Visual Impact Assessment

Canisteo Wind Project
115 kV Transmission Facility
Towns of Jasper, Canisteo, and Hornellsville, and Village of Canisteo, Steuben County, New York

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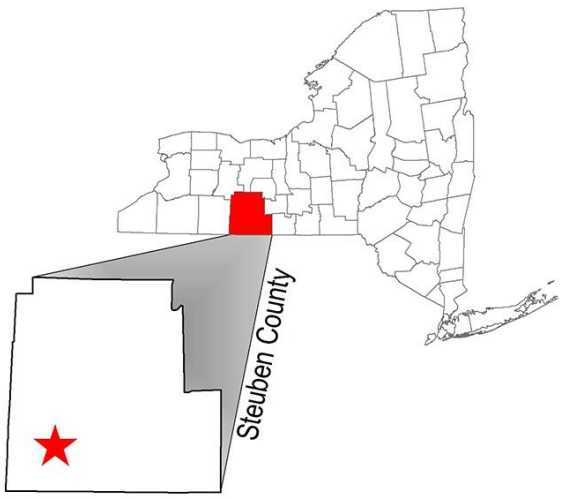
1.0 Introduction

On behalf of Canisteo Wind Energy, LLC (CWE) Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) prepared this Visual Impact Assessment (VIA) for the proposed Canisteo Wind Project Transmission Facility (the Transmission Project). The Transmission Project is a 115-kV transmission line and point of interconnection (POI) associated with the Canisteo Wind Farm. The Canisteo Wind Farm is a 290.7 megawatt (MW) wind energy generating facility that is subject to a separate review under Article 10 of the Public Service Law. This VIA was prepared in support of the Transmission Project's review under Article VII (Major Electric and Gas Transmission Facilities) of the New York State Public Service Law. The information and conclusions included in this report are intended to assist the New York State Public Service Commission (PSC) in their review of the proposed Project in accordance with the requirements of Article VII. The purpose of this VIA is to:

- Define the visual character of the Project study area
- Inventory and evaluate existing visual resources and viewer groups within the study area
- Describe the appearance of the visible components of the proposed Project
- Evaluate potential Project visibility within the study area
- Identify key views for visual assessment
- Assess the visual impacts associated with the proposed Project



Inset 1. Regional Project Location

This VIA was prepared by environmental professionals and registered landscape architects experienced in the preparation of visual impact assessments. It is also consistent with the policies, procedures, and guidelines contained in established visual impact assessment methodologies (see Literature Cited/References section)..

2.0 Project Description

2.1 Project Route

The proposed Transmission Project includes approximately 15 miles of new overhead 115 kV transmission line. The proposed transmission line will pass through the Towns of Jasper, Canisteo, and Hornellsville, and the Village of Canisteo in Steuben County, New York. The line would begin at the proposed 34.5/115 kV Canisteo Wind Farm collection substation in the Town of Jasper, New York, located approximately 0.5 mile west of the intersection of County Route (CR) 63 and North Road. The transmission line would then travel from the collection substation in a generally north/northeast direction, approximately 3.3 miles through the Town of Jasper, 8.9 miles through the Town of Canisteo (of which 0.9 miles occur within the Village of Canisteo) and 2.3 miles through the Town of Hornellsville. The transmission line would be located entirely on private property (except at road and highway crossings), with easement rights that have been obtained by the Applicant from the landowners. It would terminate at a proposed POI substation located on property owned by New York State Electric and Gas Corporation (NYSEG), immediately adjacent to the existing Bennett Substation (Inset 2).

Inset 2 - Existing New York State Electric and Gas Corporation (NYSEG) 115 kV Bennett substation

2.2 Project Components

The Transmission Project is anticipated to require the installation of a total of 106 steel monopoles, wood H-frame structures, and wood 3-pole structures ranging in height from 47 feet to 115 feet. The structures will carry three sets of bundled conductors, which will be connected to the poles by ceramic insulators. A single static or shield wire will be

connected to the highpoint of the poles and will generally run the full length of the transmission line. The transmission line will terminate at the existing Bennett Substation and the interconnection will be facilitated by a new dead-end structure which will connect the proposed transmission line to an existing open bay within the footprint of the substation. Figure 2 illustrates the appearance of each of the Project components described above.

3.0 Existing Visual Character

3.1 Visual Study Area

In accordance with New York State Department of Public Service (DPS) Article VII regulations, (NYSDPS, 2010), the area within 3 miles, on either side of the proposed transmission line, was defined as the visual study area. The visual study area boundaries are depicted on Figure 3. Within the visual study area, the character of the landscape was described, viewer groups were defined, and visually sensitive resources of national, statewide, and local significance were identified. Landscape character within this area is defined by the basic pattern of existing landform, vegetation, land use and water features. These various elements of the landscape are described below.

3.2 Physiographic Setting

3.2.1 Landform and Vegetation

The visual study area lies within the Glaciated Low Allegheny Plateau physiographic region of New York State (Bryce et al., 2010). This region is a broad, homogenous area of low, rolling hills. It has been glacially smoothed, with flattened hilltops and wide stream valleys. This portion of the Allegheny Plateau has lower relief and gentler slopes than the rugged, unglaciated sections to the southeast, although dissection by both water and ice erosion have resulted in substantial topographic relief in the upland areas (NYSDOT, 2013). The landform within the visual study area is defined by three main valleys which are flanked on both sides by steeply rising hills. The main river valleys are generally oriented in a north-south direction, but several smaller valleys run in an east west direction. Ground surface elevation within the visual study area ranges from approximately 1,080 feet to 2,400 feet above mean sea level (AMSL).

Open fields include active cropland and pasture, and tend to occur on the more level hilltops, and within the major valleys. Forestland occupies the steeper ravines and ridge slopes throughout the study area, and can also be found along river banks, and in woodlots, hedgerows and wooded wetlands in the more agricultural portions of the study area. The forest is primarily deciduous, consisting of oak, hickory and northern hardwood species. State forests within the study area also include sizeable confer (spruce and pine) plantations.

3.2.2 Land Use

Land use within the visual study area is generally dominated by undeveloped forest, active agriculture and widely scattered rural residences. The primary agricultural activities include production of field crops, dairy farming, and livestock (i.e. cattle, calves, hogs). Concentrated development occurs in the Village of Canisteo and the City of Hornell. The Village of Canisteo consists of a smaller commercial and mixed-use village core, with residential areas extending in all directions to the edge of the village, where land use transitions to a more suburban/rural development pattern. The visual study area also contains two hamlets, which occur at the intersection of major travel routes. The character of these hamlets is variable, based on their size. Greenwood is an example of large hamlet which has some of the visual characteristics of small villages such as the Village of Canisteo. The main street is bordered by single family residences, shops, churches, and a fire hall. Side streets are include closely situated single family homes, and the outskirts of the hamlets host the local school and some larger commercial operations. South Hornell is essentially an extension of the City of Hornell and includes industrial, residential, and open space properties situated along State Route 36.

3.2.3 Water Features

The Canisteo River is the most significant water feature within the visual study area. It enters the study area in the City of Hornell and flows in a general southeasterly direction over approximately 11 miles before exiting the visual study area east of the Village of Canisteo. The Canisteo River is a relatively narrow river that ranges from 35 to 200 feet wide. It passes through a variety of land uses including, villages, forests, and farms. The river occurs within a relatively wide, flat valley, and several transportation routes follow the river corridor. In the Village of Canisteo, the New York State Department of Environmental Conservation (NYSDEC) provides a publicly accessible boat launch on the river. Two tributaries to the Canisteo River, Bennetts Creek and Canacadea Creek also occur within the visual study.

3.3 Landscape Similarity Zones

Defining distinct landscape types within a given study area provides a useful framework for the analysis of a project's potential visual effects. Therefore, Landscape Similarity Zones (LSZs) were defined and mapped within the 3-mile radius visual study area. LSZs within the visual study area were defined based on the similarity of various landscape characteristics including landform, vegetation, water, and land use patterns, in accordance with established visual assessment methods (notably, USDA Forest Service, 1995; Smardon et al., 1988: USDOT Federal Highway Administration, 2015; USDI Bureau of Land Management, 1980). Within the visual study area, the following five distinct LSZs were identified:

- Forest
- Rural Valley
- Rural Upland

- City/Village
- Hamlet

LSZs within the study area were mapped using a Geographic Information System (GIS) classification exercise based on mapped land cover, elevation, and proximity to various landscape or land use features. The mapping of LSZs is a generalization exercise intended for viewing at the macroscopic scale of the entire study area. Therefore, it is possible that field review at a given viewpoint would change the initial GIS-derived LSZ classification based on observed landscape characteristics that are beyond the scale of the GIS analysis. The classification analysis is subtractive, meaning that a given criterion is used to classify a portion of the study area as a particular LSZ, and then the next criterion is applied to classify portions of the remaining land, and so forth, until the entire study area is mapped. The classification and mapping of LSZs within the visual study area was conducted in the following manner:

- The City/Village LSZ was identified as the area inside, or within 1,000 feet of, the mapped boundary of the City of Hornell and the Villages of North Hornell and Canisteo.

- The Hamlet LSZ was identified by visual delineation of the developed areas around named hamlets using aerial photographs. These named hamlets include South Hornell and Greenwood.

- The Forest LSZ was then defined as areas identified as deciduous, evergreen, or mixed forest in the USGS 2011 National Land Cover Dataset (NLCD).

- Finally, all areas remaining unclassified were divided into either the Rural Valley or Rural Upland LSZs based on elevation. All areas below the median elevation in the study area (1,700 feet AMSL) were classified as Rural Valley LSZ, and all areas above the median elevation were classified as Rural Upland.

The area of each LSZ within the visual study area is summarized in Table 2 and depicted on Figure 4. Descriptions of the visual characteristics of each LSZ, along with representative photographs, are provided in Sections 3.3.1 through 3.3.5, below.

Table 1. Landscape Similarity Zones by Total Area within the 3-Mile Study Area

Landscape Similarity Zone	Total Area of LSZ within the 3-Mile Study Area (acres)	Percent of Total Area[1] within 3-Mile Study Area
Forest	44,470	62.8%
Rural Upland	12,114	17.1%
Rural Valley	9,292	13.1%
City/Village	4,529	6.4%
Hamlet	398	0.6%

[1]The 3-mile study area includes approximately 111 square miles, or approximately 70,796 acres.

3.3.1 Forest

Inset 3. Representative photo of the Forest LSZ from Turkey Ridge State Forest in the Town of Jasper

Forest is the largest LSZ, covering 62.8% of the visual study area. This zone is characterized by the dominance of mature mixed deciduous and coniferous tree species. Within the visual study area, the Forest LSZ often occurs in conjunction with areas of steeper topography, such as ravines and the wooded slopes that border major river/creek valleys. While this zone occurs throughout the visual study area, larger areas of contiguous forest occur in the northern portion, where forested areas occur along steep hillsides associated with valleys formed by tributaries of the Canisteo River. In the southern portion of the visual study area, forested areas are less common, as the more moderate topography is well-suited for agricultural use. Larger blocks of forest can be found on private lands with limited access, as well as on public lands such as the

Canacadea, Greenwood, Turkey Ridge, and Rock Creek State Forests and the Burt Hill Multiple Use Area. Seasonal, unpaved roads often run through the state forests, and small streams are typically found in the valleys between forested hillsides. Open Views in this zone are generally restricted to areas where small clearings and road cuts provide breaks in the tree cover. Long-distance views within this LSZ are uncommon, and tend to be available primarily along roadways, although the winding seasonal roads, and changes in topography, limit the duration and distance of most outward views. Where long distance views are available, they are typically tightly framed by the surrounding trees and hillslopes (See Inset 3). Land use in this zone includes low-density residential development and recreation activities such as hiking, hunting, and snowmobiling.

3.3.2 Rural Upland

Inset 4. Rural upland as seen from Cornell Road, Town of Greenwood

The Rural Upland LSZ makes up 17.1% of the visual study area. This LSZ occurs on hilltops and elevated ridges within the northeastern portion and southern half of the visual study area. This zone is characterized by widely dispersed farms with open agricultural land, including cultivated crop fields and pastures, and rural residences along a network of county and local roads. Active agricultural fields, largely consisting of corn, alfalfa, hay, winter wheat, and soybeans, dominate the landscape. Topography within the Rural Upland LSZ is generally level to gently rolling before falling off into the adjacent

valleys. Due to its relatively high elevation, and the abundance of open agricultural land, views in this LSZ are generally open, with long-distance, panoramic views available in many locations (see Inset 4). These views typically include open fields in the foreground, mixed with occasional farm structures and equipment. The fields are often backed or bordered by hedgerows and woodlots. Views across broad valleys to more distant wooded slopes and hilltops are available from many locations.

3.3.3 Rural Valley

Inset 5. County Road 119 (Canisteo River Road), Town of Canisteo

The Rural Valley LSZ makes up 13.1% of the visual study area. This zone is characterized by open agricultural fields mixed with woodlots and widely-spaced farms and homes. Low-density residential development within this LSZ is generally characterized by older single-family residences, farm houses, and associated structures located along the frontage of major roads. Newer residences tend to be set back into the landscape, often in more wooded areas. This zone includes the Canisteo River Valley, as well as the valleys of several associated tributaries. The rivers are characterized by gentle gradients, shoreline wetlands, and steep banks which are often lined with mature trees and brush that tend to screen views to and from the rivers. The zone is dissected by a network of local roads, as well as more heavily traveled highways such

as SRs 36, 248, and 417. Dominant activities in the Rural Valley LSZ area include typical residential activities, farming, local travel, and recreational activities such as fishing, snowmobiling and hunting. Due to the abundance of farm land, higher population density, and larger transportation corridors, lands in the Rural Valley LSZ often offer open views to a larger number of viewers than the previous two LSZs. These views typically include open fields in the foreground, with scattered homes and farms (see Inset 5), backed or bordered by forested hills that define the horizon. However, in all cases, the surrounding hills limit views of landscape features outside the valleys.

3.3.4 City/Village

Inset 6. Fifth Street and Greenwood Road, Village of Canisteo

The City/Village LSZ occupies 6.4% of the study area and includes the City of Hornell and the Villages of Canisteo and North Hornell. This LSZ is characterized by moderate to high-density residential and commercial development. Cities and villages within this zone are often well-organized and centered around either a central business district, a grid of residential streets, or along a main street, with both residential neighborhoods and commercial development along the outskirts. Landform and ornamental vegetation may contribute to visual character in this zone, but buildings (typically 1-3 stories tall) and other man-made features dominate the landscape (see Inset 6). Buildings and structures are typically arranged along

an organized street pattern that tends to screen outward views and focus views along the main streets. In some areas, trees along the streets and within yards further enclose and obstruct views within this zone. However, major street corridors and the edges of the City/Village LSZ (where there is typically less dense development), offer the opportunity for more unobstructed views of the surrounding landscape. Because these settlements typically occur in valley settings, long-distance views are generally limited by the surrounding hillsides.

3.3.5 Hamlet

Inset 7. Main Street Bridge over the Tuscarora Creek, Hamlet of Greenwood

The Hamlet LSZ occupies 0.5% of the study area and includes the Hamlets of Greenwood and South Hornell. This LSZ is characterized by relatively small communities centered around a main street or major intersection. This zone may include areas of commercial development, clusters of homes, and churches (see Inset 7). The surrounding landscape is characterized by a mix of rural land, including agricultural fields, rural residences, and forest land. North Hornell occurs in the northern portion of the study area and a portion of the Hamlet of Greenwood occurs in the southern portion of the study area. Due to the presence of adjacent open fields, views from locations along the edge of this LSZ are relatively open. These views typically include open fields, well-spaced homes and farms, and small woodlots. However, because this LSZ

is typically found within valleys, long-distance views are generally limited by the surrounding hills that form the visible horizon.

3.4 Viewer/User Groups

Three categories of viewer/user groups were identified within the visual study area. These groups include local residents, through-travelers/commuters, and tourists/recreational users.

3.4.1 Local Residents

Local residents include those who live and work within the visual study area. These individuals generally view the landscape from their yards, homes, local roads, schools, and places of employment, and are the group with the greatest opportunity for regular views of the proposed Project. The largest concentration of local residents is found in the City of Hornell which has a population of 8,563, followed by the Village of Canisteo (2,270), and the Village of North Hornell (778). Residents living outside of the main population centers occur in relatively low density throughout the study area. Except when involved in local travel, residents are likely to be stationary and have frequent or prolonged views of the landscape. Local residents may view the landscape from ground level or from elevated viewpoints such as windows in the upper stories of their homes. Residents' sensitivity to visual quality is variable. However, it is assumed that local residents may be very sensitive to changes in views from their homes, yards and local roads.

3.4.2 Through-Travelers/Commuters

Through-travelers and commuters passing through the area view the landscape from motor vehicles on their way to work or other destinations. They are moving, have a relatively narrow field of view, and are destination oriented. Drivers on major roads in the area (e.g., SRs 36, 248 and 417) will most often be focused on the road and traffic conditions but will also have the opportunity to observe roadside scenery. Passengers in moving vehicles will have greater opportunities for prolonged views of the surrounding countryside than will drivers, and so may have greater perception of changes in the visual environment. However, these views will generally be peripheral and fleeting. Commuters' and travelers' sensitivity to visual quality is variable. However, it is assumed that through-travelers will generally have limited perception of, or sensitivity to, visual change, while local commuters and travelers may be sensitive to changes in views of areas that they travel through on a regular basis.

3.4.3 Tourists/Recreational Users

Tourists and recreational users include local residents and out-of-town visitors involved in cultural and recreational activities at parks, historic sites, and in undeveloped natural settings such as state forests and trails (e.g. Turkey Ridge State Forest and the Finger Lakes Trail). These viewers are concentrated at the recreational and cultural sites located within the visual study area, and view the landscape from area highways while on their way to these destinations, as well as from the destinations themselves. This group includes snowmobilers, cyclists, boaters, hunters, fishermen, hikers, and those

involved in more passive recreational activities such as picnicking, sightseeing, and walking. Visual quality may or may not be an important part of the recreational experience for these viewers. However, for some, scenery will be a very important part of their experience, and scenic quality typically enhances the quality of any recreational experience. Tourists and recreational users will often have continuous but changing views of landscape features while engaged in their activities.

3.5 Visually Sensitive Resources

In accordance with standard visual impact assessment practice in New York State, visually sensitive resources (VSRs) were identified in accordance with guidance provided by NYSDEC Program Policy DEP-00-2 *Assessing and Mitigating Visual Impacts* (NYSDEC, 2000), which defines specific types of properties as VSRs of statewide significance. In addition, EDR identified other resources that could be considered visually sensitive based on the type or intensity of use they receive. The categories of VSRs that require consideration in this VIA and their occurrence within the visual study area are listed below in Table 2.

Table 2. VSR Types and Occurrence within the Visual Study Area

Visually Sensitive Resource Type	Occurrence within the Visual Study Area
Properties Listed on the National or State Register of Historic Places	8
Properties Eligible for Listing on the National /State Register of Historic Places	12
National Wildlife Refuges, State Game Refuges and State Wildlife Management Areas	0
National Natural Landmarks	0
National Parks, Recreation Areas, Seashores and/or Forests	0
National or State Designated Wild, Scenic, or Recreational Rivers (NYSDEC pursuant to ECL Article 15 or the U.S. Department of the Interior pursuant to 16 USC Section 1271) & Nationwide Rivers Inventory (NRI)	1
Federal and State Designated Trails	2
NYSDEC Trails	3
Snowmobile Trails	1
State Parks	0
State Designated Heritage Areas	0
State Forest Preserve Lands (Adirondack and Catskill Parks)	0
State Nature and Historic Preserve Areas	0
NYSDEC Lands	5
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible as Scenic	0
Scenic Areas of State Wide Significance (SASS)	0
Adirondack Park Scenic Vistas	0
Palisades Park	0
Areas of Intensive Land Use (City, Village, Hamlet)	4
Transportation Corridors	3
Local Parks and Recreation Areas	3

Visually Sensitive Resource Type	Occurrence within the Visual Study Area
NYSDEC Public Fishing Rights	1
School and College Campuses	2
Cemeteries	8
Locally Identified Resources	11
Total VSRs	**64**

To identify VSRs within the visual study area, EDR consulted a variety of data sources, including digital geospatial data (shapefiles) obtained primarily through the NYS Geographic Information System (GIS) Clearinghouse or the Environmental Systems Research Institute (ESRI); national, state, county, and local agency websites as well as websites specific to identified resources; the DeLorme Atlas and Gazetteer for New York State; USGS 7.5-minute topographical maps; and web mapping services such as Google Maps. The mapped locations of inventoried VSRs are shown in Figure 5.

VSRs within the 3-Mile Visual Study Area

The Project's 3-mile visual study area includes 66 sites categorized as visually sensitive resources of national, statewide, or local significance (see Appendix B). These include eight individual properties listed on the National Register of Historic Places (NRHP); one river listed on the National River Inventory; one nationally-designated trail; one state-designated trail; one state multiple use area, one snowmobile trails, four NYSDEC lands, and one designated public fishing access point on the Canisteo River. One city, two villages, two hamlets, four heavily used transportation routes, three local parks/recreation areas, eight cemeteries, two golf courses, two schools, and ten locally-identified resources (EDR, 2018) were also identified within the 3-mile visual study area.

Sites Listed on the State and National Register of Historic Places

EDR reviewed the NHRP website, the New York State Office of Parks, Recreation & Historic Preservation (NYSOPRHP) Cultural Resources Information System (CRIS) website, and the NYSOPRHP shapefile for buildings, structures, objects and historic districts listed in the NRHP to identify significant historic buildings and/or districts located within three miles of the Project site (NPS, 2018c; NRHP, 2018a, 2018b; NYSHPO, 2018). These include: The Northrup Hill School District 10 Building, Town Line Church, Lincoln School, Hornell Public Library, Temple Beth-El, Adsit House, Old Post Office, Hornell Armory, and St. Ann's Federation Building.

NRHP-Eligible Sites and Districts

A total of 12 sites within the 3-mile radius study area that have been designated as NRHP-eligible by the NYSOPRHP. The highest concentration of NRHP-eligible sites is located in the Hamlet of Greenwood, which includes seven individual properties. The Hornell Downtown Historic District occurs in the City of Hornell and is situated along Main Street in the

Hornell downtown core. It includes several of the NRHP listed structures mentioned previously. Sites not located in the more populated areas include cemeteries and residential properties.

National or State Designated Wild, Scenic and Recreational Rivers:

Review of the National Wild and Scenic Rivers website and the NYSDEC Wild, Scenic and Recreational Rivers website indicates that no formally designated wild, scenic or recreational rivers are located within the visual study area (National Wild and Scenic Rivers, 2018; NYSDEC, 2018h). The National Park Service Nationwide Rivers Inventory (NRI) was also consulted, as it is roughly equivalent to an eligible-for-listing designation. The NRI lists *"free-flowing river segments in the United States that are believed to possess one or more outstandingly remarkable natural or cultural values judged to be of more than local or regional significance*" (NPS, 2018). The NRI lists a 46-mile segment of the Canisteo River for its "outstandingly remarkable" recreation. The NRI-designated portion of the river is seasonally a Class I white water and provides smallmouth bass and walleye fishing (NPS, 2018). At its closet point within the visual study area, this segment of the Canisteo River is crossed by the proposed transmission line in Hornellsville (south of the City of Hornell) and again in Canisteo (North of the Village of Canisteo).

Federal or State Designated Trails:

One nationally-designated trail, the North Country National Scenic Trail, traverses the northern part of the visual study area (NPS, 2018d). In March 1980, Congress passed legislation authorizing the North Country National Scenic Trail, the longest continuous hiking trail in the United States. The North Country National Scenic Trail stretches 4,600 miles, crossing seven states (North Dakota, Minnesota, Wisconsin, Michigan, Ohio, Pennsylvania, and New York). The trail connects scenic, natural, historic, and cultural areas (NPS, 2018d; North Country Trail Association, 2018). At its closest point, the trail passes within 2.0 miles of the proposed transmission line.

One state-designated trail, the Finger Lakes Trail, also traverses the northern part of the visual study area and coincides with portions of the North Country National Scenic Trail (NYSOPRHP, 2016c). At its closest point, it passes within 2.0 miles of the proposed transmission line. The Finger Lakes Trail system passes through several state-owned properties in the area, as well as private lands. It includes over 950 miles of trails that run from the Pennsylvania-New York border in Allegany State Park to the Long Path in the Catskill Forest Preserve (Finger Lakes Trail Conference, 2018). One lean-to on the Finger Lakes Trail is located within the visual study area. This lean-to is on the Burt Hill Multiple Use Area, approximately 2.5 miles from the nearest point along the proposed transmission line. This site is completely forested with no long-distance views.

Snowmobile Trails:

The Ten Towns Snowmobile Club maintains approximately 10.2 miles of snowmobile trail within the visual study area. At its closest point to the Project, one snowmobile trail maintained by this club runs within 0.4 mile of the proposed transmission line.

NYSDEC Lands:

There are four NYSDEC-owned state forests and one NYSDEC-owned multiple use area within the visual study area (NYSDEC, 2018c; NYSDEC 2018g). These areas are used for resource management (timber production) and outdoor recreation, including hiking, biking, hunting and enjoyment of nature. All of the NYSDEC lands found within the visual study area have similar landscape character and scenic qualities, with open views generally restricted to the extreme edges and narrow seasonal road corridors. NYSDEC lands within the visual study area include the following:

- *Turkey Ridge State Forest.* At its closest point, the forest is approximately 0.1 miles from the nearest point along the transmission line. Turkey Ridge State Forest also contains a designated DEC trail, Turkey Road Trail. At its closest point this trail is approximately 0.1 mile from the nearest proposed transmission component. This is a multiple use trail for hiking, mountain biking, horseback riding, cross country skiing and snowmobiling.
- *Greenwood State Forest.* At its closest point, the forest is approximately 2.6 miles from the nearest point along the proposed transmission line.
- *Rock Creek State Forest.* At its closest point, the forest is approximately 2.1 miles from the proposed transmission line.
- *Burt Hill Multiple Use Area.* At its closest point, this area is approximately 1.9 miles from the nearest point along the proposed transmission line
- *Canacadea State Forest.* At its closest point, the forest is approximately 2.0 miles from the nearest point along the proposed transmission line

NYSDEC River Access Sites:

There is one NYSDEC designated car top boat launch/fishing access point located along the Canisteo River in the Town of Canisteo, just north of the Village of Canisteo. This boat launch is coincident with Rotary Park and is approximately 0.2 miles from the proposed transmission line.

Areas of Intensive Land Use:

Areas of concentrated settlement within the visual study area are considered visually sensitive due to the type/intensity of land use they receive. The City of Hornell, with an area of 2.83 square miles and a population of approximately 8,500 (U.S. Census Bureau, 2010), is located approximately 0.2 mile from the proposed transmission line.

Two villages are located wholly or partially within the visual study area. These include the following:

- The Village of Canisteo hosts approximately 0.9 mile of the proposed transmission line.
- The Village of North Hornell is located 2.1 miles north of the proposed transmission line.

For more information on the visual character of the city and villages see Section 3.3.4.

There are also two hamlets located within the 3-mile visual study area. These include Greenwood and South Hornell. For more information on the visual character of the hamlets see Section 3.3.5

Transportation Corridors:

Four well-used transportation corridors traverse the visual study area, all of which are state highways. Each of these is listed below, along with their distance to the nearest proposed Transmission Project component:

- State Route 417, 1.6 miles.
- State Route 36 crossed by the proposed transmission line.
- State Route 248A, 0.4 mile.

For more information on the visual character of the transportation corridors as they travel through the Rural Valley LSZ see Section 3.3.3.

Local Parks and Recreation Areas

Recreational resources within the study area also include local parks. The discussion below highlights these local parks and recreational areas.

- *Veterans Memorial Park* at James Street in the City of Hornell is approximately 0.3 miles from the nearest component of the proposed transmission line. Amenities include picnic pavilions, a walking path, swimming pool, playground, softball fields, baseball field, soccer field, tennis court, and concession area.

- *Rotary Park* in Canisteo is approximately 394 feet away from the proposed transmission line. Amenities include playing fields, a playground, pavilions, picnic areas and a NYSDEC car top boat launch. The site is located in a small strip of land between the Canisteo River and an elevated portion of SR 36.

- *Maple City Park* is located in the City of Hornell adjacent to the high school. The park serves the local community by hosting high school activities, and is also the home of the Hornell Dodgers, part of the New York Collegiate Baseball League. Maple City Park is approximately 1.9 miles away from the proposed transmission line.

Public Schools:

Two schools within the Canisteo-Greenwood Central School District also occur within the 3-mile visual study area. The Canisteo-Greenwood Elementary and Middle School is located at 120 Greenwood Street in Canisteo, 0.9 miles from the proposed transmission line. The Canisteo-Greenwood High School is located at 84 Greenwood Street in Canisteo, 0.7 miles from the proposed transmission line.

Cemeteries:

Eight cemeteries occur throughout the 3-mile radius study area, often, in conjunction with an adjacent church. These include the Thomas, Greenwood, Tom Hallett, Hallett, Baker, Carter, Meeks, and Stephens Cemeteries. Many of these cemeteries occur within the Rural Valley and the Rural Upland LSZs, where adjacent agricultural fields provide opportunities for open, outward views. In some directions, outward views are screened by hedgerows and woodlots that surround these cemeteries. The cemeteries that fall within the Forest LSZ are often small cleared plots surrounded by forest, with no outward views available. The overall size of the cemeteries found in the study area vary greatly. However, the visual characteristics based on LSZ hold true regardless of the overall size. Distances from the Project to each of these cemeteries is provided in Appendix D.

4.0 Visual Impact Assessment

The visual impact assessment (VIA) procedures used for this study are based on visual impact assessment methodologies developed by the New York State Department of Transportation (1988), U.S. Department of the Interior, Bureau of Land Management (1980), U.S. Department of Agriculture, National Forest Service (1974), the U.S. Department of Transportation, Federal Highway Administration (1981), the U.S. Army Corps of Engineers (Smarden, et al., 1988) and the New York State Department of Environmental Conservation (not dated). The specific techniques used in this study and the results of the VIA are described below.

4.1 Project Visibility

An analysis of Project visibility was undertaken to identify those locations within the visual study area where there is potential for the proposed Transmission Project to be seen from ground-level vantage points. This analysis included identifying potentially visible areas on viewshed maps and verifying Project visibility in the field. The methodology employed for each of these assessment techniques is described below.

4.1.1 Viewshed Analysis

A topographic viewshed map for the proposed Transmission Project was prepared using ESRI ArcGIS® software with the Spatial Analyst extension. Input data included 10-meter resolution USGS digital elevation model (DEM) data (7.5-minute series) for the visual study area, along with the location and height of all proposed transmission structures and tallest components within the POI substation. An assumed viewer height of 5.6 feet was used in the viewshed analyses.

The ArcGIS program defines the viewshed by reading every cell of the DEM data and assigning a value based upon the existence of a direct, unobstructed line of sight to proposed facility location/elevation coordinates from observation points throughout the study area (defined by 10-meter square grid cells covering the entire visual study area). The resulting viewshed defines the maximum area from which any portion of the completed Transmission Project could potentially be seen within the study area based on a direct line of sight, and ignoring the screening effects of existing vegetation and structures. The results of this analysis were then presented on a viewshed map (Figure 7).

Because the screening provided by vegetation and structures is not considered in this analysis, the topographic viewshed represents a true "worst case" assessment of potential Transmission Project visibility. Topographic viewshed maps assume that no trees exist, and therefore are very accurate in predicting where visibility will not occur due to topographic interference. However, they are less accurate in identifying areas from which the Project could actually be visible. Trees and buildings can limit or eliminate visibility in areas indicated as having potential Transmission Project visibility in the topographic viewshed analysis.

To supplement the topographic viewshed analysis, a vegetation viewshed was also prepared to illustrate the potential screening provided by forest vegetation. A base vegetation layer was created using the 2011 USGS NLCD to identify the mapped location of forest land (including the Deciduous Forest, Evergreen Forest and Mixed Forest NLCD classifications) within the visual study area. Based on standard visual assessment practice, the mapped locations of the forest land were assigned an assumed height of 40 feet and added to the DEM. Areas of proposed clearing associated with the transmission line (100 feet) were accounted for by assigning the bare earth elevations to the NLCD forest vegetation layer where clearing would occur. Additionally, clearing associated with the proposed Canisteo Wind Project was also included in the modification of the NLCD layer. This clearing included, areas around turbines (250 feet), and along access roads (80 feet) and buried collection lines (40-200+ feet). The Transmission Project viewshed analyses were then run, as described above. Once the initial vegetation viewshed analysis was completed, a Spatial Analyst conditional statement was used to assign zero visibility to all areas of mapped forest, resulting in the final vegetation viewshed. The vegetation viewshed is based on the assumption that in most forested areas, outward views will be well screened by the overhead tree canopy. During the growing season the forest canopy will fully block views of the proposed facilities, and such views will typically be almost completely obscured, or at least significantly screened by tree trunks and branches, even under "leaf-off" conditions. Although there are certainly areas of mapped forest with natural or man-made clearings that could provide open outward views, these openings are rare, and the available views would typically be narrow/enclosed and include little of the proposed Project.

Because it accounts for the screening provided by mapped forest stands, the vegetation viewshed is a much more accurate representation of potential Transmission Project visibility. However, it is important to note that because screening provided by buildings and smaller stands of trees (hedgerows, street/yard trees, etc.) as well as characteristics of the proposed facilities that influence visibility (color, narrow profile, distance from viewer, etc.), are not taken consideration in the viewshed analyses, being within the vegetation viewshed does not necessarily equate to actual Project visibility.

As mentioned previously, the topographic/DEM viewshed results are most accurate at identifying areas where there is no potential for views of the Project due to topographic interference, and less accurate at predicting actual Project visibility due to its overly conservative nature (i.e., effectively assuming that no trees or structures exist in the landscape). Based only on the screening provided by topography, the DEM viewshed analysis indicates the Project will be fully screened from view by intervening topography from approximately 43.5% of the 3-mile radius study area (Figure 6). Generally speaking, topography provides little screening in areas within 0.5 to 1 mile of the proposed centerline and increasingly limits views as distance from the centerline increases. Portions of the visual study area

where there is no possibility of seeing the proposed transmission structures include most stream valleys that lie in the outer portions of the visual study area, more than 0.5 mile from the transmission line (e.g. portions of Crosby Creek, Cunningham Creek, Purdy Creek, Stephens Creek, Fall Creek, Bennett Creek, and Milwaukee Creek). NYS Route 417 is fully screened from Project views by intervening topography, as is a long section of NYS Route 248.

Factoring vegetation into the viewshed analysis, in combination with topography, significantly reduces potential Project visibility throughout the visual study area (Figure 6). The combination of these features will serve to block views of the Project from approximately 86.5% of the 3-mile radius study (i.e., 13.5% of the visual study area is indicated as having potential Project visibility). The reduction in Project visibility throughout the visual study area (43.0% less), in comparison with the topographic viewshed analyses, is due to the prevalence of forested slopes and ridgelines found throughout the visual study area. This restricts the opportunity for open, long distance views of the Project primarily to elevated open/agricultural areas, while foreground views of the project are common in open fields adjacent to (or within 0.5 mile of) the proposed transmission line.

Project visibility is indicated within the Canisteo River Valley, along NYS Route 36, and along the ridgeline of Jackson Hill. Visibility is also indicated throughout much of the City of Hornell and the Village of Canisteo; however, the vegetation viewshed overstates visibility in densely populated areas such as these because the screening provided by structures and street trees (which are prevalent in cities and villages) is not accounted for. Visually sensitive resources that may have views of the proposed transmission line include six NRHP-listed resources (all located in the City of Hornell), 4 NRHP-eligible resources (located in the City of Hornell and the Village of Canisteo), the Canisteo River, North Country National Scenic Trail, the Finger Lakes Trail, NYS Routes 36 and 248, Canisteo-Greenwood schools, four State Forests and one Multiple Use Area, Ten Towns Snowmobile Club snowmobile trail, and 2 cemeteries. Appendix D contains a full list of VSRs and potential visibility of the Project based on the viewshed analysis results.

4.1.2 Field Verification

EDR personnel conducted field review in and around the visual study area on October 16, 2018. During this site visit, EDR staff drove public roads and visited prominent vantage points to document locations where the proposed transmission line and POI substation would likely be visible, partially screened, or fully screened. The site visit resulted in photographs from 37 representative viewpoints within the visual study area. The viewpoints document potential visibility of the Transmission Project from the various LSZs, distance zones, directions, and VSR throughout the visual study area. Weather conditions during the field review were generally favorable and represented high-visibility conditions. A photolog, including viewpoint information, a representative photograph from each viewpoint toward the

Project site (or the direction of the dominant view if the site was not visible) is included in Appendix B. The locations of viewpoints documented during field review are shown in Figure 7.

During the field surveys, photographs were taken with a Canon EOS 5D Mark IV with a fixed 50 mm lens. A 50 mm focal length most closely approximates the relative scale and perspective relationship of objects in the landscape (minimal distortion between foreground, middle ground, and background elements). Viewpoint locations were determined using hand-held global positioning system (GPS) units, high resolution aerial photographs, and high-resolution lidar data (to determine elevation). The time and location of each photograph were documented on all electronic equipment (camera, GPS unit, etc.) and noted on field data sheets. Where views toward the Project site existed, photographs obtained during field review generally represented the most open, unobstructed views available. Existing structures on or adjacent to the Project site (such as houses, utility poles and communication towers) were often included in the photographs to assist with viewer orientation and subsequent preparation of visual simulations.

Field review confirmed that potential Project visibility was largely consistent with the results of the vegetated viewshed analysis (see Figure 6). Areas where potential differences were noted included the roads within river valley, and more highly developed areas. It was observed that viewer positions within the rural valley floors, where many of the more heavily traveled roadways are found, foreground vegetation and (to a lesser degree) structures, along with adjacent forested hills, played a larger role in screening potential views, than the viewshed indicated. Examples of this occurred along SRs 248 and 36 in the Towns of Greenwood and Canisteo. In areas of dense development, such as the City of Hornell, the Village of Canisteo and various hamlets throughout the study area, structures, hedgerows, and landscape plantings, not taken into consideration in the vegetation viewshed analysis, screened views toward the proposed Project in many locations where the viewshed analysis suggested potential visibility. This was most apparent in the City of Hornell and the Village of Canisteo, where structures and foreground trees blocked outward views toward the Project. The observed conditions recorded when visiting the rural valleys and rural uplands within the study area were generally consistent with the potential visibility suggested by the viewshed analysis results. It is important to note that the viewshed analysis predicts visibility from the tallest portions of the Project and field review determined that from many longer distance views (in excess of one mile), only small portions of the conductors and/or poles would be visible above existing vegetation and thus very difficult to see. Notable elevation changes where the proposed transmission line transitions from the valley to upland areas will be visible over longer distances, particularly when this hillside transition involves cleared vegetation for the transmission line ROW. Based on field review, this scenario is likely to occur in southeast of the Village of Canisteo, where the Project beings to ascend to the upland zone.

4.2 Project Visual Impact

Beyond evaluating potential Project visibility, the VIA also examined the visual impact of the proposed Project on the LSZs, identified VSRs, and viewer groups within the visual study area. This assessment involved creating computer models of the of the proposed transmission line structures, selecting representative viewpoints, and preparing computer-assisted visual simulations of the proposed Project. The visual simulations were evaluated by a visual professional with experience in conducting VIAs to determine the type and extent of visual impact likely to result from installation of the proposed Transmission Project. Details of the visual impact assessment procedure are described below.

4.2.1 Viewpoint Selection

The selection of viewpoints to use in the production of representative visual simulations is a collaborative and iterative process involving identification of sensitive/representative views from various LSZs, VSRs, distance zones and user groups within the visual study area. During the selection process recommended viewpoints are adjusted/changed based on info gathered during the simulation production process to make sure views of the Project are as clear and unobstructed as possible.

Based on the viewpoint selection criteria listed above, a total of nine viewpoints were ultimately selected for the development of visual simulations of the Transmission Project. Locational details and the criteria for selection of each individual simulation viewpoint are summarized in Table 4.

Table 3. Viewpoints Selected for Simulation

Viewpoint Number	Location and/or Visually Sensitive Resource	LSZ Represented	Viewer Group Represented	Viewing Distance
9	Magee Road in the Town of Hornellsville (Canisteo Valley Assembly of God Church)	Rural Valley	Local Residents	0.25 miles (1320 feet)
11	2nd Street in the Village of Canisteo	City/Village	Local Residents	0.14 miles (739 feet)
13	County Route 119 in the Town of Canisteo (Canisteo River)	Rural Valley	Through-Travelers/Commuters, Local Residents	0.06 miles (316 feet)
16	Bush Hill Road in the Town of Canisteo	Rural Upland	Local Residents	0.35 miles (1,848 feet)
18	Bush Hill Road in the Town of Canisteo	Rural Upland	Local Residents	0.11 miles (581 feet)
19	Norton Hollow Road in the Town of Jasper (Turkey Ridge State Forest)	Rural Upland	Tourists/Recreational Users	0.09 miles (475 feet)
23	County Route 63 (Jackson Hill Road) in the Town of Jasper	Rural Upland	Through-Travelers/Commuters, Local Residents	0.05 miles (264 feet)
32	State Route 36 (West Main Street) in the Village of Canisteo (Canisteo American Legion Post 846)	City/Village Rural Upland	Through-Travelers/Commuters, Local Residents	0.22 miles (1,161 feet)

Viewpoint Number	Location and/or Visually Sensitive Resource	LSZ Represented	Viewer Group Represented	Viewing Distance
33	County Route 29 in the Town of Hornellsville	Rural Upland	Through-Travelers/Commuters, Local Residents	0.54 miles (2,851 feet)

4.2.2 Visual Simulations

To show anticipated visual changes associated with the proposed Transmission Project, high-resolution computer-enhanced image processing was used to create realistic photographic simulations of the proposed Project from each of the nine selected viewpoints. The photographic simulations were developed by using Autodesk 3ds Max Design® to create a simulated perspective (camera view) to match the location, bearing, and focal length of each existing conditions photograph. Existing elements in the view (e.g., topography, buildings, roads, existing turbines) were modeled based on aerial photographs and DEM data in AutoCAD Civil 3D®. A three dimensional (3-D) topographic mesh of the landform (based on DEM data) was then brought into the 3-D model space. At this point minor adjustments were made to camera and target location, focal length, and camera roll to align all modeled elements with the corresponding elements in the photograph. This assures that any elements introduced to the model space (e.g., the proposed transmission structures) will be shown in proportion, perspective, and proper relation to the existing landscape elements in the view. Consequently, the alignment, elevations, dimensions and locations of the proposed Project structures will be accurate and true in their relationship to other landscape elements in the photograph.

Using the camera view as guidance, the visible portions of the modeled Project components were imported to the landscape model space described above, and set at the proper coordinates. Coordinates for proposed pole locations and 2D and 3D drawings of the proposed transmission line were provided to EDR by the Applicant. EDR used these drawings as a template to generate 3D models of each structure type, insulators, conductors, and static wire. Each structure was also assigned a material (wood, laminate wood, or steel) based on the design specification. The amount of sag in the conductor between transmission structures was provided in the 3D design drawings.

The clearing limits used for the visual simulations were based on Project engineering drawings, which showed clearing within 250 feet of turbines, as well as areas within a 80-foot wide corridor along access roads, 100-foot wide corridor along the transmission line, and a 40-200+-foot wide corridor along collection lines (depending on how many circuits are being proposed in a given area). The clearing limits were modeled for all Project components and rendered in each view to serve as a guide for clearing vegetation in the simulated view, as described below.

To determine if other Project components could potentially be visible in each of the simulated viewpoints, the Project turbines and substation were included in the 3D model.

Once the proposed Transmission Project was accurately aligned within the camera view, a lighting system was created based on the actual time, date, and location of the photograph. Using Autodesk 3ds Max Design® software, light reflection, highlights, color casting, and shadows were accurately rendered on the modeled Project based on actual environmental conditions represented in each photograph. The rendered Project was then superimposed over the photograph in Adobe Photoshop® and portions of the Project components that fall behind vegetation, structures or topography were masked out. Photoshop was also used to take out any existing structures or vegetation proposed to be removed as part of the Project. Once the transmission line is added to the photo, any shadows cast on the ground by the proposed structures were also included by rendering a separate "shadow pass" over the DEM model in Autodesk 3ds Max Design® and then overlaying the shadows on the simulated view with the proper fall-off and transparency using Adobe Photoshop®.

4.2.3 Analysis of Existing and Proposed Views

To illustrate anticipated visual change associated with the proposed Transmission Project, the photographic simulations were reviewed, along with photos of the existing view, in order to compare the aesthetic character of each view with and without the proposed Project in place. Results of this evaluation are presented below.

Viewpoint 9

Existing Conditions

Viewpoint 9 is located on Magee Road in the Town of Hornellsville, at the Canisteo Valley Assembly of God Church. The viewpoint is located in the Rural Valley LSZ, approximately 0.25 miles (1320 feet) north of the nearest point on the proposed transmission line. The existing view includes the surface of Magee Road angling across the view from the immediate foreground to the middle ground. The road carries the viewer's eye to a railroad crossing in the middle ground at the far right side of the view. The remainder of the foreground is occupied by a broad, level hayfield on the opposite side of the road. This field is green in color and defines the valley floor. Beyond the end of the field, an irregular row of dark trees on the valley floor transitions to the wooded hillsides that define the valley walls. The hills have an irregular, rolling form and appear dark in comparison to the cloud covered, but brightly illuminated, sky. This view is experienced primarily by local residents and is considered to have moderate scenic quality.

Proposed View

With the Facility in place, the proposed transmission line can be seen running parallel to the railroad grade along the far side of the foreground field, before heading away from the viewer into the hills. The dark color of the new poles blends well with forested hills in the background and are only obvious when they break the skyline and are visible against the light colored sky. However, the height of the poles remains below the crest of the adjacent hills, and they do not appear out of scale with other landscape features. Although the line is a new man-made element that has been added to the view, it appears compatible with the road and railroad features already present in the view and does not significantly alter perceived land use or scenic quality.

Viewpoint 11

Existing Conditions

Viewpoint 11 is located on Second Street in the Village of Canisteo, approximately 0.14 miles (739 feet) northwest of the closest point on the proposed transmission line. It is at the edge of the City/Village LSZ and is representative of the more open views that will be available to local residents in such locations. The existing view features paved and unpaved driveways in the immediate foreground, backed by open lawn areas. The residential character of the setting is indicated by the corner of a house on the right side of the view and the frame of an accessory structure on the left. The lawn area is crossed by an existing overhead transmission line and backed by a level grass covered flood control levee. In the middle ground, beyond the levee, the landscape transitions to a forested condition, and is characterized by rolling hills that block views of more distant landscape features. The open valley floor, enclosed by forested hills, is typical of the surrounding Rural Valley LSZ. As in the view from Viewpoint 9, the hills appear dark against the brightly illuminated cloudy sky. The lack of landscape variety and scenic focal points, along with the ecliptic mix of man-made features, result in moderate to low scenic quality.

Proposed View

With the proposed Facility in place, a second transmission line has been added to the view. The new line appears to be running along the levee at the back of the foreground lawn areas. It is somewhat further from the viewer than the existing line, but follows a parallel route and is similar in scale and design. It is also consistent with the horizontal line of the levee. The new poles do not extend higher in the sky than those on the existing line, and their color blends with the forested hills in the background. No additional vegetation clearing is necessary to accommodate the new line in this location. While the new line adds some visual clutter to the view, it does not alter perceived land use. Its presence simply strengthens the perception of an existing utility corridor behind the residences in the foreground. Scenic quality and user activity are not substantially altered due to the presence of the new line.

Viewpoint 13

Existing Conditions

Viewpoint 13 is located on County Route 19 in the Town of Canisteo. It is located at the point where the road crosses the Canisteo River, approximately 0.06 miles (316 feet) north of the nearest point on the proposed transmission line. This viewpoint is located in the Rural Valley LSZ. The existing view to the south from this location features the surface of County Route 19 and the bridge over the Canisteo River in the immediate foreground. Guardrails, signs, and overhead utility lines parallel the road edge. The road extends away from the viewer and is flanked by open fields as it curves and turns through the valley. Trees and shrubs along the river bank provide some screening of the valley floor, but portions of level green fields can be seen in the middle ground through breaks in this foreground vegetation. Irregular forested hills rise on all sides of the valley and enclose the view. The hills are dark and prevent outward views of more distant landscape features. The sky overhead is mostly cloudy, but includes small breaks and is brightly illuminated. The typical viewer in this area would be a local resident, and existing scenic quality is considered moderate.

Proposed View

With the proposed Project in place, a large steel pole structure has been added to the foreground of this view, just beyond the bridge over the Canisteo River. A large tree along the edge of the river and road has been removed, and new overhead conductors now span the sky. The existing roadside utility line is also more visible due to the removal of roadside vegetation. In addition, the cleared right-of-way (ROW) for the new line, and additional new transmission structures, now bisect the forested hill in the middle ground on the left side of the view. The new line, and in particular the foreground structure and the cleared ROW behind it, become prominent new focal points in the view. Although the agricultural character of the value remains intact, utility infrastructure now dominates the view. This alteration of perceived land use and the addition of visual clutter reduces the scenic quality of the existing view.

Viewpoint 16

Existing Conditions

Viewpoint 16 is located on Bush Hill Road in the Town of Canisteo. It is approximately 0.35 miles (1,848 feet) southwest of the nearest point on the proposed transmission line, and is representative of the Rural Upland LSZ. The existing view includes a mowed field in the immediate foreground, backed by a mix of successional old field, young pine trees, and a corn field. The corn field gives way to forest land in the middle ground, which extends in a largely unbroken manner up into the background hills. The line of trees at the back of the corn field is illuminated by sunshine from a break in the overhead clouds. The illuminated trees draw the viewer's eye due to their contrast with the darker forested hills in the background. The sky is cloud covered and broken by an overhead utility line that crosses the view in the foreground. The typical viewer in this area would be a local resident, and scenic quality is considered moderate.

Proposed View

With the proposed Project in place, new poles and overhead conductors are added to the view at the back of the corn field in the middle ground, and on the forested hillside in the background. However, the visibility of the new line is limited due to the height and color of the poles, which are consistent with the background vegetation, and the distance of the line from the viewer. Variable lighting conditions tend to increase the visibility of portions of the line that are in the sunlight, and reduce visibility of sections that are in shadow. Orientation of the line also prevents views directly up the ROW from this viewpoint. Despite adding a utility feature to a largely undeveloped view, the presence of the line does not significantly change the perceived land use or scenic quality at this location.

Viewpoint 18

Existing Conditions

Viewpoint 18 is located on Bush Hill Road in the Town of Jasper, approximately 0.11 miles (581 feet) of the nearest point on the proposed transmission line. This viewpoint is located in the Rural Upland LSZ. The existing view to the northwest from this location features an open pasture in the immediate foreground, backed by a block of mature deciduous trees. The trees enclose the view and block views of more distant landscape features. The edge of Bush Hill Road, a barbed wire fence enclosing the pasture, and a lone utility pole on the left side of the view are the only visible man-made features. A typical viewer on this lightly used road would be a local resident. Due to a lack of landscape variability, background visibility, or interesting focal points, scenic quality at this viewpoint is considered moderate.

Proposed View

With the proposed Project in place a new three pole structure and conductors can be seen entering a newly cleared ROW in the middle ground. The visibility of the new line contrasts somewhat with the background vegetation. However, the newly cleared ROW introduces the greatest visual change due to the removal of vegetation which reveals more sky in the background, making the view appear more open. However, the view still maintains some sense of enclosure due to the presence of the remaining vegetation. The orientation of the line relative to the viewer position, prevents visibility of additional structures and views directly down the ROW. Due to the lack of nearby homes, this view would typically be experienced by viewers driving on the road and therefore this would be considered a relatively short duration experience. For these reasons the presence of the line does not significantly change the character or scenic quality from this location.

Viewpoint 19

Existing Conditions

Viewpoint is 19 is located on Norton Hollow Road in the Town of Jasper, at the edge of Turkey Hill State Forest. This viewpoint is located in the Rural Upland LSZ, approximately 0.09 mile (475 feet) east of the nearest point on the proposed transmission line. The existing view features an unpaved rural road that proceeds away from the viewer down a gentle hill before turning sharply left and out of view in the middle ground. The road is flanked by open fields (hay on the right side and corn on the left side), and an overhead utility line. These fields continue into the middle ground, where a house trailer and deciduous hedgerows are present in the center of the view. The field abruptly transitions to forest land, which extends into the background. The forest is level to gently sloping, and occupies the top of a ridgeline that blocks views of more distant landscape features. This view would be available to a relatively small number of local residents who live in the area, as well as recreational users of the state forest (hunters, etc.). Scenic quality at this site is considered moderate.

Proposed View

With the proposed Project in place, a new H-frame transmission structure has been added to the left side of the view, and additional overhead conductors now span the full width of the view. Despite its obvious large size, the new structure is compatible with line, color and form with the existing roadside utility line. The new conductors are visible against the sky, but do not project a significant distance of the tree line, and are consistent with the other overhead lines already present in the view. Presence of the new line does not significantly alter the character or scenic quality of the existing view.

Viewpoint 23

Existing Conditions

Viewpoint 23 is located on County Route 63 (Jackson Hill Road) in the Town of Jasper. It is in the Rural Upland LSZ, directly adjacent to the proposed collection substation. The existing view to the northwest from this location includes the road edge and an unmowed fallow field in the immediate foreground. The field falls away from the viewer into a valley that cannot be seen due to the elevated location of the viewpoint in the height of the vegetation in the adjacent field. Wooded hills rise beyond the field in the middle ground and background, and form a dark, level horizon line. The background hillsides are uniformly forested, with the exception of a single open field on the left side of the view. The dark hills contrast with the bright field in the foreground and the white cloud-filled sky and create strong horizontal lines in the landscape. Scenic quality is considered relatively low due to the lack of variability in the topography and vegetation, and an absence of interesting focal points in the view. A typical viewer would be a local resident or a through traveler.

Proposed View

With the proposed Facility in place, the previously open field in the foreground is now occupied by a new substation. Due to the proximity of the station to this viewpoint, it dominates and redefines the character of the view. The new station is now the focal point of the view and its presence represents a shift to a more industrial/utility land use. The new substation also partially blocks views of the forested hills in the background. The presence of an intervening valley between the foreground and background can still be sensed, but the lay of the land is more difficult to read and subservient to the station in the foreground. Although likely to be viewed by relatively few people, an earth and berm and/or vegetative screening along the roadside could be effective in reducing visibility and visual impact of the substation from this viewpoint.

Viewpoint 32

Existing Conditions

Viewpoint 32 is located on State Route 32 (West Main Street) on the outskirts of the Village of Canisteo, approximately 0.22 miles (1,161 feet) west of the nearest point on the proposed transmission line. This viewpoint is located in the City/Village LSZ, but the available view to the east is more representative of the Rural Valley LSZ. The view looks across the opposite lane and the grassy shoulder of the highway in the immediate foreground to an open cornfield. The cornfield is spanned by an overhead transmission line and backed by a grass covered flood control levee that attracts viewer attention due to its unnaturally horizontal line. A forested hillside, with a few partially screened buildings at its base, rises up to the sky beyond the levee. The hillside is partially illuminated, and the sky is partly cloudy and bright. A typical viewer at this location would be a local resident or a through traveler, and scenic quality is considered moderate.

Proposed View

With the proposed Project in place, new transmission structures and overhead conductors can be seen running along the glass covered levee at the far side of the cornfield in the foreground. The new structure's dark color blends with forest vegetation in the background, and their line, scale, and orientation are consistent with the existing utility lines present in this view. The orientation of the new line is also consistent with the horizontal line of the levee that it follows. Portions of the line that are illuminated by the sun are somewhat more visible than those that are in shadow, but overall, the line is difficult to perceive, and does not substantially change the visual character or scenic quality of the view.

Viewpoint 33

Existing Conditions

Viewpoint 33 is located on County Route 29 in the Town of Hornellsville, approximately 0.54 mile (2,851 feet) east of the nearest point on the proposed transmission line. This viewpoint is located in the Rural Upland LSZ, and looks over a broad valley (Canisteo River Valley) characterized by a mix of open fields, hedgerows, woodlots, and scattered farm and residential structures. In the foreground, roadside vegetation including trees, shrubs, and corn stalks, gives way to an open hayfield in the valley. The hayfield backs up on a relatively thin hedgerow that partially screens what appear to be large white commercial or farm structures. Beyond these structures, the valley continues on with a mix of fields and forest in the middle ground, to the base of a largely wooded hillside. The hill is partially illuminated, which accentuates its undulating topography, and includes several small clearings associated with homes, pastures, and a utility line. The crest of the hill is relatively close to the viewer and blocks views of more distant landscape features. The typical viewers at this location would be local residents and through travelers, and scenic quality is considered moderate.

Proposed View

With the proposed Project in place, the new transmission line can barely be perceived running through the middle ground valley. Because of the complexity of the landscape, and the abundant screening provided by trees in the valley, the new structures and conductors are largely screened or lost amongst other features of the landscape. The presence of existing structures/man-made features in the valley, and the distance of the line from the viewer, minimize Project visibility and visual impact at this location. The patchwork of fields and forests in the valley, and the illuminated hillside in the background, remain the dominant character-defining features in the view. Neither landscape character or scenic quality are significantly altered by the presence of the new line.

5.0 Conclusions

The VIA for the Canisteo Wind Project Transmission Facility allows the following conclusions to be drawn:

1. Maximum visibility analysis (i.e., viewshed analysis based only on topography) conducted as part of this VIA indicates that the proposed transmission line will be fully screened by intervening topography in approximately 43.5% of the 3-mile radius study area. Factoring mapped forest vegetation into the viewshed analysis significantly reduces potential transmission line visibility. Vegetation, in combination with topography, will serve to block views of the transmission line from approximately 86.5% of the 3-mile study.

2. Based on the vegetated viewshed analysis, seven of the of the eight NRHP sites could have potential visibility of the proposed Project. However, field review suggests that an additional six sites in the City of Hornell would not have views of the Project due to screening provided by the surrounding buildings in the downtown core. Of the 12 inventoried NRE sites, three have potential visibility of the proposed Project based on the vegetated viewshed analysis. Based on field review, two of the three sites with potential visibility, occur in the Village of Canisteo downtown area and are screened by surrounding buildings and homes. The vegetated viewshed analysis suggests areas of potential visibility will occur on the Finger Lakes Trail and the North Country Trail. This area of visibility occurs for an approximately 0.8 mile section, where the two trails are coincident on Laine Road, approximately 2 miles from the proposed Project.

3. Field review confirmed that the Project visibility is generally concentrated in the rural valley where the Proposed transmission line alignment is generally following open areas associated with existing transmission lines, fields, highways, and developed areas. The visibility of the line typically diminishes once the viewer is greater than one mile from the Project. In some instances, visibility diminishes completely beyond 0.5 mile of the line. This is particularly true in the City of Hornell and the Village of Canisteo.

4. The forest LSZ has the least amount of visibility of the proposed Project. Based on the viewshed analysis and confirmed during field review, forested areas lack outward views and therefore Project visibility. The inventoried State Forests and Burt Hill Multiple Use Area all lack project visibility.

5. Notable elevation changes where the proposed Project transitions from the valley to upland areas will be visible over longer distances. Particularly when this hillside transition involves cleared vegetation for the transmission

line ROW. This instance occurs in south of the Village of Canisteo where the transmission line beings to gain elevation to the wind project site.

6. Construction impacts are short term/temporary impacts that will last only for the duration of construction (typically less than one year). Additionally, transmission line construction is typically completed in linear fashion, which will reduce the duration of impacts to specific resources and viewers.

Options for mitigating the visual impacts of the Project are limited, given the nature of the Project and its siting criteria. However, in accordance with NYSDEC Program Policy (NYSDEC, 2000), various mitigation measures were considered. These included the following:

- Professional Design. The transmission line was designed to meet the safety and reliability standards required of such a facility. However, many of the routing considerations that make a transmission line more reliable, also serve to make the facility less visible. This includes routing the facility through the valleys on generally level terrain. Also, by following these design criteria, transmission facilities have a high likelihood of being collocated with existing transmission facilities, as is the case in the Canisteo Valley.

- Screening. The transmission line already takes advantage of substation vegetative screening present in the visual study area. However, due to the height of the structures, newly planted screening would not have a significant effect on Project visibility. Screening could be effective in reducing or "softening" the views in the vicinity of the collection and POI substations.

- Relocation. The Project route has been designed to accommodate various set-backs from roads, residences, private properties, wetlands and cultural resources, thus limiting options for relocation of the transmission line. However, relocation of several individual structures may be possible as a means of minimizing visual impacts on adjacent residences or specific resources. The need for such relocation or rerouting does not appear necessary based on the results of the VIA.

- Camouflage. The use of natural materials, such as self-weathering steel, wood, or wood laminate are effective in minimizing project color contrast with the surrounding landscape. The Project uses a combination of wood and steel structures in various configurations. To the extent the steel poles can utilize self-weathering steel, this would serve to reduce the potential for adverse visual impacts.

- Low Profile. The Project currently proposes the use of vertical (monopole) and horizontal (H-frame and three pole) circuit configurations based on the width of ROW available and minimum clearances between the Project and existing transmission lines. Reducing the height of the structures s not feasible based on the minimum clearances required for the safe operation of the facility. The only way to accommodate lower structures would be to shorten the span length of the conductors through the use of additional poles. This would generally increase potential visual impacts to the resources directly adjacent to the Project.

- Downsizing. The 115 kV transmission line has been determined the appropriate voltage necessary for the reliable transport of energy from the Canisteo Wind Farm to the Bennett Road Substation. Therefore, downsizing is not a viable option.

- Alternate Technologies. In comparison to overhead technologies, burying the entire transmission line would be not be practicable due to the prohibitive costs.

- Non-specular Materials. Where feasible non-reflective paints and finishes will be used on the transmission facility to minimize reflected glare. The collection and POI substation will likely utilize galvanized materials, that although shiny at the time of installation, become dull over time.

- Lighting. The POI and Collector substations will be the only transmission facilities that require lights for security and maintenance. In order to minimize off-site lighting impacts (glare and skyglow), full cut-off, low reflectivity fixtures will be used for permanently lighted portions of the substations. Maintenance lights will only be active during substation maintenance, for worker safety.

- Maintenance. The transmission line will be inspected on a regular basis to insure the safe and reliable operation of the facility and to remove any debris illegally deposited in the ROW.

- Offsets. Given the limited feasibility or effectiveness of the other mitigation measures described above, correction of an existing aesthetic problem within the viewshed can be a viable mitigation. Projects that provide enhanced public access, recreational opportunities or aesthetic quality at VSRs within the study area could be proposed as offset mitigation for Project-related visual impacts.

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