor	
General Soil Type	**Description**
Oneida County	
Udifluvents	Deep alluvial soils that formed in material recently deposited by streams and rivers on flood plains, excessively drained to moderately well drained, subject to frequent flooding
Udorthents	Deep, well drained soils on terraces and glacial lake plains, formed in water-deposited silts and very fine sands
Lansing	Deep, well drained soils on glaciated uplands, formed in loamy glacial till derived mainly from calcareous shale and limestone and from lesser amounts of siltstone and sandstone
Kendaia	Deep, somewhat poorly drained soils on toeslopes and footslopes and in depressional areas on glacial uplands, formed in firm, calcareous glacial till
Manlius	Deep, well drained to excessively drained soils on hilltops and side slopes on bedrock-controlled landforms, formed in glacial till derived mainly from shale and siltstone
Mongaup	Moderately deep, well drained soils on side slopes and hilltops on bedrock-controlled landforms, formed in glacial till derived from siltstone, sandstone, and shale
Conesus	Deep, moderately well drained soils on glaciated uplands, formed in loamy till derived mainly from limestone and shale and to a lesser extent siltstone and sandstone
Gretor	Moderately deep, somewhat poorly drained soils on side slopes and hilltops on bedrock-controlled landforms, formed in glacial till derived mainly from shale or siltstone an from small amounts of sandstone
Manheim	Very deep, somewhat poorly drained soils in depressions and broad, slightly concave areas on till plains on uplands or in valleys, formed in till derived from limestone and black or dark gray, calcareous shale
Ischua	Moderately deep, moderately well drained soils on hilltops and side slopes on bedrock-controlled landforms, formed in glacial till derived mainly from shale or siltstone and from small amounts of sandstone
Herkimer County	
Manheim-Conesus-Lansing	Deep, somewhat poorly drained, medium-textured soils formed in glacial till from alkaline shale, and moderately well drained and well drained soils formed in till from shale, siltstone, and limestone
Rough broken land-Shaly rock land	Deep to very shallow, steep and very steep land
Alluvial land-Hamlin-Teel	Deep, excessively drained to very poorly drained soils of variable texture that formed in recent alluvium
Herkimer	Deep, well drained and moderately well drained, medium textured soils formed in water-sorted deposits rich in dark, alkaline shale
Mohawk-Manheim	Deep, well drained to somewhat poorly drained, medium-textured soils formed in glacial till from alkaline shale
Mohawk-Manheim-Rhinebeck	Deep, well-drained to somewhat poorly drained, medium-textured soils formed in glacial till from alkaline shale, and somewhat poorly drained, medium-textured soils formed I n lacustrine sediment over loamy glacial till or outwash
Hudson-Rhinebeck	Deep, moderately well drained to somewhat poorly drained, medium-textured soils formed in lacustrine sediment over loamy glacial till or outwash

Table PSS-8. General Soil Types within the Marcy to Pleasant Valley Project Corridor	
General Soil Type	**Description**
Fulton County	
Endoaquolls	Very deep, somewhat poorly drained soil material that has been disturbed, most areas are associated with glacial till, but also occur in slight depressions of outwash and alluvium
Udorthents	
Lansing	Very deep and well drained, formed in glacial till derived mainly from shale, fine grained sandstone, limestone, and siltstone on till plains and drumlins
Hollis	Shallow, well drained soils that formed in glacial till derived mainly from granite and gneiss
Galway	Moderately deep and well drained soils formed in glacial till over limestone, dolomite or calcareous sandstone
Farmington	Shallow and well-drained soil, formed in glacial till over limestone bedrock on benches and along tops of bedrock controlled ridges
Wonsqueak	Very deep, very poorly drained soils formed in organic material overlying loamy mineral deposits, found in depressions within outwash plains, moraines and between till ridges
Angola	Moderately deep, somewhat poorly drained soils formed in mantle of till overlying shale, siltstone, limy sandstone or limestone bedrock
Appleton	Very deep and somewhat poorly drained, formed in loamy glacial till derived mainly from shale, fine grained sandstone and limestone, on till plains and along foot slopes of drumlins
Ilion	Very deep and poorly drained, formed in loamy glacial till derived mainly from calcareous black shale, limestone, and siltstone, with an admixture of clayey lake sediments in some areas, found in depressions on till plains
Broadalbin	Very deep, well and moderately well drained, and have a dense subsoil layer, formed in a loamy eollan mantle and underlying glacial till
Palatine	Moderately deep and well drained, formed in glacial till derived from weakly consolidated, calcareous, dark colored shale, similar to underlying bedrock
Churchville	Very deep and somewhat poorly drained, formed in clayey lacustrine sediments overlying loamy glacial till, on till plains
Madalin	Very deep and poorly drained, formed in water-deposited material that is high in clay on glacial lake plains
Montgomery & Schenectady Counties	
Lansing-Mohawk, very steep	Dominantly deep, well drained moderately well drained soils that are formed in glacial till; on uplands
Lansing-Appleton, gently sloping	
Mohawk-Lansing, sloping	
Darien-Ilion-Burdett, gently sloping	Dominantly deep, somewhat poorly drained soils that formed in glacial till; on uplands
Burdett-Ilion, gently sloping	
Burdett-Scriba-Nunda, gently sloping	
Burdett-Scriba-Ilion, gently sloping	
Darien-Appleton-Ilion, gently sloping	
Appleton-Lansing, gently sloping	
Palatine-Angola, gently sloping	Dominantly moderately deep and shallow, excessively drained to moderately well drained soils that formed in thin glacial till depos-
Arnot, sloping	

Table PSS-8. General Soil Types within the Marcy to Pleasant Valley Project Corridor	
General Soil Type	**Description**
Wassaic-Angola, gently sloping	its over bedrock; on uplands
Palatine, sloping	
Angola-Tuller-Varick, nearly level	Dominantly moderately deep and shallow, somewhat poorly drained soils that formed in thin glacial till deposits over bedrock; on uplands
Tuller-Brockport-Hornell, nearly level	
Farmington-Rock outcrop, moderately steep	Dominantly shallow and moderately deep, well drained to excessively drained soils that formed in thin glacial till deposits over bedrock; on uplands; many rock outcrops
Hollis-Rock outcrop, sloping	
Rock outcrop-Farmington, very steep	
Churchville-Madalin-Rhinebeck, nearly level	Dominantly deep, moderately well drained and somewhat poorly drained soils that formed in silty or clayey galcio-lacustrine sediments; on lake plains and in valleys
Madalin-Fonda-Ilion, nearly level	Dominantly deep, poorly drained and very poorly drained soils that formed in silty or clayey galcio-lacustrine sediments; on lake plains and in valleys
Howard, gently sloping	Dominantly deep, excessively drained to poorly drained soils that formed in gravelly and sandy outwash; on old alluvial fans, terraces, and kames in valleys
Fredon-Phelps, nearly level	
Fluvaquents, loamy-Phelps, fan, nearly level	Dominantly deep, well drained to very poorly drained soils that formed in recent alluvial deposits; on flood plains
Hamlin-Wayland-Teel, nearly level	
Carlisle-Palms, nearly level	Dominantly deep, very poorly drained soils that formed in organic deposits; on lake plains and uplands and in valleys
Plainfield, nearly level	Dominantly deep, excessively drained to moderately well drained soils that formed in sandy deltaic and glacio-lacustrine sediments; on lake plains and in valleys
Albany County	
Nunda-Burdett	Dominantly nearly level to steep, moderately well drained and somewhat poorly drained, medium textured, very deep soils; on uplands
Farmington-Wassaic	Dominantly nearly level to very steep, somewhat excessively drained to moderately well drained, medium textured, shallow to moderately deep soils over limestone; on uplands of the Helderberg Mountain range
Scio-Elmridge	Dominantly nearly level to gently sloping, moderately well drained, medium textured and moderately coarse textured over fine textured, very deep soils; on lake plains and terraces
Chenango-Valois	Dominantly nearly level t moderately steep, well drained and somewhat excessively drained, moderately coarse textured, very deep soils; on terraces and lower valley sides
Lordstown-Kearsarge-Arnot	Dominantly nearly level to very steep, somewhat excessively drained to moderately well drained, medium textured, moderately deep and shallow soils over sandstone and shale; on uplands
Greene County	
Arnot-Lordstown	Shallow and moderately deep, nearly level to very steep, somewhat excessively drained to moderately well drained, medium textured soils on the Catskill Mountains and their foothills
Nassau-Farmington	Shallow, gently sloping to very steep, well drained and somewhat excessively drained, medium textured soils on hills and ridges
Kingsbury-Rhinebeck-Hudson	Very deep, nearly level to very steep, moderately well drained and somewhat poorly drained, fine textured soils on ridges and side slopes

Table PSS-8. General Soil Types within the Marcy to Pleasant Valley Project Corridor	
General Soil Type	**Description**
Columbia County	
Hudson-Vergennes-Raynham	Dominantly nearly level to steep, very deep, moderately well drained to poorly drained, moderately fine textured to very fine textured soils; on lowlands and dissected lake plains
Blasdell-Hoosic-Knickerbocker	Dominantly nearly level to steep, very deep, somewhat excessively drained and well drained, medium textured to coarse textured soils; on outwash plains, terraces, kames, and eskers
Stockbridge-Georgia	Dominantly nearly level to moderately steep, very deep, well drained and moderately well drained, medium textured soils; on uplands
Nassau-Manlius	Dominantly gently sloping to very steep, well drained to excessively drained, medium textured soils that are shallow and moderately deep to bedrock; on bedrock-controlled uplands
Limerick-Occum-Fluvaquents-Udifluvents	Dominantly nearly level, very deep soils on flood plains
Dutchess County	
Hoosic-Wayland-Copake	
Farmington-Galway-Stockbridge	Dominantly nearly level to very steep, shallow to very deep, somewhat excessively drained to moderately well drained medium textured soils formed in glacial till; on uplands
Cardigan-Dutchess-Nassau	Dominantly nearly level to very steep, very deep to shallow, well drained and somewhat excessively drained, medium textured soils that formed in glacial till; on uplands
Bernardston-Pittstown	Dominantly gently sloping to steep, very deep, well drained and moderately well drained, medium textured soils with a dense substratum; on uplands
Nassau-Rock Outcrop-Cardigan	Dominantly undulating to very steep, shallow and moderately deep, somewhat excessively drained and well drained, medium textured soils that formed in glacial till, and rock outcrop; on uplands
Source:	U.S. Department of Agriculture, Natural Resources Conservation Service, *Soil Surveys of Oneida, Herkimer, Fulton, Montgomery-Schenectady, Albany, Greene, Columbia and Dutchess Counties.*

Table PSS-9. Streams Identified Within the Marcy to Pleasant Valley Project Corridor				
Stream Number	**Stream Name**	**Number of Crossings**	**Class**	**Sub-basin**
876-435	Realls Creek	3	C	02020004
876-429	Bridenbecker Creek (tirb. 194). Bonny Brook (trib. 195). Pratt Creek (trib.196). Sterling Creek (trib. 197). Burch Creek (trib. 198).Knapp Brook (trib.199). Wood Creek (trib. 201). Budlong Creek (trib. 203).	19	C	02020004
880-1	West Canada Creek	2	C(T)	02020004
880-10	Tribs. of West Canada Creek	7	C	02020004
876-393	Tribs. of Crum Creek	4	C	02020004
876-390	Crum Creek	1	C	02020004
878-9	Tribs. of East Canada Creek	2	C	02020004
878-1	East Canada Creek	1	C(T)	02020004
878-8	Tribs. of East Canada Lake	1	C	02020004
876-372	Tribs. of Crum Creek	1	C	02020004
876-370	Crum Creek	1	C(T)	02020004
876-363	Trib. of Timmerman Creek	1	C(T)	02020004
876-361	Timmerman Creek	1	C(T)	02020004
876-352	Zimmerman Creek	1	C(TS)	02020004
876-313	Edwards Creek	1	AA	02020004
876-307	Tribs. of Caroga Creek	1	C(T)	02020004
876-309	North Creek	1	C(T)	02020004
876-301	Caroga Creek	3	C(T)	02020004
876-319	Trib. of Sprite Creek	1	C	02020004
876-193	Tribs. of Cayadutta Creek	2	C	02020004
876-238	Tribs. of Mohawk River	6	C	02020004
876-12	Mohawk River	1	B	02020004
876-183	Auries Creek	1	C	02020004
876-182	Trib. of Mohawk River	2	C	02020004
879-11	Irish Creek (trib. 22). Wilsey Creek (trib. 33). Bowman Creek (trib. 36). Fly Creek (trib. 57). Cripplebush Creek (trib. 58).	2	C	02020005
879-1	Schoharie Creek	2	C	02020005
876-162	Tribs. of South Chuctanunda Creek	2	C	02020004
876-159	South Chuctanunda Creek	1	C	02020004
876-123	Terwilliger Creek	2	C	02020004
876-110	Sandsea Kill	1	C	02020004
876-111	Tribs. of Sandsea Kill	2	C	02020004
876-105	Plotter Kill	4	C	02020004
863-686	Tribs. of Normans Kill	3	C	02020006
863-641	Normans Kill	1	C	02020006
863-640	Normans Kill	4	A	02020006
863-685	Indian House Creek	1	C	02020006
863-677	Tribs. of Bozen Kill	5	C	02020006

Table PSS-9. Streams Identified Within the Marcy to Pleasant Valley Project Corridor				
Stream Number	**Stream Name**	**Number of Crossings**	**Class**	**Sub-basin**
863-668	Bozen Kill	1	C	02020006
863-671	Tribs. of Black Creek	2	C	02020006
863-669	Black Creek	1	C	02020006
863-652	Vly Creek	1	C(T)	02020006
863-655	Tribs. of Vly Creek	3	C	02020006
863-588	Tribs. of Vloman Kill or Baker Creek	3	C	02020006
863-556	Tribs. of Onesquethaw Creek	2	C	02020006
863-651	Trib. of Vly Creek	1	C(TS)	02020006
863-546	Feuri Spruyt	1	C	02020006
863-538	Tribs. of Hannacrois Creek	3	C	02020006
863-536	Hannacrois Creek	1	A(T)	02020006
863-504	Tribs. of Coxsackie Creek	4	C	02020006
863-506	Trib. of Coxsackie Creek	1	C	02020006
863-513	Trib. of Coxsackie Creek	3	C	02020006
863-502	Coxsackie Creek	2	C	02020006
863-259.4	Tribs. of Murders Creek	2	C	02020006
863-256	Tribs. of Hudson River	5	C	02020006
858-3	Hudson River	1	A	02020006
863-426	Tribs. of Mud Creek	1	C	02020006
863-6	Tribs. of Roeliff Jansen Kill	1	C	02020006
863-11	Trib. of Roeliff Jansen Kill	1	C(TS)	02020006
863-9	Tribs. of Roeliff Jansen Kill	1	C	02020006
863-14	Doove Kill	1	C(T)	02020006
863-3	Roeliff Jansen Kill	8	C(T)	02020006
863-21.1	Trib. of Roeliff Jansen Kill	3	C(T)	02020006
857-75	Trib. of Little Wappinger Creek	1	B	02020008
862-415	Tribs. and subtribs. of Crum Elbow Creek, unnamed ponds	1	A	02020008
857-68	Tribs. of Long Pond	1	C	02020008
857-65	Tribs. of Little Wappinger Creek	2	B	02020008
857-52	Trib. of Chain Lake	1	B	02020008
857-49	Tribs. of Great Spring Creek	2	B	02020008
Source:	NYSDEC Regulations, Chapter X (division of Water) Subpart B(Classes and Standards of Quality and Purity Assigned to Fresh Surface and Tidal Salt Waters).			

Table PSS-10. Depth to Seasonal High Water Table by General Soil Group in the Marcy to Pleasant Valley Project Corridor	
General Soil Type	**Depth Description**
Oneida County	
Udifluvents	2.0'->6.0'
Udorthents	3.0'-6.0'
Lansing	>6.0'
Kendaia	0.5'-1.5'
Lyons	0'-0.5'
Manlius	>6.0'
Mongaup	>6.0'
Conesus	1.5'-2.0'
Gretor	0.5'-1.0'
Manheim	0.5'-1.5'
Ischua	1.5'-2.0'
Herkimer County	
Manheim-Conesus-Lansing	0.5'-1.5'/1.5'-2.0'/2.0'-2.5'
Rough Broken Land-Shaly Rock Land	--
Alluvial Land-Hamlin-Teel	2.0-2.5'/1.0'-2.0'
Herkimer	1.5'-3.5'
Mohawk-Manheim	2.0'-2.5'/0.5'-1.5'
Mohawk-Manheim-Rhinebeck	2.0'-2.5'/0.5'-1.5'/>3.5'
Hudson-Rhinebeck	>3.5'
Fulton County	
Endoaquolls	0'-1.5'
Udorthents	1.5'-3.0'
Lansing	--
Hollis	--
Galway	--
Farmington	--
Wonsqueak	0'-1.0'
Angola	0.5'-2.7'
Appleton	0.5'-1.5'
Ilion	0'-1.0'
Broadalbin	1.5'-2.7'
Palatine	--
Churchville	0.8'-1.5'
Madalin	0'-1.0'
Montgomery & Schenectady Counties	
Lansing-Mohawk	>3.5'
Lansing-Appleton	>3.5'/0.5'-1.5'
Mohawk-Lansing	>3.5'
Darien-Ilion-Burdett	0.5'-1.5'/0'-0.5'/0.5'-1.5'

Table PSS-10. Depth to Seasonal High Water Table by General Soil Group in the Marcy to Pleasant Valley Project Corridor	
General Soil Type	**Depth Description**
Burdett-Ilion	0.5'-1.5'/0'-0.5'
Burdett-Scriba-Nunda	0.5'-1.5'/0.5'-1.5'/1.5'-2.5'
Burdett-Scriba-Ilion	0.5'-1.5'/0.5'-1.5'/0'-0.5'
Darien-Appleton-Illion	0.5'-1.5'/0.5'-1.5'/0'-0.5'
Appleton-Lansing	0.5'-1.5'/>3.5'
Palatine-Angola	>4.0'/0.5'-1.0'
Arnot	1.0'-2.0'
Arnot-Angola-Tuller	1.0'-2.0'/0.5'-1.0'/0'-1.5'
Wassaic-Angola	1.5'-2.5'/0.5'-1.0'
Palatine	>4.0'
Angola-Tuller-Varick	0.5'-1.0'/0.5'-1.0'/0'-0.5'
Tuller-Brockport-Hornell	0'-1.5'/0.5'-1.5'/0.5'-1.5'
Farmington-Rock outcrop	>4.0'
Hollis-Rock outcrop	>4.0'
Rock outcrop-Farmington	>4.0'
Churchville-Madalin-Rhinebeck	0.5'-1.5'/0'-0.5'/1.0'-1.5'
Madalin-Fonda-Ilion	0'-0.5'/0'-1.0'/0'-0.5'
Howard	>3.0'
Fredon-Phelps	0'-0.5'/1.5'-2.5'
Fluvaquents, Loamy-Phelps,	1.5'-2.5'
Hamlin-Wayland-Teel	>3.0'/0'-0.5'/1.0'-2.0'
Carlisle-Palms	0'
Plainfield	>3.5'
Albany County	
Nunda-Burdett	1.5'-2.0'/0.5'-1.5'
Farmington-Wassaic	>6.0'/2.0'-3.0'
Scio-Elmridge	1.5'-2.0'/1.5'-3.0'
Chenango-Valois	3.0'->6.0'/>6.0'
Lordstown-Kearsarge-Arnot	1.5'-2.0'/1.5'-3.0'
Greene County	
Arnot-Lordstown	>6.0'/>6.0'
Nassau-Farmington	>6.0'/>6.0'
Kingsbury-Rhinebeck-Hudson	0.5'-1.5'/0.5'-1.5'/1.5'-2.0'
Columbia County	
Hudson-Vergennes-Raynham	1.5'-2.0'/1.0'-3.0'/0.5'-2.0'
Blasdell-Hoosic-Knickerbocker	>6.0'/>6.0'/>6.0'
Stockbridge-Georgia	>6.0'/1.5'-3.0'
Nassau-Manlius	>6.0'/>6.0'
Limerick-Occum-Fluvaquents-Udifluvents	0'-1.5'/4.0'-6.0'
Dutchess County	

Table PSS-10. Depth to Seasonal High Water Table by General Soil Group in the Marcy to Pleasant Valley Project Corridor	
General Soil Type	**Depth Description**
Hoosic-Wayland-Copake	3.0’- >6.0’/0.5’-1.0’/3.0’-6.0’
Farmington-Galway-Stockbridge	>6.0’/1.5’>6.0’/>6.0’
Cardigan-Dutchess-Nassau	>6.0’/>6.0’/>6.0’
Bernardston-Pittstown	1.5’-2.0’/1.5’-3.0’
Nassau-Rock Outcrop-Cardigan	>6.0’/>6.0’/>6.0’
Source:	U.S. Department of Agriculture, Natural Resources Conservation Service, *Soil Surveys of Oneida, Herkimer, Fulton, Montgomery-Schenectady, Albany, Greene, Columbia and Dutchess Counties.*

Table PSS-11. Land Use Categories for Estimating Ambient Noise Levels				
Category	**Land Use**	**Description**	**Estimated Existing Daytime L_{eq}**	**Estimated Existing Nighttime L_{eq}**
1	Noisy Commercial and Industrial Areas	Very heavy traffic conditions, such as in busy downtown commercial areas, at intersections of mass transportation and other vehicles, including trains, heavy motor trucks and other heavy traffic, and street corners where motor buses and heavy trucks accelerate.	69 dBA	61 dBA
2	Moderate Commercial and Industrial Areas, and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1 but with somewhat less traffic, routes of relatively heavy or fast automobile traffic but where heavy truck traffic is not extremely dense, and motor bus routes.	64 dBA	57 dBA
3	Quiet Commercial, Industrial Areas, and Normal Urban and Noisy Residential Areas	Light traffic conditions where no mass transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at low speeds. Residential areas and commercial streets and intersections with little traffic comprise this category.	58 dBA	52 dBA
4	Quiet Urban and Normal Residential Areas	These areas are similar to Category 3 above but, for this group, the background is either distant traffic or is unidentifiable.	53 dBA	47 dBA
5	Quiet Suburban Residential Areas	Isolated areas, far from significant sources of sound.	48 dBA	42 dBA
6	Very Quiet, Sparse Suburban or Rural Areas	These areas are similar to Category 5 above but are usually in unincorporated areas and, for this group, there are few if any near neighbors.	43 dBA	37 dBA
Source:	ANSI S12.9-1993/Part 3			