Visual Impact Assessment

Hoffman Falls Wind Project

Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

On behalf of Hoffman Falls Wind LLC, a wholly owned subsidiary of Liberty Renewables Inc. (the Applicant), Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services D.P.C. (EDR) conducted a Visual Impact Assessment (VIA) for the proposed Hoffman Falls Wind Project (the Facility), located in the Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York (Figure 1.1-1). This VIA was prepared in support of the Facility's review under Title 19 of New York Code, Rules and Regulations (19 NYCRR) §900-2.9 and Section 94-c of the New York State Executive Law, hereafter referred to as Section 94-c. It is intended to assist the Office of Renewable Energy Siting (ORES), other state agencies, interested stakeholders, and the public in their review of the proposed Facility in accordance with the requirements of Section 94-c. The purposes of this VIA are as follows:

- Describe the appearance of the visible components of the proposed Facility.
- Define the aesthetic character of the visual study area (VSA).
- Inventory and evaluate existing visual resources and viewer groups within the VSA.
- Evaluate potential Facility visibility within the VSA.
- Identify representative views for visual assessment.
- Assess the visual impacts associated with the proposed Facility.

This VIA was prepared by environmental professionals with educational and career experience in the evaluation of visual impact. As described in more detail in subsequent sections, the VIA methodology and content are consistent with the policies, procedures, and guidelines contained in established visual impact assessment methodologies (see Section 7.0), and was prepared in accordance with the requirements of Section 94-c. The VIA process followed by EDR is outlined in Figure 1.1-2.

Figure 1.1-1. Regional Facility Location

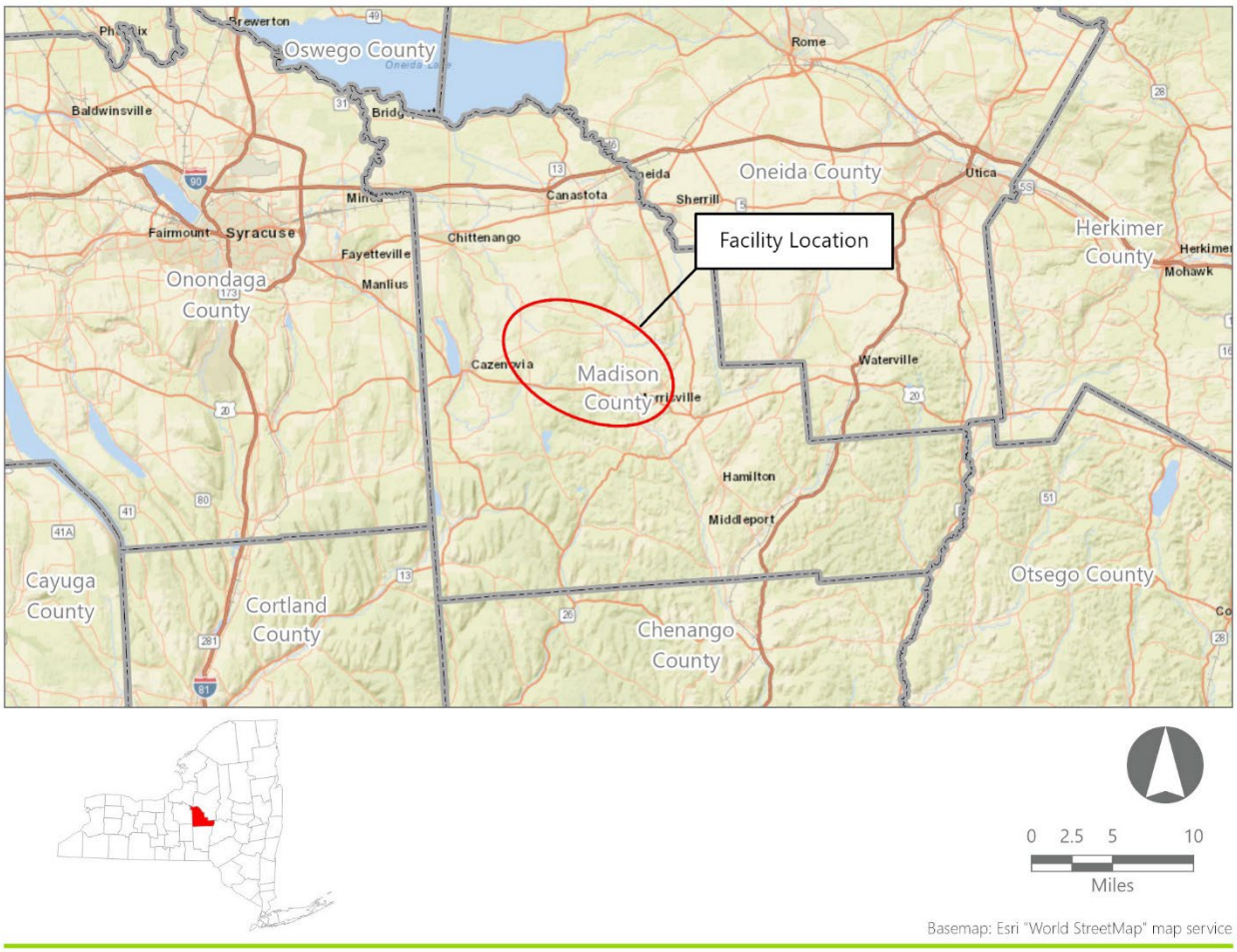
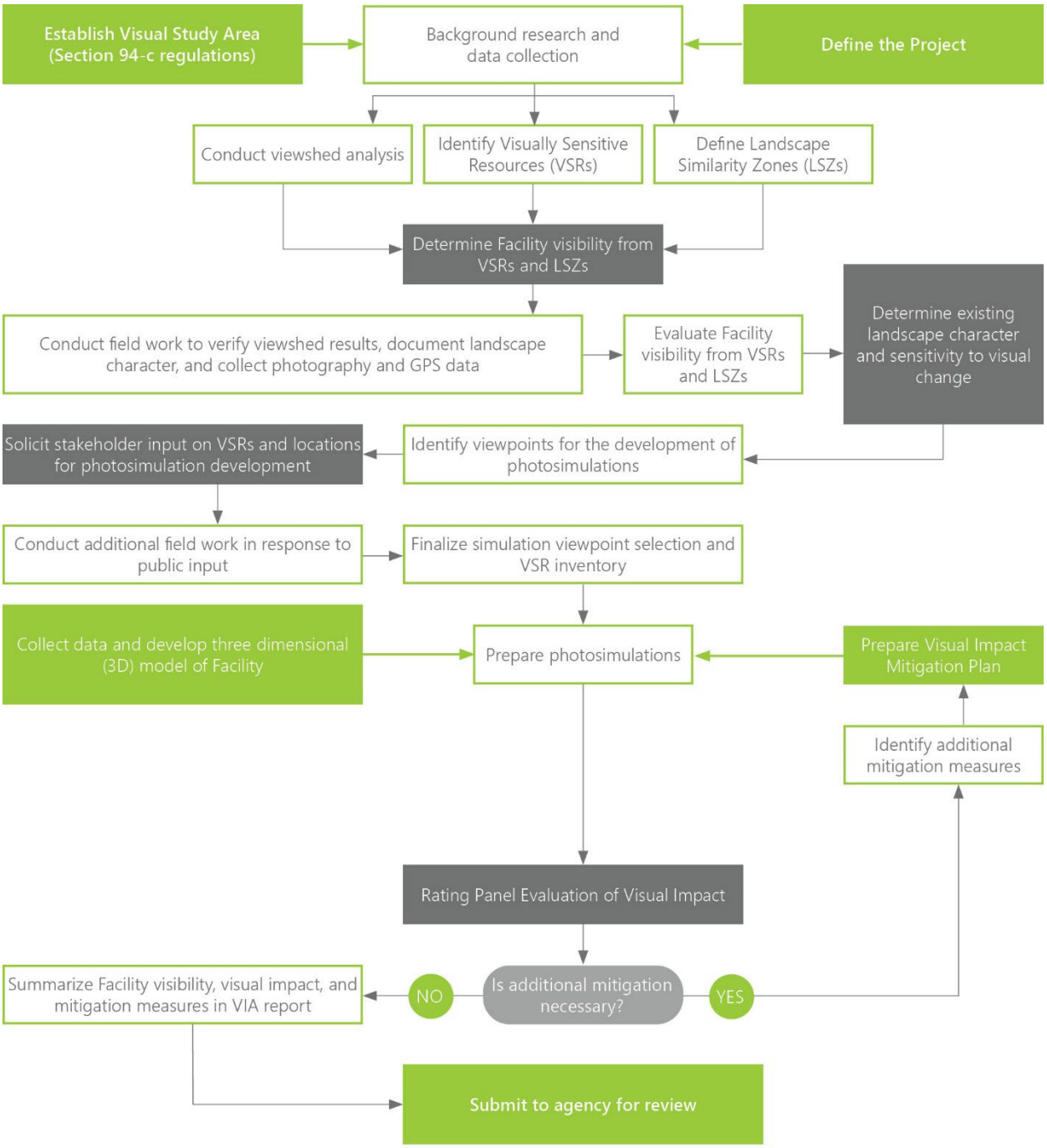


Figure 1.1-2. Visual Impact Assessment Process



2.0 FACILITY DESCRIPTION

The proposed Facility is a utility-scale wind energy generating project located in Madison County, New York with a generating capacity of up to 100 megawatts (MW). The Facility will include up to 24 wind turbines, with 12 located in the Town of Fenner, three in the Town of Smithfield, one in the Town of Nelson, and eight in the Town of Eaton. Associated support facilities include an underground medium voltage electrical collection system, gravel access roads, a permanent meteorological (MET) tower, an aircraft detection lighting system (ADLS) tower, temporary construction laydown areas, a temporary concrete batch plant, an operations and maintenance (O&M) facility, a medium voltage-to-transmission voltage collection substation, a point of interconnection (POI) switchyard, and a short segment of 115 kV gen-tie transmission line that will connect the Facility to the high voltage grid.

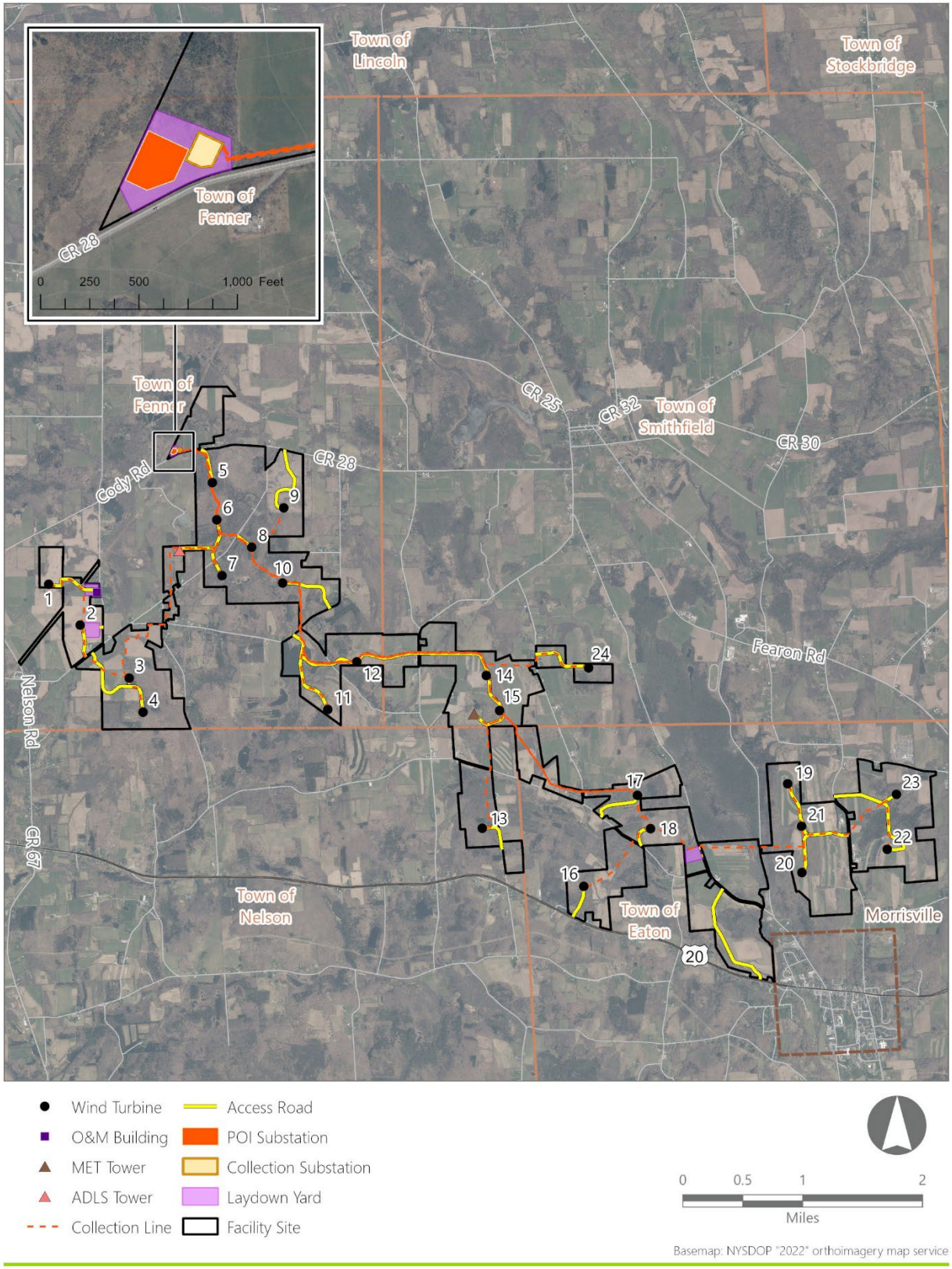
The proposed Facility Site and Facility components are described in greater detail in Sections 2.1 and 2.2. Temporary features associated with the construction of the Facility, and their potential visual impacts, are discussed in Section 5.2.5.

2.1 Facility Site Location

The proposed Facility Site includes approximately 3,897 acres of leased private land in the Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York. The Facility Site is roughly bounded by Cody Road to the north, Nelson Road to the west, Fearon Road to the east, and United States (US) Route 20 (Scenic Route 20) to the south (Figure 2.1-2). The actual footprint of the Facility, as defined by the Facility's anticipated limit of disturbance, will be approximately 431 acres. The Facility is located adjacent to the western boundary of the Village of Morrisville, approximately 3.4 miles east of the Village of Cazenovia, and 3.6 miles southwest of the Village of Munnsville (as measured from their closest points) and is surrounded by a mixture of agricultural, undeveloped forest, rural residential, and to a lesser extent, suburban residential land uses (Figure 2.1-1).

Figure 2.1-1. View of the Facility Site from Wyss Road, Town of Fenner Illustrating the Typical Mix of Land Uses

Figure 2.1-2. Facility Site and Facility Layout



2.2 Proposed Facility

2.2.1 Wind Turbines

The proposed Facility will consist of up to 24 utility-scale wind turbine generators. The specific wind turbine model being proposed for the Facility has yet to be determined. The model considered in this VIA is the 5MW SG145 turbine manufactured by Siemens Gamesa.[1] This turbine was evaluated in the VIA because it was the tallest model under consideration and would therefore have the greatest potential visibility. Each wind turbine consists of a tubular steel tower, a three-bladed rotor, and a nacelle. A description of these components is provided as follows:

- Towers – The tubular steel towers are manufactured in multiple sections and assembled on site. The towers have a base diameter of approximately 14.8 feet and a top diameter of approximately 11.5 feet and are installed on an exposed concrete pedestal that connects to a buried concrete foundation. Each tower will be equipped with an access door, internal lighting, and an internal ladder to access the nacelle. The towers are painted white and include no exterior ladders or catwalks.

- Nacelle – The tower is topped by the nacelle, which is approximately 13.8 feet wide by 13.5 feet high by 61.7 feet long and connects with the rotor hub. The top of the nacelle will be approximately 425 feet above ground level. The nacelle houses all of the turbine's mechanical components, including the generator, gearbox, power train, and transformers. To comply with the Federal Aviation Administration (FAA) standards for aviation safety, it is assumed that each of the turbine nacelles will be equipped with two medium intensity (FAA-L-864) aviation obstruction warning lights (FAA lights), currently anticipated to be synchronized flashing red and, if the ADLS is feasible and approved by the FAA would only be in operation when an aircraft is detected overhead during nighttime hours by the proposed ADLS tower. It is also assumed that the nacelle will be white in color, and will include no obvious lettering, logo, or other exterior marking.

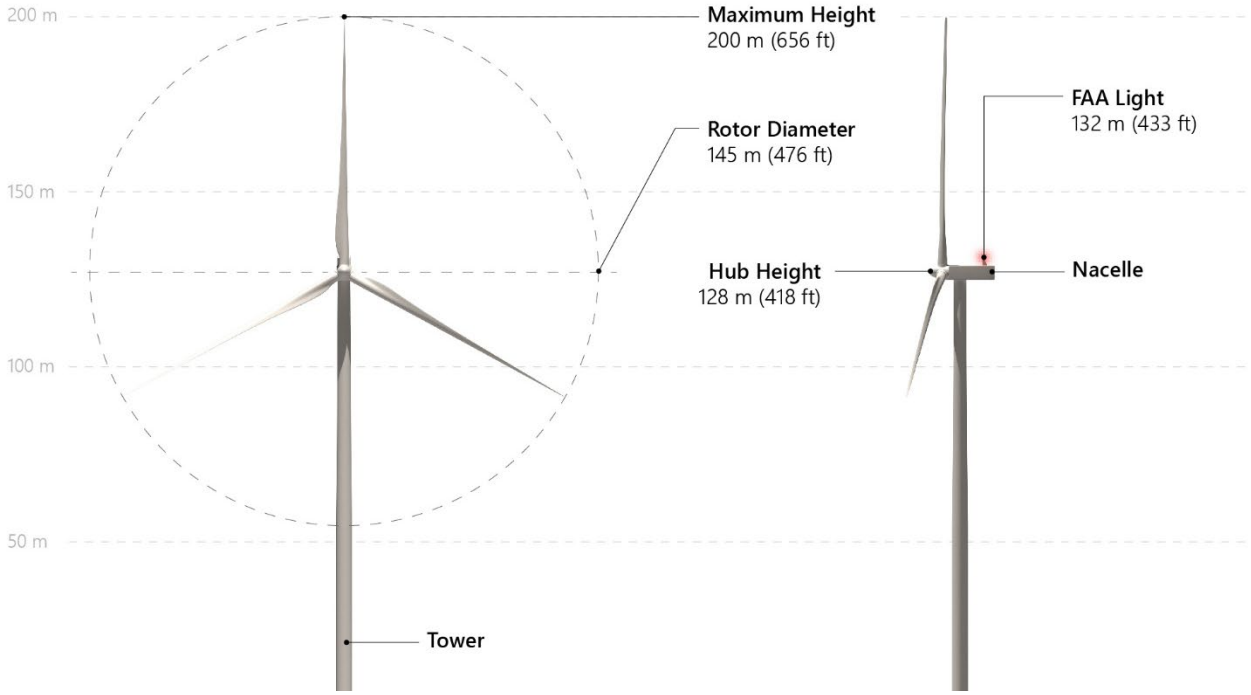
- Rotor – The turbine rotor is 475.7 feet in diameter and consists of three composite blades, each approximately 232.9 feet long. The blades are pitched, or rotated along their axis, to operate with the greatest efficiency in varying wind conditions. The blades are white in color and connect to the nacelle at the rotor hub.

With the rotor blade oriented in its most upright position, each wind turbine is assumed to have a maximum height of approximately 656 feet above ground level. Due to their height and size, the proposed wind turbines are the Facility component that will be most visible and have the greatest potential to result in visual impacts. The turbines are therefore the primary focus of this VIA. A model illustrating the appearance of the proposed turbine is shown in Figure 2.2-1. The VIA conservatively assumes that all 24 potential turbine positions will be occupied by the largest turbine model under consideration. In reality, if one of the taller turbine models is used for the Facility, it is likely that fewer positions will be utilized. Conversely, if turbines

[1] The Siemens Gamesa SG145 was the tallest wind turbine under consideration at the time the VIA was being prepared. While this turbine is no longer under consideration it continues to represent a maximum height scenario. Those turbines still under consideration are discussed in Exhibit 5 of the Section 94-c application.

with a lower height and less generating capacity are ultimately selected, all 24 positions could be utilized. By considering the maximum turbine number and maximum height, this VIA will ultimately represent the most conservative visibility scenario. The Visual Impact Minimization and Mitigation Plan (Appendix 8-B of the 94-c Application) discusses the change to the Facility's visual impacts that could occur if an alternative turbine layout and/or turbine model is ultimately selected.

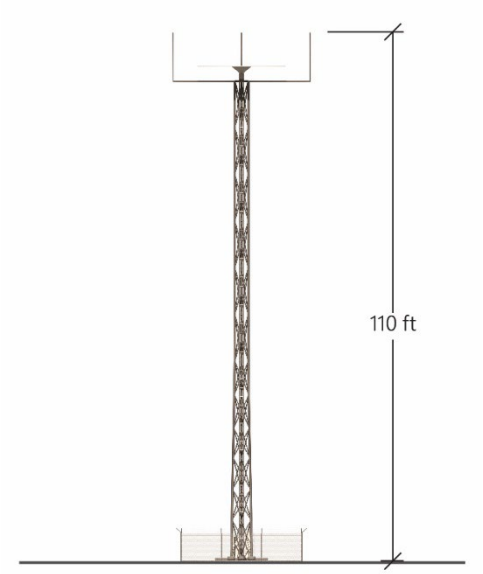
Figure 2.2-1. Wind Turbine Components and Dimensions



2.2.2 Aircraft Detection Lighting System

If approved by the FAA and determined feasible for the Facility, an ADLS tower will be installed on site to minimize nighttime visual impacts associated with the FAA lights. The ADLS tower will detect aircraft within the 3-nautical mile (3.5-mile) airspace surrounding the wind turbines. This airspace extends vertically from 200 to 1,000 feet above the highest point of the wind turbines. Once an aircraft is detected within the airspace, the FAA lights will synchronously activate. The lights will remain active for 30 minutes or until the aircraft has exited the airspace, at which time the lights will switch off. The system can also be remotely activated for planned aerial operations within the region.

Figure 2.2-2. Aircraft Detection Lighting System Tower Dimensions

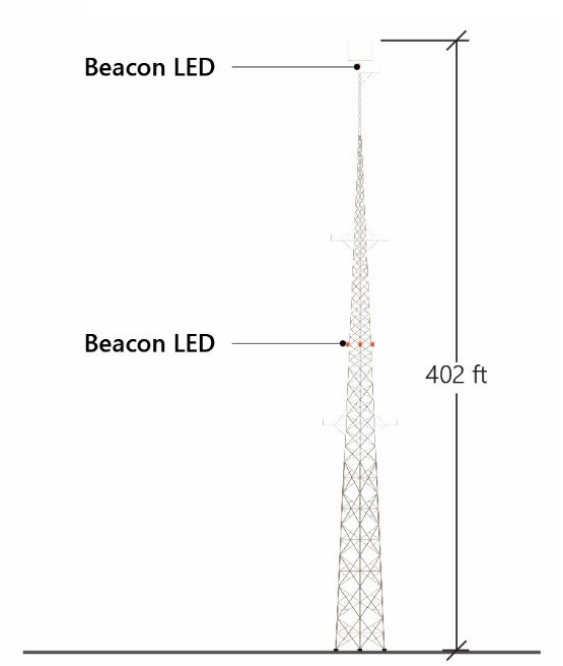


If feasible, it is anticipated that one permanent 110-foot tall ADLS tower will need to be installed. The ADLS tower will consist of a self-supported steel lattice tower that supports the rotating ADLS radar system. Additional communication antennas will be mounted below the radar system and will not contribute to the overall height of the system. The tower will be mounted on a concrete slab foundation within a fenced gravel enclosure measuring approximately 35 feet by 25 feet. Additional equipment such as a skid-mounted backup generator, cable trays, and electrical conduit will also be located inside the fence. The ADLS tower is shown in the photosimulations where it would be visible, and potential visibility of the tower is illustrated in the ADLS tower viewshed analysis.

2.2.3 Meteorological Towers

One permanent 122.5-meter (402-foot)[2] tall MET tower will be installed to collect wind data and support performance testing of the Facility. The MET tower will be a galvanized steel lattice structure equipped with wind velocity meters, directional measuring instruments, and temperature and humidity monitors. The MET tower will also be equipped with two L-864 FAA lights, one located at the maximum tower height and the second at the approximate mid-tower height, which will flash in unison with the turbines at night. Visual impacts from the MET tower are anticipated to be relatively minor when compared to the proposed turbines. However, the MET tower is shown in the simulations where it would be visible and is considered in the Nacelle/FAA Light viewshed analysis.

Figure 2.2-3. Meteorological Tower Dimensions



2.2.4 Electrical System

Two distinct components make up the Facility's electrical system; the collection system and the interconnection facility. The collection system collects the power from each wind turbine and directs it to the interconnection facility where it is transformed (stepped-up) and connected to the regional power grid. These components are described as follows:

- *Collection System* – The individual turbines will be connected to each other and to the Facility's collection substation by an approximately 31.3-mile-long system of underground electrical cables. Between individual turbine groups, the cable will cross agricultural fields and forested areas, or run within existing public road right-of-way (ROW). Although no overhead collection lines are proposed, potential visual impacts could occur where forest or hedgerow clearing is necessary to accommodate installation of the lines. This clearing is considered in the viewshed analysis, and if visible, is illustrated in the photosimulations included in the VIA.

- *Interconnection Facility* – The interconnect facility includes the collection substation POI switchyard, and a short section of 115 kV transmission line. The collection substation and POI switchyard will be located adjacent to each other on an 8.2-acre parcel of land north of Cody Road, in the Town of Fenner. The stations will be surrounded by a chain link fence and surfaced with crushed stone and will include transformers, breakers, towers, cable carriers, control houses, and related structures. The tallest components of the collection substation and POI switchyard are the A-frame structures

[2] [2] This 402 foot height accounts for the 394 foot tower, plus an additional 8 feet for the anticipated height of the FAA required lighting.

and narrow lightning masts, which are anticipated to be 74.5 feet tall. However, most of the substation and switchyard equipment will not exceed approximately 28 feet in height. The collection substation will occupy an area measuring approximately 135 feet long by 158 feet wide, and the POI switchyard will occupy an area measuring approximately 255 feet long by 277 feet wide. The interconnection facility also includes three parallel 115 kV overhead conductors, each approximately 150 feet in length, that run from the POI switchyard to the proposed point of interconnection with the existing Cortland and Fenner Wind 115 kV transmission line owned and operated by National Grid. The conductors will be supported by steel and/or wood single-pole structures with above ground heights up to 88.5 feet. The diagrams in Figure 2.2-3 are representative of the size and appearance of the interconnection facility evaluated in this VIA. The interconnection facility is shown in any simulations where it will be visible.

Lighting associated with the substation and switchyard will be full cutoff fixtures directed downward to minimize off-site light spillage. Additionally, all lighting will be operated manually or placed on an auto-off switch to further minimize the impacts of off-site light pollution. Lighting of these Facility components is described in more detail in the Lighting Plan included in the Visual Impact Minimization and Mitigation Plan (VIMMP) in Appendix 8-B of the Section 94-c Application.

Figure 2.2-4.Collection Substation and POI Switchyard Components and Dimensions

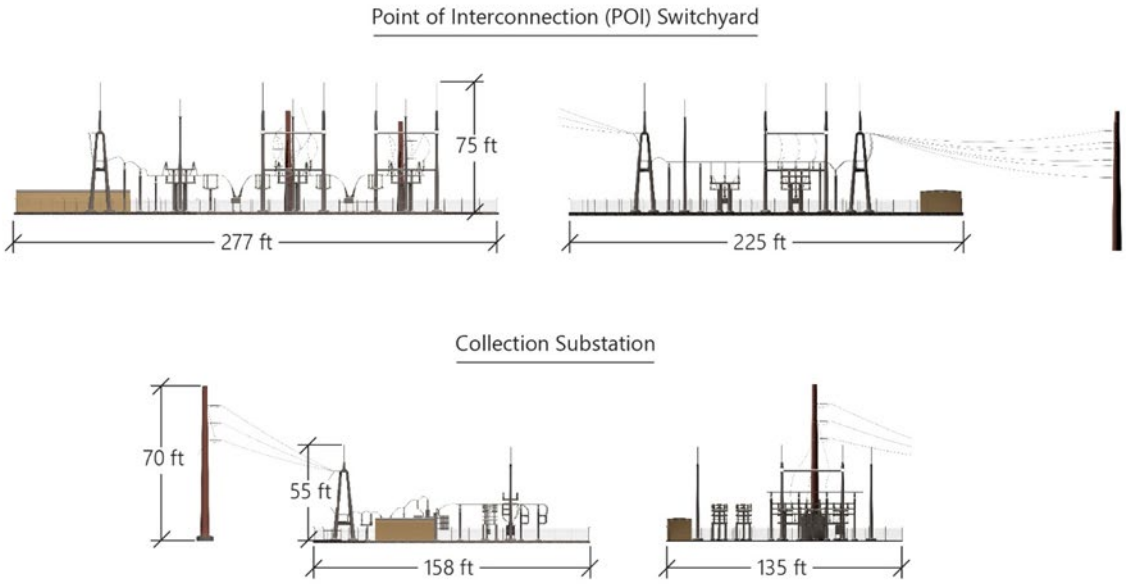
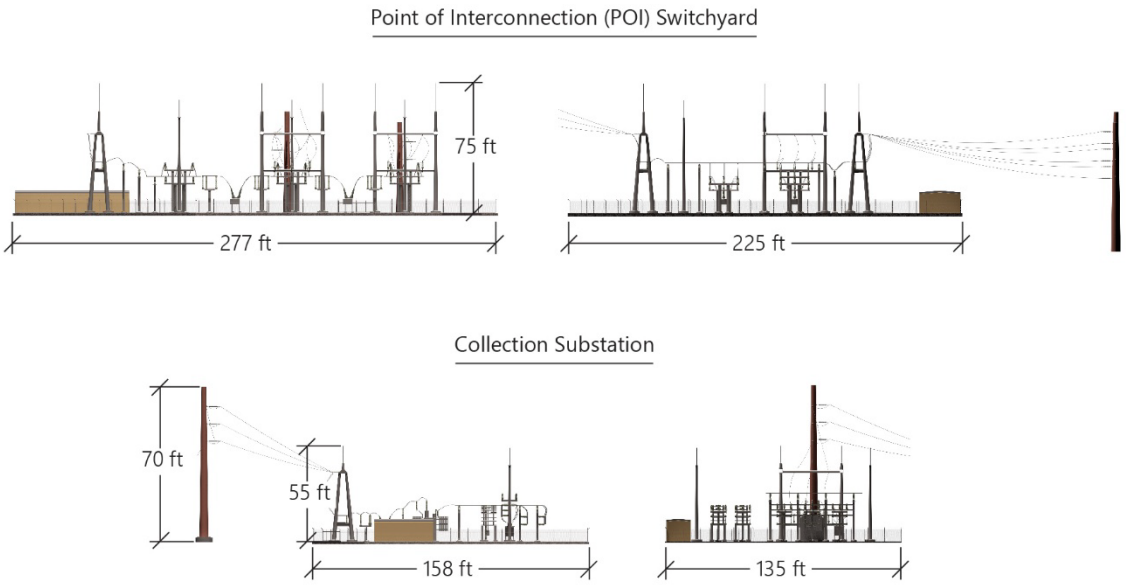


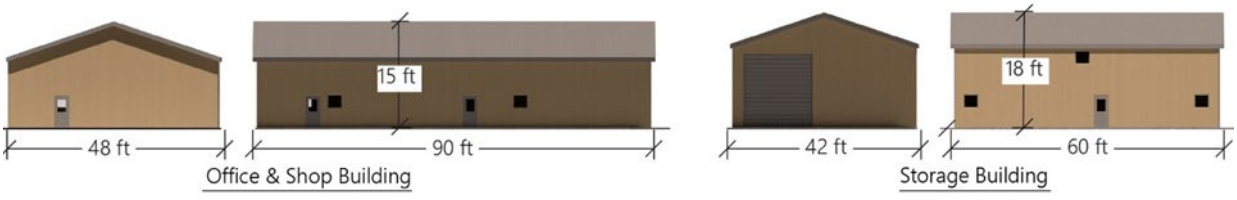
Figure 2.2-5. Collection Substation and POI Switchyard Components and Dimensions



2.2.5 Operations and Maintenance Facility

An O&M facility will house the permanent operations staff and maintenance equipment (Figure 2.2-5). The O&M facility will consist of two adjacent structures (an office and a storage building) on approximately one acres of a 23.6-acre parcel of land off South Road in the Town of Fenner. The office building is anticipated to be an approximately 4,320-square foot structure and the storage building is anticipated to be an approximate 2,520-square foot structure. The O&M building is shown in simulations where it would be visible. However, due to its relatively small size, low height, and similarity in appearance to other agricultural structures in the area, the O&M building is not considered in the viewshed analysis.

Figure 2.2-6. Operations and Maintenance Facility Dimensions



2.2.6 Access Roads

The wind turbines will be served by a network of access roads. These roads will allow for delivery of Facility components during construction and access to the Facility for maintenance purposes during operation. The access roads are anticipated to be surfaced with crushed stone or gravel and will be approximately 16 feet wide. Approximately 12.5 linear miles of new or improved permanent access roads will be constructed to access the Facility. Wherever possible, existing public roads, unimproved forest roads, and farm lanes will

be utilized (and upgraded as necessary) to provide turbine access. The proposed access roads represent relatively minor alterations to the landscape. Because they do not extend substantially above the existing ground level, no viewshed analysis of the roads was conducted as part of this VIA. Permanent access roads are shown in any photosimulations where they will be visible. A typical access road is depicted in Figure 2.2-6. Temporary visual impacts associated with the construction of these facilities are discussed in Section 5.3.5 of this VIA.

Figure 2.2-7. Representative Photo of a Turbine Access Road

2.2.7 Temporary Laydown Areas

Construction of the Facility will require the development of three temporary laydown/staging areas, which will accommodate construction trailers, storage containers, construction materials, and parking for construction workers. Two laydown areas will be located in the Town of Fenner: one west of South Road at the O&M Facility site and one west of South Road at the Wyss Road intersection. One laydown area will be located in the Town of Eaton off of Old County Road north of the Stone Bridge Road intersection where a temporary concrete batch plant will be sited and is likely to include overhead water storage tanks, aggregate storage, and cement batcher. These laydown areas will be located in open fields adjacent to the roadways and will range from approximately 4 to 10 acres in size. The laydown areas are temporary features that will be removed at the end of construction. No permanent fencing, permanent lighting, or future use of the laydown areas is proposed. Temporary visual impacts associated with construction of the Facility, including the laydown areas and temporary concrete batch plant, are discussed in Section 5.3.5 of the VIA.

3.0 EXISTING VISUAL CHARACTER

3.1 Definition of Visual Study Area

Section 94-c (19 NYCRR §900-2.9, Exhibit 8: Visual Impacts) references a "VIA study area" and "viewshed study area" but does not specifically define the required extent of the study area. However, the Section 94-c regulations include the following requirement:

> *Viewshed maps depicting areas of facility visibility within two (2) miles of a solar facility and five (5) miles of a wind facility, as well as any potential visibility from specific significant visual resources beyond the specified study area, shall be prepared…*

As viewshed maps define a project's area of potential visual impact, the viewshed radius essentially defines the visual study area (VSA). Consequently, the Hoffman Falls Wind Project VSA has been defined as the area within 5 miles of the Facility Site (see Figure 3.1-1), consistent with the viewshed mapping required by the Section 94-c regulations. This VSA was used for all the visual analyses presented herein (i.e., viewshed analysis, field verification, line-of-sight cross sections, and visual simulations). In addition, a secondary 10-mile radius study area (10-mile VSA) was defined to identify significant visually sensitive resources (VSRs) with state or federal jurisdiction beyond the 5-mile VSA, in accordance with the requirements of 19 NYCRR §900-1.2.

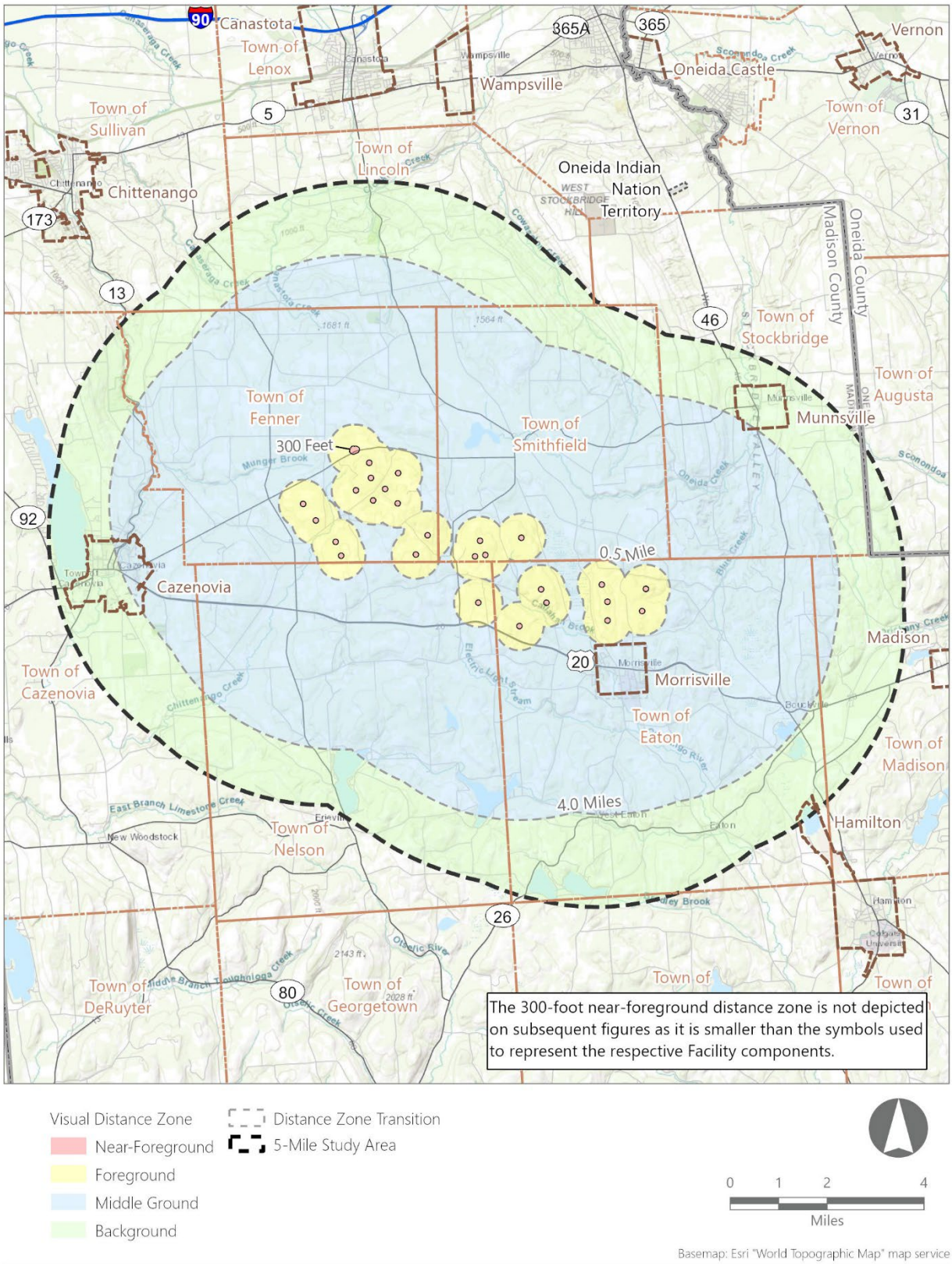
The VSA is illustrated in Figure 3.1-1 and covers an approximate 191.3-square mile area primarily within Madison County but also includes a small portion of Oneida County. The municipalities included within the VSA are identified in Table 3.1-1. It is also important to note that the 1794 Treaty of Canandaigua reservation boundary that defined the Oneida Indian Nation territory, and which is still recognized by the Oneida Indian Nation, is within the VSA. Within the VSA, this area is contiguous with the Towns of Fenner, Lincoln, Munnsville, Smithfield, and portions of the Town and Village of Cazenovia west of the Fenner town line.

Table 3.1-1. Towns and Villages within the Visual Study Area

Municipality	Total Area of Municipality[1] within VSA (square miles)	Percent of Municipality's Total Area occurring within VSA[2]
Madison County		
Village of Cazenovia	1.9	100%
Village of Hamilton	<0.1	3.3%
Village of Morrisville	1.0	100%
Village of Munnsville	0.9	100%
Town of Cazenovia	17.3	33.5%
Town of Eaton	43.1	94.5%
Town of Fenner	31.1	99.9%
Town of Lebanon	0.4	0.9%
Town of Lincoln	15.1	60.2%
Town of Madison	7.1	17.1%
Town of Nelson	34.0	77.1%
Town of Smithfield	24.3	99.0%
Town of Stockbridge	16.1	51.0%
Town of Sullivan	2.0	2.7%
Oneida County		
Town of Augusta	1.0	3.6%

[1] The calculations used to generate this table were based on unrounded numbers and therefore the rounded results may not add up precisely.
[2] The 5-Mile Visual Study Area includes approximately 191.3 square miles, or approximately 122,462 acres.

Figure 3.1-1. Visual Study Area



3.1.1 Distance Zones

Distance zones are typically defined in visual studies to divide the VSA into distinct sub-areas based on the various levels of landscape and project detail available to the viewer. To define these zones, EDR consulted several well-established agency protocols, including those published by the U.S. Forest Service (USFS), United States Department of the Interior Bureau of Land Management (BLM), and U.S. Department of Transportation (USDOT), to determine the appropriate boundary of each distance zone. The distance zones recommended by each agency's protocol were considered in the context of the landscape being addressed in this VSA. For example, the BLM (BLM, 1999) recommends a combined foreground-middle ground zone extending from 0 to 5 miles. While this may be appropriate in a western landscape with frequent, unscreened views over very long distances, it does not translate to northeastern landscapes where views are often contained within a mile or less from of the viewer due to intervening topography, vegetation, and structures. Conversely, the USDOT (USDOT, 2015) suggests the foreground be defined as an area within 0.25 to 0.5 mile from the viewer. Due to the characteristics of the landscape evaluated in this VIA, EDR defined the following four distance zones (as measured from the wind turbines and Interconnection Facility) based largely on the USFS Scenery Management System (USFS, 1995):

- *Near-Foreground: 0 to 300 feet*. At this distance, a viewer can perceive details of parts of objects, such as the leaves of trees, or stones in a gravel road, with clarity. Surface textures, small features, and the full intensity and value of color can be seen on near-foreground objects.
- *Foreground: >300 feet to 0.5 miles*. The foreground is the predominant distance zone at which landscapes are seen in the study area considering the gently rolling of the VSA. At this distance, a viewer can perceive parts of objects, such as the boughs and trunks of large trees or the windows of a house but can no longer perceive granular details with great clarity. Trees lining a field begin to merge into a hedgerow, wildflowers begin to merge into a field.
- *Middle ground*: *>0.5 to 4.0 miles*. At this distance, individual objects in the landscape merge together; individual hills become a range, individual trees merge into a forest, and buildings appear as simple geometric forms that are recognized as a hamlet or village. Colors will be distinguishable but characterized by a bluish cast and softer tone than those in the foreground. Contrast in texture between landscape elements will also be reduced.
- *Background*: *Over 4.0 miles*. The background defines the broader regional landscape within which a view occurs. Within this distance zone, the landscape is simplified; only broad landforms are discernable, and atmospheric conditions often render the landscape an overall bluish color. Texture has generally disappeared, and color has flattened, but large patterns of vegetation are discernable. Silhouettes of one land mass set against another and/or the skyline are often the dominant visual characteristics in the background. The background contributes to scenic quality by providing a softened backdrop for foreground and middle ground features, an attractive vista, or a distant focal point. While visible portions of the background distance zone occur outside the VSA the background is still a relevant component of the landscape.

These distance zones will be referenced throughout this report (and indicated in various figures) when evaluating the Facility's viewshed and its viewing distance from various receptors. The percentage of the VSA that is occupied by each distance zone is identified in Table 3.1-2.

Table 3.1-2. Distance Zones within the Visual Study Area

Distance Zone	Total Area of Distance Zone[1] within the VSA (square miles)	Percent of VSA[2]
Near-Foreground (0 – 300 feet)	0.3	0.2%
Foreground (>300 feet – 0.5 miles)	13.1	6,8%
Middle Ground (>0.5 – 4.0 miles)	113.5	59.3%
Background (>4.0 miles)	64.5	33.7%

[1] The calculations used to generate this table were based on unrounded numbers and therefore the rounded results may not add up precisely.
[2] The Visual Study Area includes approximately 191.3 square miles, or approximately 122,462 acres.

It is important to note the difference between the terminology used to define distance zones at which features of the landscape may be viewed and the composition of a photograph. When viewing photographs, the compositional elements of the image may define distinct zones within the photograph. These elements often layer in a manner that also includes a near-foreground, foreground, middle ground, and background, which equates to their relative distance from the location where the photograph was taken. When these terms are used to describe the composition of a photograph, they do not necessarily correlate with the viewing distance zones for the Facility. Therefore, near-foreground, foreground, middle ground, and background compositional zones referenced in regard to descriptions of the landscape viewed in photographs taken at selected viewpoints and used for visual simulations in Section 5.2.1 and Appendix D of this report may not be the same as the distance zones described above (see examples presented in Figures 3.1-2 and 3.1-3).

Figure 3.1-2. Distance Zones as Defined in this Study

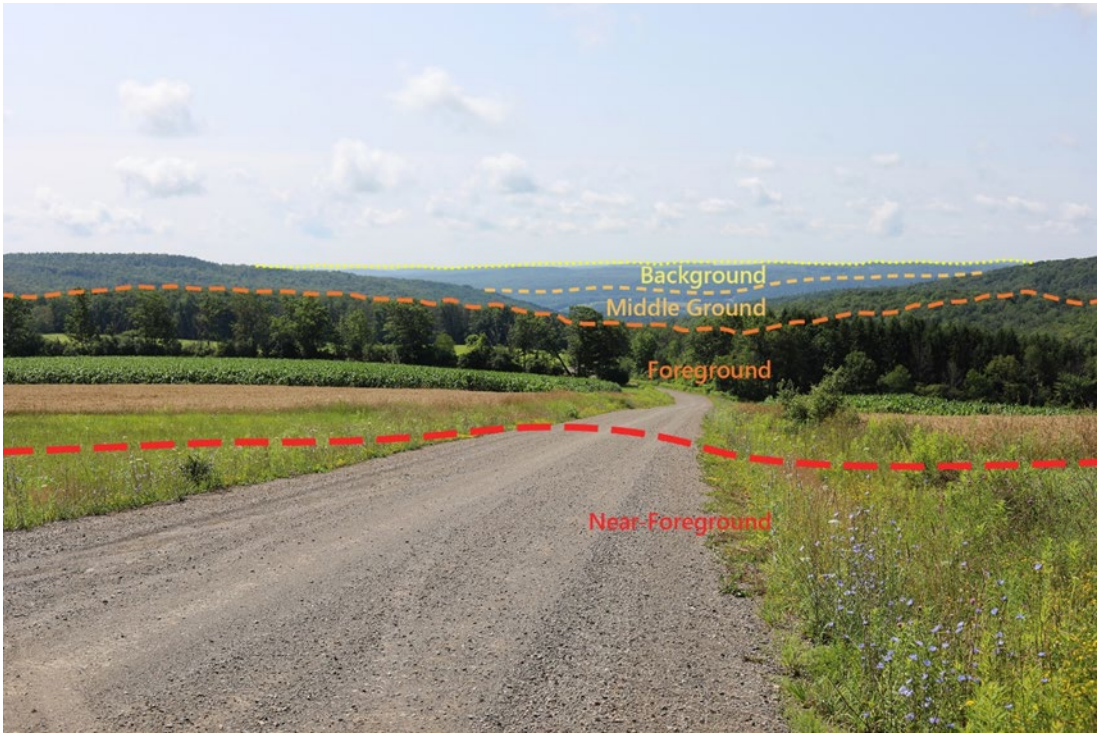


Figure 3.1-3. Distances that Describe Photographic Composition

3.2 Physiographic/Visual Setting

3.2.1 Landform and Land Use

The VSA is primarily located within the Finger Lakes Uplands and Gorges and the Glaciated Low Allegheny Plateau subregions of the Northern Allegheny Plateau Ecoregion (Bryce et al., 2010) where rolling hills, open valleys, and low mountains are covered by a mosaic of cropland, pastureland, and woodland. Western portions of the VSA are influenced by the transitional nature of the Finger Lakes Uplands and Gorges where glacial changes led to the formation of Cazenovia Lake and topography becomes more level adjacent to the Eastern Great Lakes Lowland Ecoregion. However, despite the fact that a greater portion of the VSA is within the Finger Lakes Uplands and Gorges subregion, the landscape throughout the VSA is more consistent with the Glaciated Low Allegheny Plateau in which a mosaic of farmland and woodlots occur on low, rolling hills that have been glacially smoothed, with flattened hilltops and wide stream valleys. The rounded tops of the dissected plateaus are generally cleared for agriculture while the steeper slopes remain forested. Native vegetation tends to alternate between Appalachian oak forest and northern hardwoods-conifer forest on slopes and riparian areas.

Land use within the VSA is characterized by agricultural, forest, and low-density residential land uses, interspersed with small villages and hamlets. Rural portions of the area are dominated by open land (agricultural and undeveloped), farms and scattered rural residences. Agricultural uses primarily consist of livestock, particularly dairy farming, or fields managed to produce cultivated row crops such as hay or corn for grain or silage, and to a lesser extent, bean and vegetable crops for harvest. The strong presence of livestock, pastures, and field crops contribute to the bucolic character of the landscape as do the lower intensity agricultural practices employed by the Amish community in the region. Higher density residential and commercial development is generally concentrated to the Villages of Cazenovia, Morrisville, and Munnsville, and, to a lesser extent, the small hamlets within the VSA. Forest land is a mix of small, discrete wood lots dispersed between agricultural land and large contiguous areas of forest. Elevations within the VSA range from approximately 560.9 to 1943.3 feet above mean sea level.

3.2.2 Water Features

Water features within the VSA that contribute most heavily to the aesthetic character of the region predominantly occur along the western edge VSA. The most recognizable of these resources are Chittenango Falls and Cazenovia Lake. Chittenango Falls, located in Chittenango Falls State Park, is a 167-foot-tall waterfall that occurs along Chittenango Creek which connects Lake Ontario to the Nelson Swamp Unique Area (also within the VSA). Cazenovia Lake, often considered the 12th Finger Lake, is a 1,152-acre waterbody that occurs immediately west of the Village of Cazenovia. Both public and private recreational resources with a regional draw occur along Cazenovia Lake, interspersed with residential development.

In the southern portion of the VSA larger ponds and reservoirs, such as Tuscarora Lake, Leland Pond, Hatch Pond, Eaton Reservoir, and Stoney Pond, originally developed as feeders to the regional canal system, are surrounded by waterfront residential or recreational resources and are popular boating and fishing destinations. Water features closest to the Facility Site are primarily creeks, smaller waterways, and unnamed ponds. The small unnamed ponds are often used for agricultural practices, and the creeks typically cut

through agricultural and forested areas, with narrow channels that are bordered by steep slopes covered in trees and other vegetation. Three large swamps also occur within the VSA—Peterboro Swamp, Morrisville Swamp, and Nelson Swamp. While only the Nelson Swamp is publicly accessible (Nelson Swamp Unique Area), these swamps contain unique habitat and ecosystems where herbaceous wetland vegetation and shrubs are distinguishable from the more common agricultural or forested landscape.

3.2.3 Future Land Use

Section 94-c requires that future land use be considered during the viewpoint selection process. The Town of Fenner 2023 Comprehensive Plan (Town of Fenner, 2023) and Town of Eaton 2019 Comprehensive Plan (Town of Eaton, 2019) identify and delineate future land use areas in these municipalities. However, no future land uses are described or identified in The Town of Nelson Comprehensive Plan 2018 (Town of Nelson, 2018) or the Town of Smithfield Comprehensive Plan March 2003 (Town of Smithfield, 2003). The Towns of Augusta, Lebanon, and Stockbridge, and the Village of Munnsville do not have adopted comprehensive plans, and comprehensive plans for the remaining villages and towns in the VSA were unavailable (see Exhibit 3). Therefore, future land use in these municipalities is represented by adopted municipal zoning districts, except for the Towns of Lebanon and Madison which do not have adopted zoning and the Town of Smithfield in which zoning maps were unavailable at the time of this analysis. The future land uses/zoning districts in the VSA are summarized and classified by their primary use in Table 3.2-1 and depicted in Figure 3.2-1. As indicated in Table 3.2-1, future land use areas and zoning districts with a primary use of agriculture/rural residential are the predominant future land uses anticipated within the VSA. As described in the plans, these lands are desired to remain in active agricultural production and low density rural residential development or "cluster subdivision" land practices.

Exhibit 24 of the 94-c Application provides a detailed description of local laws and ordinances, and Exhibit 3 provides additional information on land use surrounding the Facility Site.

Table 3.2-1. Anticipated Future Land Uses within the Visual Study Area

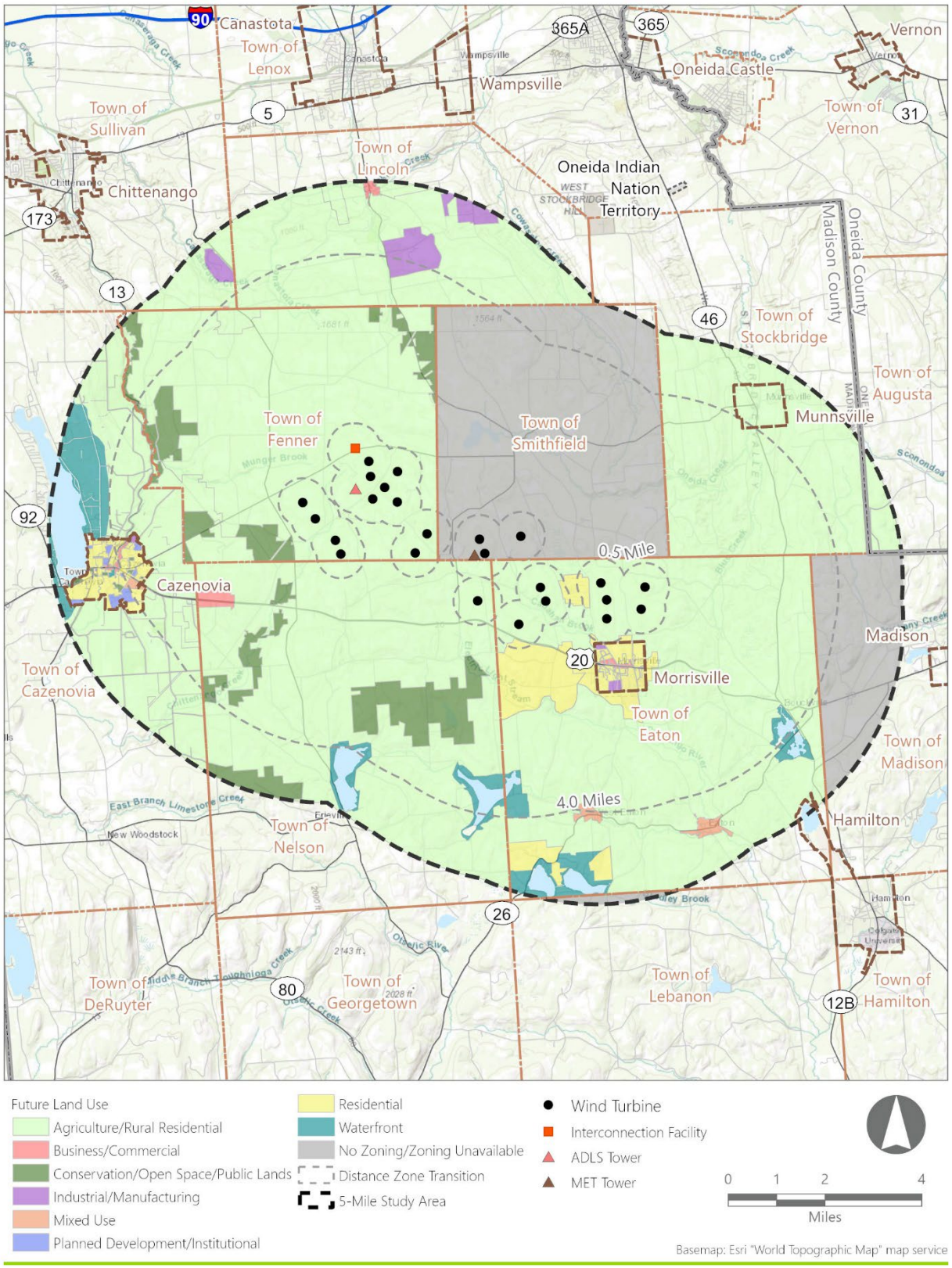
Future Land Use Area	Area within the VSA (sq. mi.)[1]	Percent of Area within the VSA[2]	Municipality
Agriculture/Rural Residential	135.0	70.6%	Town of Augusta
			Town of Cazenovia
			Town of Eaton
			Town of Fenner
			Town of Nelson
			Town of Lincoln
			Town of Sullivan
			Town of Stockbridge
No Zoning/Zoning Unavailable	31.7	16.5%	Town of Lebanon
			Town of Madison
			Town of Smithfield
Conservation/Open Space/Public Lands	7.4	3.8%	Town of Cazenovia
			Town Fenner

Future Land Use Area	Area within the VSA (sq. mi.)[1]	Percent of Area within the VSA[2]	Municipality
			Town of Nelson
Residential	6.2	3.3%	Town of Cazenovia
			Town of Eaton
			Town of Sullivan
			Village of Cazenovia
			Village of Morrisville
Waterfront	4.2	2.2%	Town of Cazenovia
			Town of Eaton
			Town of Nelson
			Village of Cazenovia
Industrial/Manufacturing	1.6	0.9%	Town of Lincoln
			Town of Sullivan
			Village of Cazenovia
			Village of Morrisville
Business/Commercial	0.6	0.3%	Town of Lincoln
			Town of Nelson
			Town of Sullivan
			Village of Cazenovia
			Village of Morrisville
Mixed Use	0.4	0.2%	Village of Cazenovia
			Town of Eaton
Planned Development/Institutional	0.2	0.1%	Village of Cazenovia

[1] The calculations used to generate this table were based on unrounded numbers and therefore the rounded results may not add up precisely.

[2] The Visual Study Area includes approximately 191.3 square miles, or approximately 122,462 acres.

Figure 3.2-1. Future Land Use Areas



3.3 Viewer/User Groups

Three categories of viewer/user groups were identified within the VSA based on activity, duration of views, exposure to the Facility, and sensitivity to visual change that individuals are likely to have in common. Although individual viewers' perception of, and sensitivity to, changes in the visual environment will vary, there will generally be consistency between these viewer/user groups.

3.3.1 Local Residents

Local residents include those who live and work within the VSA. These individuals generally view the landscape from their yards, homes, local roads, schools, and places of employment. Residents are concentrated in proximity to the various hamlets and the Villages, but dispersed settlement occurs throughout the VSA**.** 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 elevated viewpoints (typically upper floors/stories of homes). Residents' sensitivity to visual quality is variable. However, it is assumed that residents may be very sensitive to changes in views from their homes, yards, and local communities.

Because available census data does not provide hyperlocal detail on local population density, EDR conducted a building density analysis of the VSA to determine which areas are likely to have the highest number of residential viewers. EDR's density analysis involved identification of buildings based upon publicly available national building footprint data (Microsoft, 2021) and a geographic information system (GIS) analysis to determine the density of buildings per quarter mile throughout the VSA. As illustrated in Figure 3.3-1, density of buildings within the visual study area ranges from 0 to 111 buildings per square quarter mile, with the greatest densities concentrated in the Villages of Cazenovia, Morrisville, and to a lesser extent, the Village of Munnsville and the various hamlets in the VSA.

3.3.2 Through-Travelers

Through-travelers passing through the area view the landscape from motor vehicles on their way to work or other destinations. These viewers are typically moving, have a relatively narrow field of view, and are destination oriented. Drivers on major roads in the area (e.g., US Route 20 and State Routes 13, 12B, 26, 46, and 92) will generally be focused on the road and traffic conditions but do have the opportunity to concentrate on roadside scenery. Passengers in moving vehicles will have greater opportunities for prolonged off-road views than will drivers, and accordingly, may have greater perception of changes in the visual environment. Travelers' sensitivity to visual quality is variable. However, it is assumed that local commuters may be sensitive to changes in views of areas that they travel through on a regular basis, while those traveling to and from more distant locations will generally be less aware and less concerned about visible changes to the landscape.

State and federal roadways typically have a high number of travelers and are therefore likely to experience a high degree of viewer exposure compared to local roads. The average daily traffic count for portions of the five State Routes and the US Route within the VSA is presented in Table 3.3.1. As illustrated in Figure

3.3-1 the average traffic count for roads in the VSA is greatest along US Route 20 and State Routes occurring in the Village of Cazenovia, and to a lesser extent, in proximity to the Village of Hamilton.

Table 3.3-1. Traffic Counts for US and State Highways

Road	Total Length within the VSA (linear miles)	Average Vehicles/Day on Segments within the VSA [1]
US Route 20	18.6	2,313 – 12,020
State Route 13	7.2	742 – 2,777
State Route 12B	3.2	1,099 – 8,203
State Route 26	8.6	823 – 1,631
State Route 46	9.2	2,712 – 4,875
State Route 92	0.7	8,335

[1]Based upon New York State Department of Transportation (NYSDOT) 2019 traffic count data for these roadways

3.3.3 Tourists/Recreational Users

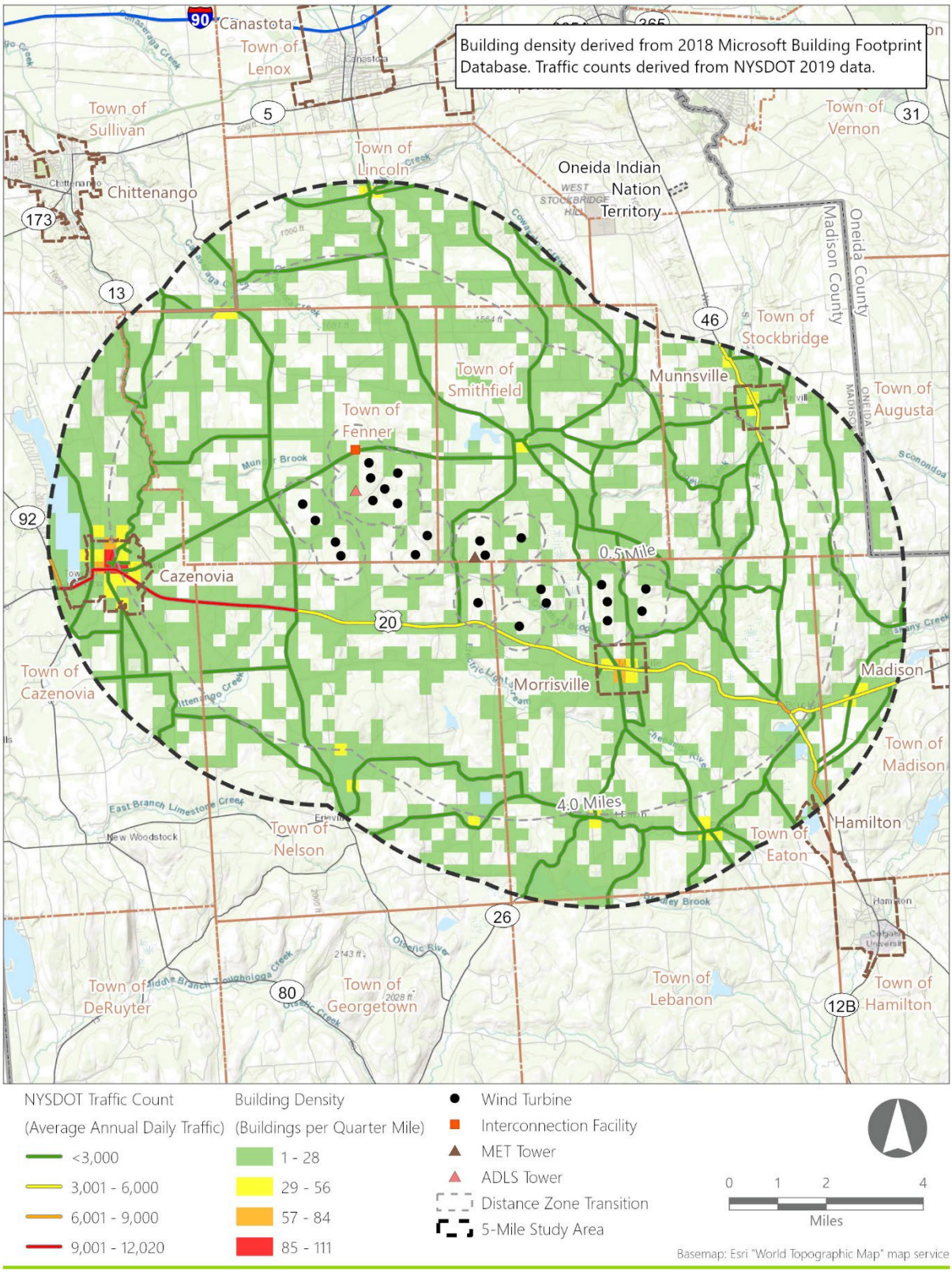
Tourists and recreational users include residents as well as out-of-town visitors involved in recreational activities at locations such as the local and state parks, state forests, the National Abolition Hall of Fame and Museum, the Gerrit Smith Homestead National Historic Landmark (NHL), and, to a lesser extent, undeveloped private lands throughout the VSA. These individuals will view the landscape from specific recreational sites within the VSA, as well as from area highways while on their way to these destinations. This group includes hikers, bicyclists, hunters, boaters, bird watchers, snowmobilers and those involved in more passive recreational activities such as picnicking, sightseeing, and walking. Tourists and recreational users will often have continuous but changing views of landscape features over relatively long periods of time. Visual quality may or may not be an important part of the recreational activities for these viewers. However, for many, the scenery will serve to at least enhance their recreational experience.

New York State Office of Parks, Recreation, and Historic Preservation (NYSOITS, 2024) provides an annual attendance count for their facilities. In 2023, the Lorenzo State Historic Site was visited by 34,803 people and Chittenango Falls State Park was visited by 193,794 people. Annual attendance counts for Helen McNitt State Park, a passive-use park, are not available. Visitor counts for other tourist and recreational resources in the VSA are not readily available through publicly accessible data sources. However, tourist and recreational users within the VSA are assumed to be concentrated in publicly accessible recreation areas, which are identified as VSRs (see Section 3.5).

3.4 Landscape Similarity Zones

In accordance with the requirements set forth in 19 NYCRR § 900-2.9(b)(1), Landscape Similarity Zones (LSZs) were defined and mapped within the VSA. Defining distinct landscape types within a given study area provides a useful framework for the analysis of a project's potential visual effects. LSZs within the VSA 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, USFS, 1995; Smardon et al., 1988; USDOT, 1981; BLM, 1999). The following five distinct LSZs were identified within the VSA:

Figure 3.4-1. Viewer Exposure



- Agricultural/Rural Residential
- Forest
- Water
- Village
- Hamlet.

LSZs within VSA were mapped using a Geographic Information System (GIS) classification exercise. The LSZ classifications are based on aerial imagery, mapped land cover, 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 VSA as a particular LSZ, and then the next criterion is applied to classify portions of the remaining land, and so forth until the entire area is mapped. The classification and mapping of LSZs within the VSA followed the following order of criteria:

- The Village LSZ was delineated using the New York State Office of Information Technology Services GIS Program Office (GPO) mapped boundaries of the Villages of Cazenovia, Morrisville, and Munnsville (NYSOITS, 2022) and were adjusted using aerial imagery based on contiguous development patterns.
- The Hamlet LSZ was classified using hamlets within the GPO New York State Place Points database (NYSOITS, 2020) and adjusted using aerial imagery based on contiguous development patterns.
- The Water LSZ was delineated using named lakes, ponds, and reservoirs identified in the U.S. Geological Survey (USGS) National Hydrography Dataset (USGS, 2020) and adjusted using aerial imagery to include land along the shorelines.
- The Forest LSZ was delineated by subtracting bare earth digital elevation model (DEM) data from digital surface model (DSM) data which includes vegetation and structures (see Section 4.1.1 for additional information on DEM and DSM data). The remaining DSM data was then adjusted to remove elements under six feet, and a series of buffers were used to eliminate small inconsistencies and join contiguous areas separated by roadways or areas of low growth.
- Finally, the Agriculture/ Rural Residential LSZ is comprised of all remaining lands. These areas are mostly identified as Crop and Grass cover types in the ESRI 2020 Land Use/Land Cover (LULC) dataset.

The extent of each LSZ within the VSA is summarized in Table 3.4-1 and depicted in Figure 3.4-1. As this table and figure indicate, the majority of land area in the VSA is represented by the Agricultural/Rural Residential LSZ. The Forest LSZ, while less abundant, also represents a significant portion of the VSA. Both of these LSZs are fairly evenly distributed throughout the VSA. The Water, Hamlet, and Village LSZs comprise a limited portion of the VSA and occur in discrete locations.

Table 3.4-1. Landscape Similarity Zones

Landscape Similarity Zone	Total Area of LSZ within the Visual Study Area (square miles)[1]	Percent of Total Area[2] within Visual Study Area
Agricultural/Rural Residential	96.7	50.5%
Forest	86.9	45.4%
Water	3.7	2.0%
Village	3.2	1.7%
Hamlet	0.9	0.5%

[1]The calculations used to generate this table were based on unrounded numbers and therefore the rounded results may not add up precisely.

[2]The Visual Study Area includes approximately 191.3 square miles, or approximately 122,462 acres.

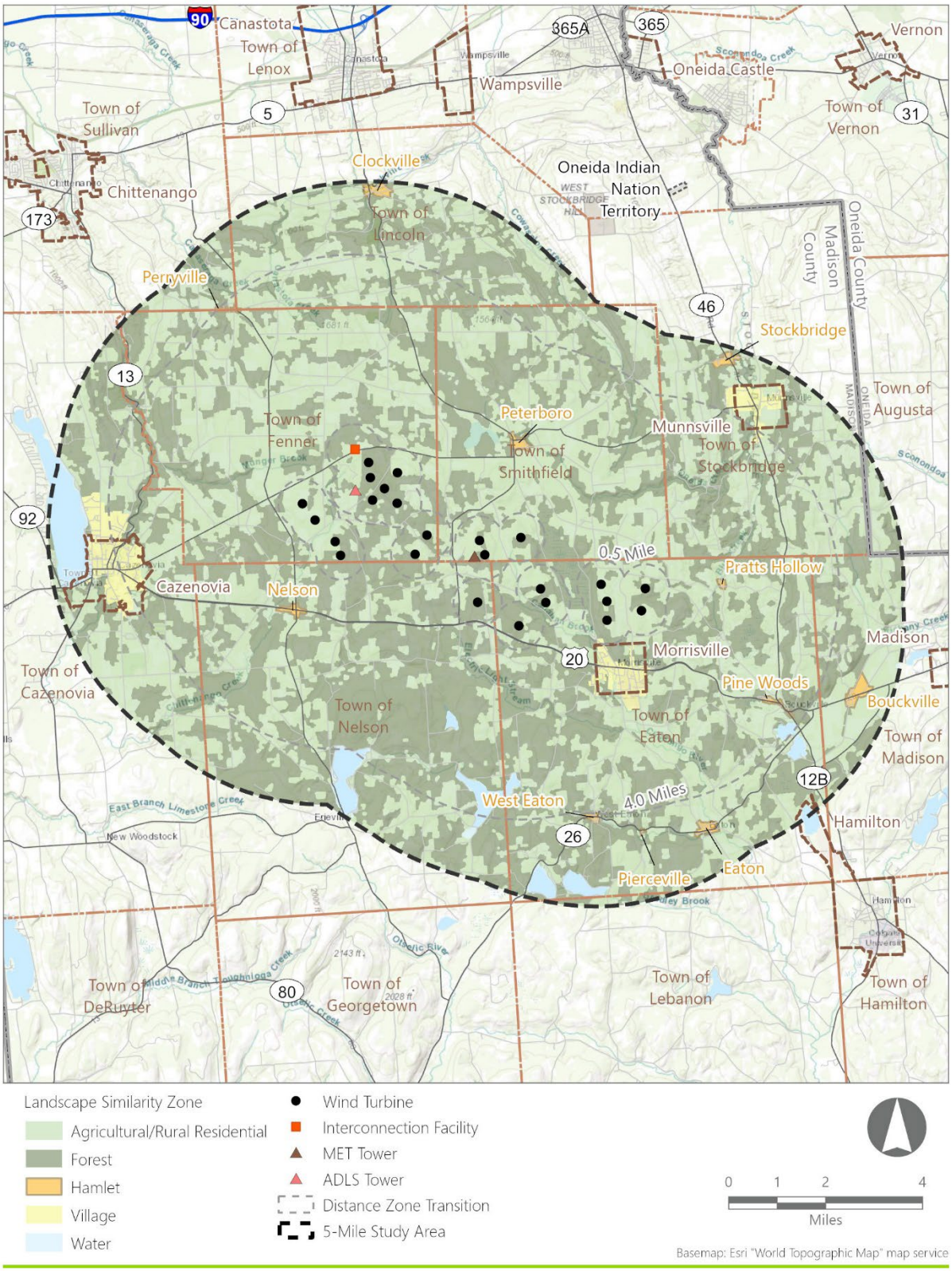
The area of each LSZ falling within each distance zone in the VSA is summarized in Table 3.4-2. As shown, the Agricultural/Rural Residential and Forest LSZs are also fairly evenly distributed throughout the distance zones. Due to the limited amount of development in the VSA and the position of the Facility on predominantly agricultural land, the near-foreground distance zone is comprised entirely of the Agricultural/Rural Residential and Forest LSZs. The Village LSZ makes up a small portion of the foreground, middle ground, and background distance zones. The Water and Hamlet LSZs are entirely within the middle ground and background distance zones and comprise a small proportion of the area in these distance zones. Descriptions of the visual characteristics of each LSZ, along with representative photographs, are provided in Sections 3.4.1 through 3.4.4.

Table 3.4-2. Distance Zones by Landscape Similarity Zone

Landscape Similarity Zone	Total Area[1] (square miles) and Percent of LSZ in each Distance Zone			
	Near-Foreground (0-300 feet)	Foreground (300 feet-0.5 mile)	Middle Ground (0.5-4.0 miles)	Background (4.0 + miles)
Agricultural/Rural Residential	0.2 (55.3%)	6.7 (51.1%)	58.3 (51.4%)	31.5 (48.8%)
Forest	0.1 (44.7%)	6.4 (58.8%)	52.6 (46.4%)	27.7 (42.9%)
Water	-	-	0.7 (0.6%)	3.1 (4.7%)
Village	-	<0.1 (0.1)	1.5 (1.3%)	0.7 (2.6%)
Hamlet	-	-	0.3 (0.3%)	0.6 (0.9%)
Total Distance Zone Area within VSA	**0.3**	**13.1**	**113.5**	**64.5**

[1]The calculations used to generate this table were based on unrounded numbers, therefore, the rounded results may not add up precisely.

Figure 3.4-2. Landscape Similarity Zones



3.4.1 Agricultural/Rural Residential

Figure 3.4-3. Representative Photographs of the Agricultural/Rural Residential Landscape Similarity Zone

Top Left: Pleasant Valley Road in the Town of Smithfield, Viewpoint 20. Top Right: Mile Strip Road in the Town of Fenner, Viewpoint 48. Bottom Left: Hardscrabble Road in the Town of Nelson, Viewpoint 58. Bottom Right: Eaton Road in the Town of Eaton, Viewpoint 35.

The Agricultural/Rural Residential LSZ covers 51% of the VSA and is characterized by open agricultural land mixed with farm complexes, small woodlots, and low-density residential development that is dissected by the local road network. Building styles range from newer single-family homes to well-established farm complexes with farmhouses, barns, and silos. Views available in this LSZ typically feature a relatively open foreground of agricultural fields with scattered homes and agricultural structures that are backed or bordered by forested areas. Due to the rolling terrain present within the VSA, expansive, long-range views that feature distant hills in the background are available from certain locations. However, hedgerows, woodlots, adjacent forested areas, and roadside vegetation or structures often frame or limit long-distance views in a particular direction. Wind turbines associated with the Fenner Wind Farm are also a significant landscape feature in many views within this LSZ, glimpses of the Munnsville Wind Project may also be viewed in the distant background from discrete locations. Distant glimpses of the Munnsville Wind Farm may also comprise portions of the background in some views. When located nearby, the turbines are often the dominant character-defining features of the landscape and focal points in the views. However, from vantage points located at greater distances from the wind farm, trees, vegetation, and hillsides often limit visibility of the turbines. Users of this LSZ are primarily local residents or those engaged in local travel.

However, due to the presence of more heavily trafficked roadways, such as US Route 20, through-travelers are also likely to be present in this LSZ.

3.4.2 Forest

Figure 3.4-4. Representative Photographs of the Forest Landscape Similarity Zone

Left: Oxbow Road in the Town of Lincoln, Viewpoint 1. Right: Oxbow County Park in the Town of Lincoln, Viewpoint 2.

The Forest LSZ covers approximately 45% of the VSA and is characterized by large, contiguous areas of mixed deciduous and coniferous tree species. While this zone occurs throughout the VSA, larger concentrated areas of contiguous forest occur in the southern portion of the VSA in and around Stoney Pond State Forest. Typical views within this LSZ are short range and include substantial foreground screening. Where open views are available, they are often tightly enclosed by trees and other vegetation, such as views along roadway corridors or in small clearings. Vantage points near the forest edge and where terrain is steep may also occasionally offer more long-range, outward views to adjacent hillsides and the surrounding landscape, particularly during leaf-off conditions. The majority of this LSZ throughout the VSA occurs on private lands with limited or no public access. Viewers at these locations are primarily local residents engaged in various outdoor activities on their properties or travelers driving on adjacent local roadways. However, in locations such as the Nelson Pond Unique Area, Chittenango Falls State Park, Helen L. McNitt State Park, Stoney Pond State Forest, and other primarily forested recreational resources, tourists/recreational users will be the primary viewers.

3.4.3 Water

Figure 3.4-5. Representative Photographs of the Water Similarity Zone

Top left: Stoney Pond State Forest in the Town of Nelson, Viewpoint 25. Top Right: Tuscarora Road in the Town of Nelson, Viewpoint 26. Bottom Left: Eaton Brook Road in the Town of Nelson, Viewpoint 28. Bottom Right: US Route 20 in the Town of Cazenovia, Viewpoint 62

The Water LSZ covers less than 4% of the VSA and is characterized by broad expanses of water that provide open views of the surrounding landscape. Land use within this LSZ includes water-based recreation on the water bodies themselves and year-round homes, seasonal residences, and/or recreational amenities along their shorelines. Within the VSA this LSZ occurs at smaller water bodies in the south and Cazenovia Lake in the west. While a majority of these lakes and reservoirs are surrounded by private land, some level of public water access is typically available ranging from informal parking areas to formalized access with parking and boat ramps. Cazenovia Lake and Stoney Pond have the greatest accessibility to the public, while Hatch and Bradley Reservoirs do not have public access and access to Woodman Pond is prohibited due to its status as a back-up water source for the Village of Hamilton. Outward views from boats on the lakes' surface, and from points along the shore, typically include a broad expanse of open water with the opposite shoreline characterized by a mix of trees and man-made structures backed by forest vegetation. The densely forested, rolling topography of the land surrounding these water bodies generally limit long-distance views from this LSZ. Users of this LSZ are primarily local residents and tourists/recreational users.

3.4.4 Village

Figure 3.4-6. Representative Photographs of the Village Landscape Similarity Zone

Top left: E Hill Road in the Town of Stockbridge, Viewpoint 15. Top Right: Chenango Street in the Town of Eaton, Viewpoint 33. Bottom Left: US Route 20 in the Town of Cazenovia, Viewpoint 61. Bottom Right: Green Street in the Town of Cazenovia, Viewpoint 64.

The Village LSZ comprises 1.7% of the VSA and is characterized by moderate to high density residential and commercial development situated along an organized street network with a formalized main street that includes pedestrian infrastructure such as sidewalks, streetlights, and crosswalks. This LSZ includes developed portions of the Villages of Morrisville, Munnsville, and Cazenovia. Buildings (typically 1 to 3 stories tall) and other man-made features dominate the landscape, but vegetation and landform contribute to the visual character. The character of buildings and structures within this LSZ can be highly variable, from historic residences to mixed-use downtown districts to newer construction such as housing complexes and convenience stores. The arrangement of buildings along organized street patterns lined with vegetation tends to screen outward views and focus views along narrow street corridors. Open street corridors along prominent through-fares, such as Route 20, and at the edges of the LSZ, where there is less development, may offer more open views of the surrounding landscape (especially when abutting open agricultural land). However, even in these instances long-distance views are often obscured by surrounding hillsides or stands of forest vegetation. Users in the LSZ are likely to be the most varied, with local residents being the most prominent users. However, tourists and recreational users visiting local businesses, parks, and college

facilities are also common particularly in the Villages of Cazenovia and Morrisville. Through-travelers in route to other destinations are also likely on the major highways that pass through the Villages.

3.4.5 Hamlet

Figure 3.4-7. Representative Photographs of the Hamlet Landscape Similarity Zone

Top left: Peterboro Road in the Town of Smithfield, Viewpoint 6. Top Right: Pleasant Valley Road in the Town of Smithfield, Viewpoint 11. Bottom Left: Mechanic Street in the Town of Eaton, Viewpoint 29. Bottom Right: Route 46 in the Town of Eaton, Viewpoint 32.

The Hamlet LSZ occurs in 0.5% of the VSA and reflects a traditional development pattern of the nineteenth and early twentieth century that is characterized by a small cluster of residential development in a rural setting along state or county highways. In this LSZ the dominant land use is residential with occasional commercial, religious, and/or institutional services. The character of these hamlets is variable based on their size. Hamlets such as Nelson, Bouckville, Eaton, and Stockbridge are larger hamlets with some visual characteristics of a village, including a main street bordered by single family residences, shops, churches, or services like a post office or Town municipal buildings. In these areas public parks, sidewalks, or streetlights may also be present. Side streets include closely situated single family homes, and the outskirts become more widely disbursed closer to the Agricultural/Rural Residential or Forest LSZs. Hamlets such as West Eaton and Clockville have a lower density of residences, but some level of commercial development or local services is still present. Pierceville is the smallest hamlet and is defined by a small cluster of residential development along a county highway intersection. Structures primarily reflect traditional architectural styles, and views in this LSZ typically include tree-lined streets and clustered structures backed by forest or

agricultural land. Topography within this LSZ is generally level with long-distance views limited by foreground structures and trees. Outward views are available in areas where the Hamlet LSZ abuts open agricultural land, but long-distance visibility is often limited by roadway vegetation or, in some instances, surrounding hillsides. Users of this LSZ are primarily local residents, but due to the location of these hamlets along state and county highways through-travelers will also be present.

3.5 Visually Sensitive Resources

A variety of publicly available geospatial databases were consulted to identify Visually Sensitive Resources (VSRs) within the VSA. Identification of VSRs was based on guidance provided by New York State Department of Environmental Conservation (NYSDEC) Program Policy DEP-00-2 *Assessing and Mitigating Visual and Aesthetic Impacts* (NYSDEC, 2019) and the requirements of Section 94-c. In addition, EDR conducted a search for other resources that could be considered visually sensitive based on the type or intensity of use they receive. A complete listing of the resources used in the identification of VSRs is included in the Literature Cited/Resources section of this report (see Section 7.0). The categories of VSRs evaluated in this search included the following:

- **Properties of Historic Significance.** National Historic Landmarks, Sites Listed on the State or National Registers of Historic Places (S/NRHP); Properties Eligible for Listing on the S/NRHP[3] (or National Register Eligible [NRE] resources); National or State Historic Sites.
- **Designated Scenic Resources.** Rivers Designated as National or State Wild, Scenic, or Recreational; Adirondack Park Scenic Vistas; Sites, Areas, Lakes, Highways or Overlooks Designated or Eligible for Designation as Scenic; Scenic Areas of Statewide Significance; Other Designated Scenic Resources.
- **Public Lands and Recreational Resources.** National Parks, Recreation Areas, Seashores, and/or Forests; Heritage Areas; State Parks; State Nature and Historic Preserve Areas; State Forest Preserve Lands; Wildlife Management Areas/Wildlife Refuges; State Forests; Other State Lands; State Boat Launches/Waterway Access Sites; Designated Trails; Palisades Park Lands; Local Parks and Recreation Areas; Publicly Accessible Conservation Lands/Easements; Rivers and Streams with Public Fishing Rights Easements; Named Lakes, Ponds, and Reservoirs.
- **High Use Public Areas.** State, U.S., and Interstate Highways, Cities, Villages and Hamlets; Schools.
- **Locally Identified Resources.** Other resources identified through the agency/public outreach process (see discussion in Section 3.5.2)**.**

Within the 5-mile radius VSA, a total of 236 VSRs were identified in EDR's review of publicly available geospatial databases. Other sources of information used to identify VSRs are described in Sections 3.5.1 and 3.5.2. These sources resulted in the identification of an additional 43 VSRs within the VSA (279 in total).

[3] Properties identified in this analysis as Eligible for Listing on the S/NRHP are derived from the Historic Resources Survey Report and Effects Assessment prepared for the Facility (EDR, 2023). While the historic resources survey utilizes point-based data for these properties, this assessment analyzes the parcels within which these points occur. At the time of this analysis, the Architectural Resources Survey was under review by the State Historic Preservation Office (SHPO); the determination of resource eligibility will be updated based on the SHPO response.

3.5.1 Municipal Document Review

A review of local zoning ordinances and regional planning documents was undertaken to obtain additional information regarding scenic resources within the VSA. Specifically, these planning documents were reviewed to catalog resources identified for their scenic, open space, aesthetic, and/or recreational value. Five additional resources were identified in these documents including, conservation land in the Town of Fenner owned by the Cazenovia Preservation Foundation, the Madison County Children's Camp, the Morrisville Community Club, the Town of Nelson Scenic Overlay District, and designated Town of Nelson Scenic Roadways.

3.5.2 Agency and Stakeholder Recommendations

Per the requirements set forth in Section 94-c, the Applicant conducted visual outreach to agencies and municipal stakeholders to assist in the identification of additional VSRs and locations that may be suitable for the development of photosimulations. Copies of correspondence sent by the Applicant as part of this outreach process, and the responses received from state agencies and municipal stakeholders, are included as Attachment G of this VIA. Responses were received from ORES, the Town of Eaton, and the Town of Nelson. Response to the outreach was also discussed by the Town of Fenner Planning Board at their October 18, 2023, meeting and included in the meeting minutes accessed through the Town's website.

As a result of the visual outreach effort, a total of 38 new VSRs were identified within the VSA. These included the following:

- Cemeteries (26)
- Land indicated to be under the ownership of the Oneida Indian Nation (8)
- Town of Fenner High Points (4).

All resources identified during visual outreach are included in Attachment C. Resources identified during visual outreach that do not otherwise meet the criteria of resource categories identified in Sections 3.5 and 3.5.1 are listed under the "Resources Identified by Stakeholders" category. See Appendix G for a full overview of the comments received and actions taken as part of the public outreach process.

3.5.3 Visually Sensitive Resources Summary

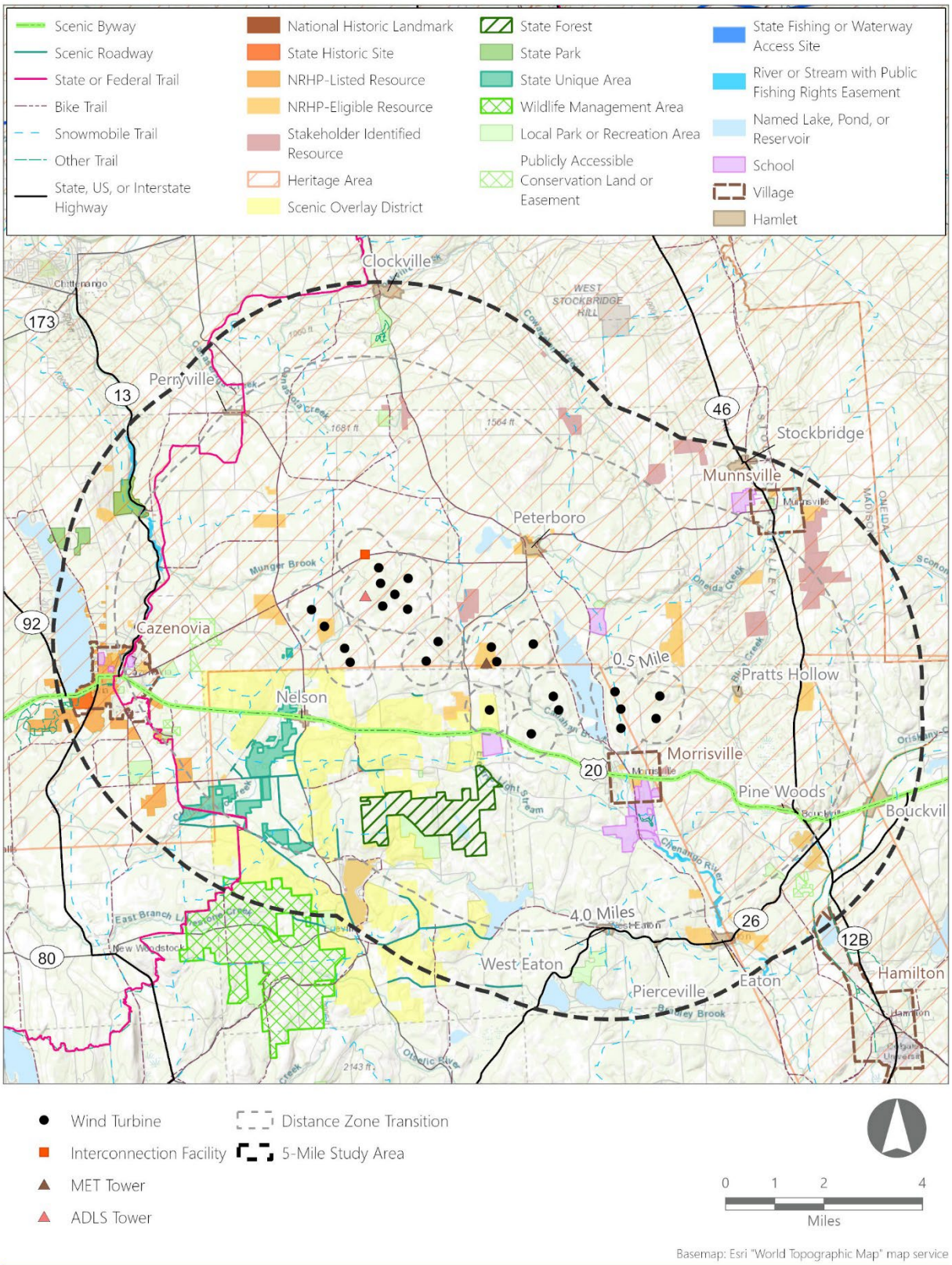
A summary of all the VSR types that were identified within the VSA based on database consultation, document review, and visual outreach is presented in Table 3.5-1. The location of these resources by type is indicated in Figure 3.5-1. Attachment A provides a more detailed illustration of the location of the VSRs, and identification numbers indicated on this map correlate with numbers in the comprehensive table of VSRs included in Attachment C.

Table 3.5-1. Summary of Visually Sensitive Resource Types Identified in the VSA

Visually Sensitive Resources	Total Number of Resources within the VSA
Properties of Historic Significance [6 NYCRR 617.4 (b)(9)]	**Total 128**

Visually Sensitive Resources	Total Number of Resources within the VSA
National Historic Landmarks (NHL)	1
Properties/Districts Listed on National or State Registers of Historic Places (NRHP/SRHP)	39
Properties Eligible for Listing on NRHP or SRHP	87
Other Designated Historic Sites	1
Designated Scenic Resources	**Total 3**
Rivers Designated as National or State Wild, Scenic or Recreational	None identified.
Adirondack Park Scenic Vistas [Adirondack Park Land Use and Development Map]	Not Applicable (NA)
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic ([ECL Article 49, Title 1] or equivalent)	1
Scenic Areas of Statewide Significance [Article 42 of Executive Law]	None identified.
Other Designated Scenic Resources (Easements, Roads, Districts, and Overlooks)	2
Public Lands and Recreational Resources	**Total 82**
National Parks, Recreation Areas, Seashores, and/or Forests [16 U.S.C. 1c]	None identified.
National Natural Landmarks [36 CFR Part 62]	None identified.
National Wildlife Refuges [16 U.S.C. 668dd]	None identified.
Heritage Areas [Parks, Recreation and Historic Preservation Law Section 35.15]	2
State Parks [Parks, Recreation and Historic Preservation Law Section 3.09]	2
State Nature and Historic Preserve Areas [Section 4 of Article XIV of the State Constitution]	None identified.
State Forest Preserve [NYS Constitution Article XIV]	None identified.
State Forests	1
Wildlife Management Areas	1
Other State Lands	1
State Boat Launches/Waterway Access Sites	4
Designated Trails	26
Palisades Park [Palisades Interstate Park Commission]	NA
Local Parks and Recreation Areas	26
Publicly Accessible Conservation Lands/Easements	5
Rivers and Streams with Public Fishing Rights Easements	2
Named Lakes, Ponds, and Reservoirs	12
High-Use Public Areas	**Total 28**
State, US, and Interstate Highways	5
Cities, Villages, Hamlets	15
Schools	8
Other Resources Identified by Stakeholders	**Total 38**
Total Number of VSRs in the VSA	**279**

Figure 3.5-1. Visually Sensitive Resources

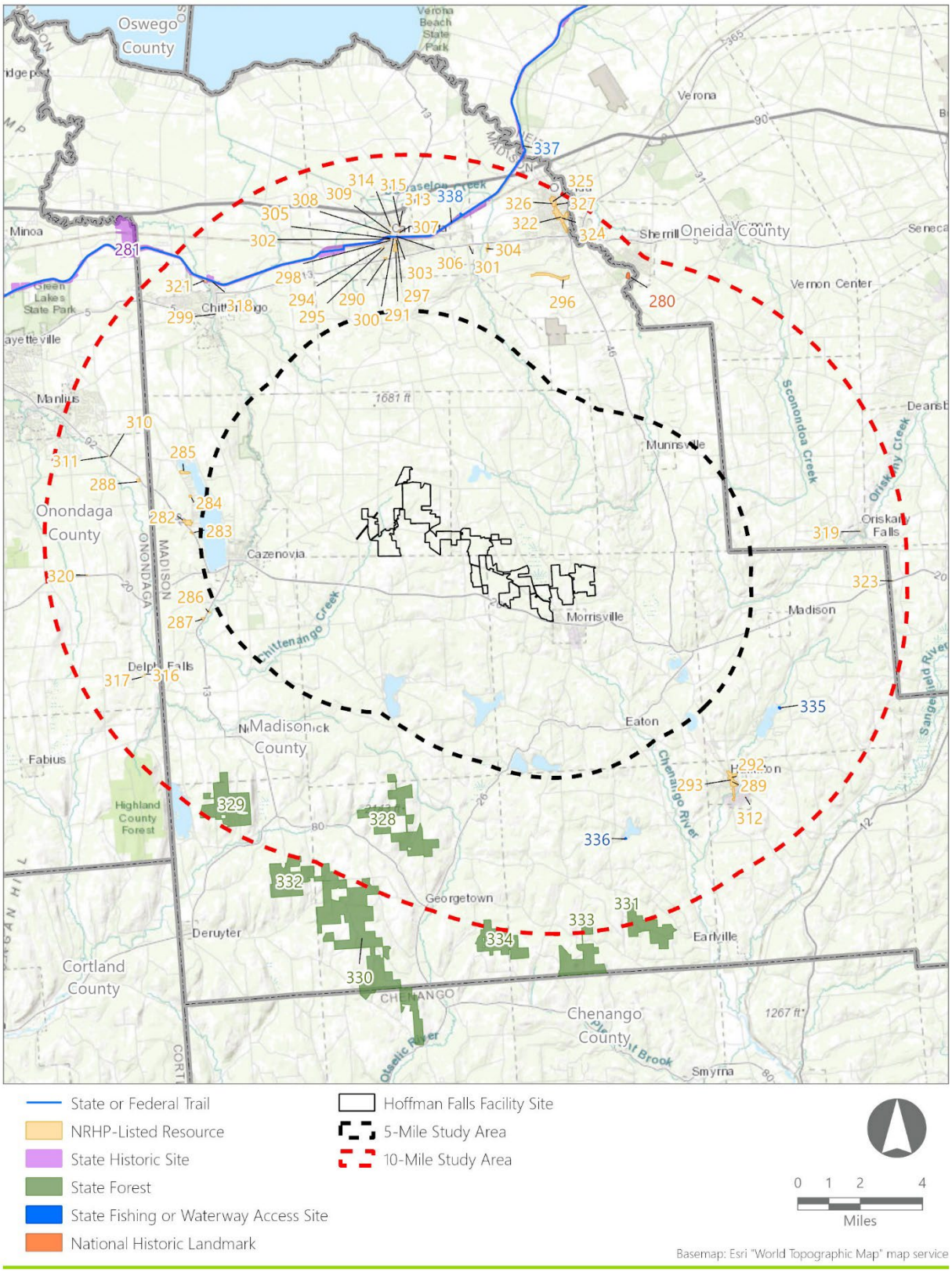


3.5.4 Significant Visual Resources Beyond the Visual Study Area

Section 94-c regulations require that potential Facility visibility be considered "*from specific significant visual resources beyond the specified study area.*" As described in Section 3.1, a 10-mile radius study area was defined to identify significant visual resources beyond the VSA. The criteria used to identify significant visual resources were based on the NYSDEC definition of aesthetic resources of statewide significance (NYSDEC, 2019). These include Properties/Districts Listed on the NRHP or SRHP (including National Historic Landmarks); State Parks; National or NYS Heritage Areas; State Forest Preserves; National Wildlife Refuges; National Natural Landmarks; National Parks, Recreation Areas, and/or Forests; Rivers Designated as National or State Wild, Scenic, or Recreational; Site, area, lake, reservoir or highway designated or eligible for designation as scenic; Scenic Areas of Statewide Significance; State or federally designated trail; Adirondack Park Scenic Vistas; State Natural and Historic Preserve Areas; Palisades Park; and Bond Act Properties purchased under the Exceptional Scenic Beauty Category. The location of these resources is illustrated in Figure 3.5-2. Identification numbers indicated on this map can be matched to the table of comprehensive VSRs included in Attachment C.

Based on EDR's database review, a total of 59 significant visual resources were identified within 10 miles of the Facility Site. The following NRHP-listed resources are included:

Figure 3.5-2. Significant **Visually Sensitive Resources Beyond the VSA**



- 203 South Main Street, Residence, Village of Canastota
- Beckwith Farmhouse, Town of Cazenovia
- Brick House, Town of Cazenovia
- Canal Town Museum, Village of Canastota
- Canastota Methodist Church
- Canastota Public Library
- Chittenango Landing Dry Dock Complex
- Chittenango Pottery
- Cobblestone House, Town of Cazenovia
- Cottage Lawn, Village of Oneida
- Deferriere House
- Delphi Baptist Church
- Delphi Village School
- Drover's Tavern
- First Congregational Free Church, Village of Oriskany Falls
- Hamilton Village Historic District
- House at 107 Stroud Street, Village of Canastota
- House at 115 South Main Street, Village of Canastota
- House at 205 North Main Street, Village of Canastota
- House at 233 James Street, Village of Canastota
- House at 313 North Main Street, Village of Canastota
- House at 326 North Peterboro Street, Village of Canastota
- House at 328 North Peterboro Street, Village of Canastota
- Main-Broad-Grove Streets Historic District, Village of Oneida
- Middle Farmhouse, Town of Cazenovia
- Mount Hope Reservoir, Town of Oneida
- Old Biology Hall, Village of Hamilton
- Oneida Armory
- Oneida Downtown Commercial Historic District
- Oran Community Church
- Oran District No. 22 Schoolhouse
- Roberts, Judge Nathan S., House, Village of Canastota
- Shattuck House, Town of Cazenovia
- Smith, Adon, House
- South Peterboro Street Commercial Historic District, Village of Canastota
- South Peterboro Street Residential Historic District, Village of Canastota
- St. Paul's Church (Episcopal), Village of Chittenango
- United Church of Canastota
- Upenough, Town of Cazenovia
- US Post Office – Canastota
- US Post Office – Hamilton
- US Post Office – Oneida
- Wampsville Presbyterian Church.

State forests include the following: Deruyter State Forest, Earlville Sate Forest, Lebanon State Forest, Morrow Mountain State Forest, Muller Hill State Forest, Texas Hill State Forest, and Three Springs State Forest. State trails include the Empire State Trail and the Erie Canalway Trail. State Fishing or Waterway Access Sites include Lebanon Reservoir Fishing Access and Madison Reservoir Fishing Access. Other significant visual resources include the Oneida Community Mansion House (National Historic Landmark) and Old Erie Canal State Historic Park.

4.0 VISUAL IMPACT ASSESSMENT METHODOLOGY

The visual impact assessment procedures used for this study are consistent with methodologies developed by the BLM (1999), USFS (1995), USDOT (1981), U.S. Army Corps of Engineers (Smardon, et al., 1988), and the NYSDEC (2019). These procedures also comply with the requirements of Section 94-c and are widely accepted as standard visual impact methodology for renewable energy projects. The specific techniques used to assess potential Facility visibility and visual impacts are described in this section.

4.1 Facility Visibility

An analysis of Facility visibility was undertaken to identify locations within the VSA where there is potential for the proposed wind turbines and other Facility components to be seen from ground-level vantage points. This analysis included identifying potentially visible areas on viewshed maps and verifying potential Facility visibility in the field. In addition, line-of-sight analysis cross sections or photosimulations were completed to determine potential visibility from VSRs identified in Attachment C and determined to have potential visibility of the Facility based on the results of viewshed analysis. The methodology employed for each of these assessment techniques is described herein.

4.1.1 Viewshed Analysis

4.1.1.1 Wind Turbine Viewshed Analysis

To identify areas where the proposed wind turbines would potentially be visible, a digital surface model (DSM) viewshed analysis was conducted. A DSM viewshed analysis evaluates potential Facility visibility considering the screening effects of topography, structures, and vegetation. A viewshed analysis based on a bare earth digital elevation model (DEM) considering topography alone is not provided because the results of such an analysis do not accurately represent areas of potential visibility within the VSA due to the exclusion of significant screening elements, such as vegetation and structures. The DSM viewshed analysis for the proposed wind turbines was prepared using the following data and parameters:

- A DSM derived from 2019 and 2016/2017 Federal Emergency Management Agency (FEMA), and 2015 New York State GIS Program Office (NYSGPO) lidar datasets
- 24 sample points representing the proposed wind turbine locations
- An assumed maximum blade tip height of 656 feet applied to each sample point
- An assumed FAA warning light height of 433 feet applied to each sample point
- An assumed viewer height of six feet
- A visibility limit of 15 miles applied to each turbine location[4]
- Esri ArcGIS Pro® software with the Spatial Analyst extension.

To avoid misrepresentation in the results of the DSM viewshed analysis, modifications were made to the lidar-derived DSM prior to conducting the analysis. In the DSM lidar dataset, existing transmission lines and roadside utility lines are generally misrepresented as solid structures that extend from the top of these lines

[4] While wind turbine visibility could extend beyond 15 miles, the magnitude of visual impact at these distances is not likely to result in a significant adverse effect.

to the ground surface and therefore have the potential to screen views. In order to correct this inaccuracy, all surface features within transmission line and road corridors (defined as areas within 50 feet of transmission line and road centerlines) were removed by replacing them with DEM (bare earth) elevation values. It is important to note that this removal of surface features within road and transmission corridors may also eliminate legitimate screening features such as vegetation and structures, which may result in an overstatement of potential wind turbine visibility within and adjacent to these portions of the VSA. All surface features (vegetation) within the Facility's limit of disturbance were also removed and replaced with DEM elevation values. It is worth noting that changes to the landscape outside of the Facility Site (such as vegetation clearing or building construction) that have occurred since the date of lidar collection could also lead to minor inaccuracies in the analysis. However, vegetation represented in the DSM was observed during field review to be substantially consistent with that seen from publicly accessible viewing locations. Therefore, no additional alterations were made to the DSM.

Two viewshed analyses were conducted, one to illustrate the most conservative daytime visibility based on a maximum blade tip height of 656 feet above existing grade and the other to illustrate maximum potential nighttime visibility of turbine lights based upon an approximate Nacelle/FAA warning light height of 433 feet above existing grade and the assumption that all turbines would be equipped with such lights. Once the viewshed analyses were complete, wind turbine visibility was set to zero in locations where the DSM elevation exceeded the bare earth elevation by 6 feet or more, indicating the presence of vegetation or structures that exceed viewer height. This was done for two reasons: 1) in locations where trees or structures are present in the DSM, the viewshed would reflect visibility from the tree-tops or building roofs, which is not the intent of this analysis, and 2) to reflect the fact that ground-level vantage points within buildings or areas of vegetation exceeding 6 feet in height will generally be screened from views of the Facility.

Because it accounts for screening provided by topography, vegetation and structures, the DSM viewshed analysis is an accurate representation of potential Facility visibility. However, because certain characteristics of the Facility and the VSA that may serve to restrict visibility (e.g., color, atmospheric/weather conditions, and distance from viewer) are not taken into consideration in the analysis, being located within the DSM viewshed does not necessarily equate to actual Facility visibility, nor does it indicate that adverse visual impacts will occur within these geographic locations. There is also the possibility of the DSM overstating screening/underestimating visibility in locations where views are available through trees during the dormant season. However, such views will still benefit from screening/obstruction by bare tree branches and trunks. As stated previously, potential changes to the landscape that have occurred since the date of lidar collection (2015-2019, depending on the area) could also lead to minor inaccuracies in the analysis.

4.1.1.2 Interconnection Facilities Viewshed Analysis

A DSM viewshed analysis was also conducted for the proposed interconnection facilities which include the collection substation and POI switchyard. The tallest proposed components of the interconnection facilities are the A-frame structures and narrow lighting masts, which were assessed by the viewshed analysis at a maximum height of 74.5 feet. Sample points representing the substation control building, A-frame structures, and lightning masts were assigned heights ranging from 12.9 to 74.5 feet (see Section 2.2.4) and

were placed within the interconnection facility site based on the substation site plan (see Exhibit 5 and Appendix 5-B).

At the time of this analysis, the specific location and specifications of the new transmission poles required to allow connection into the regional grid were unknown. Therefore, assumptions were used for material and placement of these structures, and a maximum height of 88.5 feet.

Due to the low profile of the interconnection facilities structures compared to the wind turbines, a radius of 4 miles (which corresponds to the extent of the middle ground distance zone defined in the VIA) was selected for the interconnection facilities study area. All other data sources and parameters used in the interconnection facility viewshed analysis are as described herein for the wind turbine viewshed analysis.

4.1.1.3 Ancillary Structures Viewshed Analyses

DSM viewshed analyses were also conducted for the proposed MET and ADLS towers. The MET tower is represented by one sample point and is assessed by the viewshed analysis at a maximum height of 402 feet[5]. The ADLS tower is represented by one sample point and is assessed at a maximum height of 110 feet. Due to the slender profile and linear form of these components, and their relatively low height compared to the wind turbines, a 4-mile study area (which corresponds to the extent of the middle ground distance zone defined in the VIA) was selected for each of the ancillary structures. All other data sources and parameters used in the ancillary structure viewshed analyses are as described above for the wind turbine viewshed analysis.

It is also important to note the ADLS tower is considered a mitigation measure to limit the impacts of nighttime wind turbine FAA lighting visibility and will only be included in the Project if technically feasible and approved by the FAA.

4.1.2 Line-of-Sight Cross Section Analysis

Per the requirements set forth in Section 94-c (19 NYCRR §900-2.9), line-of-sight (LOS) cross sections were prepared to illustrate potential Facility visibility and sources of screening from precise locations within VSRs of statewide significance (as defined by the NYSDEC [2019]) along a single line "cut" through the landscape. DSM and bare-earth DEM data used for the viewshed analysis were used to demonstrate the potential screening effects of topography, vegetation, and structures along each LOS. To prepare the LOS, viewshed analysis for individual VSRs indicated to have wind turbine visibility were prepared to determine the nearest visible turbine for each VSR and the location within the VSR where this visibility would occur. Next, a line was drawn from the location of visibility to the nearest turbine. Global Mapper® software then sampled elevations from the DEM and DSM along the entire line. The resulting output includes a bare earth profile line based on the DEM and a separate profile line illustrating screening provided by trees and structures based on the DSM. Rendered line-of-sight cross sections were then prepared, and are included in Attachment E.

[5] This 402 foot height accounts for the 394 foot tower, plus an additional 8 feet for the anticipated height of the FAA required lighting.

4.1.3 Field Review

EDR personnel conducted field review within the VSA on August 31 and December 20, 2023. During the site visits, EDR staff members traveled public roads and visited public vantage points throughout the VSA to observe the character of the existing landscape, evaluate potential Facility visibility, and confirm the results of the viewshed analysis. The determination of potential Facility visibility, or lack thereof, was based on the known location and dimensions of Facility components, and the location and characteristics of existing identifiable landscape features on and around the Facility Site which served as location and scale references. To assist with viewer orientation and determination of potential Facility visibility in the field, global positioning system (GPS) units were combined with live mapping in ESRI Collector®. Data contained in the Collector unit included the Facility components, viewshed analysis results, a topographic and aerial base map, and current viewer location. Viewpoints visited during field review were primarily identified through a desktop analysis that overlaid the turbine viewshed and features of the existing environment discussed in Section 3.0 in order to identify potential views toward the Facility Site from the various LSZs, distance zones, VSRs, and areas of high public use throughout the VSA. Viewpoints identified through the desktop analysis were supplemented with 1) viewpoints identified during field review based on observations of potential Facility visibility, and 2) viewpoints recommended by stakeholders through the Visual Outreach process. At each viewpoint, the GPS unit was used to document the camera location, time, and relevant observations. Viewpoints documented during field review generally represented the most open, unobstructed available views toward the proposed Facility Site, but also include locations with a range of visibility and anticipated viewing conditions.

Field review resulted in documentation of potential Facility visibility from 83 representative viewpoints. At each viewpoint, sequential photographs were taken to capture a panorama of the full extent of potential Facility visibility or document obstructions that may screen or obstruct Facility visibility. Viewpoint locations documented during field review are shown in Figure 5.1-4, and a photograph documenting a representative view toward the Facility Site from each viewpoint is included in Attachment B. These photographs were taken using a full frame, digital, single lens reflex (SLR) camera with a resolution of 30.4 megapixels and a 50-millimeter (mm) lens. A 50 mm focal length is the standard typically used in visual studies because it provides an accurate scale perspective and most closely approximates normal human eyesight relative to scale.

4.2 Facility Visual Impact

Beyond evaluating potential Facility visibility, the VIA also examined the potential visual impact associated with the proposed Facility on the LSZs, VSRs, and viewer/user groups within the VSA. This assessment involved preparing photosimulations of the proposed Facility (including the wind turbines, ADLS and MET towers, access roads, O&M facility, collection substation, and POI switchyard) from representative viewpoints. These simulations illustrate the appearance of the proposed Facility and were evaluated by a rating panel consisting of two registered landscape architects and a planner certified with the American Institute of Certified Planners (two in-house staff with no other direct involvement in the Project and one outside consultant) to determine the type and extent of visual impact resulting from installation of the

proposed Facility. Further information on rating panel personnel and procedures can be found in Attachment F. Details of the visual impact assessment procedures are described below.

4.2.1 Viewpoint Selection

The Section 94-c regulations require that *"In developing the application, the applicant shall confer with municipal planning representatives, the Office (ORES), and where appropriate, OPRHP and/or APA in its selection of important or representative viewpoints*."[6] As discussed previously, consultation with agencies and municipal representatives mentioned above was conducted to assist in identification of VSRs and determination of an appropriate set of viewpoints for the development of photosimulations. Copies of correspondence sent to agencies and stakeholders as part of this process, as well as the responses received, are included as Attachment G.

Based on the outcome of VSR research, field verification, and stakeholder/agency consultation, a total of 17 distinct viewpoints were ultimately selected for the development of photosimulations. These viewpoints/views were selected based upon the following criteria:

- They provide open views of the proposed wind turbines, interconnection facility, O&M facility, ADLS and MET tower, or they provide representative views of the screening effects of vegetation, topography, or structures from selected areas
- They illustrate views from significant locations, including, but not limited to
    - Specific VSRs
    - LSZs where open views will be available
    - Locations with a high level of exposure for representative viewer/user groups, such as densely populated areas or highly trafficked roadways
    - Locations recommended by state agencies, municipal representatives, and/or local stakeholders.
- They illustrate different amounts of wind turbine visibility from a variety of viewing distances and directions to illustrate the range of visual change that will occur with the Facility in place.
- They illustrate views of the Facility from locations representative of existing and future land uses and/or zoning districts within the VSA.
- They illustrate conditions both consistent with, and inconsistent with, the requirements of adopted local laws or ordinances.
- They illustrate views where there is potential for cumulative impacts with other existing or proposed renewable energy facilities.

[6] The APA is not applicable in this instance due to the Facility's location outside the Adirondack Park.

Location details and the characteristics of each photosimulation viewpoint are summarized in Table 4.2-1 and in the context sheet for each photosimulation included in Attachment D. Attachment A includes figures with the viewpoint locations overlaid with the viewshed results, LSZs, VSRs, and future land use areas.

Table 4.2-1. Viewpoints Selected for Photosimulations

Viewpoint Number	Location and/or VSR Represented	VSR ID #	Town	LSZ Represented[1]	Viewer/User Group Represented	Future Land Use	Viewing Distance[2]	View Orientation[3]
3	**East Mile Strip Road** Erie Canalway National Heritage Corridor	132	Smithfield	Agricultural/ Rural Residential	Local Residents	Zoning Unavailable	3.3 mi	SSW
14	**State Route 46** Erie Canalway National Heritage Corridor	214, 132	Stockbridge	Agricultural/ Rural Residential	Local Residents, Through Travelers	Agricultural/ Rural Residential	3.3 mi	WSW
18	**Gill Road** Erie Canalway National Heritage Corridor	132	Smithfield	Agricultural/ Rural Residential	Local Residents	Zoning Unavailable	1.0 mi	W
23	**Stone Bridge Road**	NA	Nelson	Agricultural/ Rural Residential	Local Residents	Agricultural/ Rural Residential	0.8 mi	NE
36	**Madison Road** State University of New York College of Agriculture and Technology at Morrisville, Edward R Andrews Elementary School, Village of Morrisville	220, 222, 227	Eaton	Village	Local Residents, Tourists/ Recreational Users	Residential	1.5 mi	N
40	**US Route 20** Scenic Route 20	129	Eaton	Agricultural/ Rural Residential	Local Residents, Through Travelers	Residential	1.2 mi	NW
41	**Bliss Road** State University of New York College of Agriculture and Technology at Morrisville – Equine Center	219	Nelson	Agricultural/ Rural Residential	Local Residents, Tourists/ Recreational Users	Agricultural/ Rural Residential	0.6 mi	E
42	**Brooks Road** Erie Canalway National Heritage Corridor	132	Smithfield	Agricultural/ Rural Residential	Local Residents	Zoning Unavailable	0.5 mi	NW
45	**Nichols Pond Road** Erie Canalway National Heritage Corridor, Heaven and Hell Bike Trail	132, 151	Fenner	Agricultural/ Rural Residential	Local Residents	Agricultural/ Rural Residential	2.6 mi	S
50	**Buyea Road** Snow Valley Riders Snowmobile Trail,	145, 132, 151	Fenner	Agricultural/ Rural Residential	Local Residents, Tourists/	Agricultural/ Rural Residential	1.2 mi	SE

Viewpoint Number	Location and/or VSR Represented	VSR ID #	Town	LSZ Represented[1]	Viewer/User Group Represented	Future Land Use	Viewing Distance[2]	View Orientation[3]
	Erie Canalway National Heritage Corridor, Heaven and Hell Bike Trail				Recreational Users			
54	**South Road** Farmstead with Italianate-style Residence - Wyss Road, Erie Canalway National Heritage Corridor	42, 132	Fenner	Agricultural/ Rural Residential	Local Residents	Agricultural/ Rural Residential	0.5 mi	SSE
58	**Hardscrabble Road** Town of Nelson Scenic Roadway, Cazenovia/Erieville Roundabout, Magnificent Madison, Town of Nelson Scenic Overlay District	131, 153, 150, 130	Nelson	Agricultural/ Rural Residential	Local Residents, Through Travelers	Agricultural/ Rural Residential	4.2 mi	NNE
60	**Cazenovia Art Park** Stone Quary Hill Art Park, Dorothy Riester House & Studio, Erie Canalway National Heritage Corridor	196, 16, 132	Cazenovia	Agricultural/ Rural Residential	Local Residents, Tourists/ Recreational Users	Agricultural/ Rural Residential	4.0 mi	ENE
63	**Lorenzo State Historic Site** Cazenovia Village Historic District, Lorenzo State Historic Site, Rippleton Schoolhouse, Village of Cazenovia, Erie Canalway National Heritage Corridor	15, 36, 37, 228, 132	Cazenovia	Agricultural/ Rural Residential	Local Residents, Through Travelers	Residential	4.9 mi	E
68	**Bingley Road** Heaven and Hell Bike Trail, Erie Canalway National Heritage Corridor	151, 132	Fenner	Agricultural/ Rural Residential	Local Residents, Through Travelers	Agricultural/ Rural Residential	1.6 mi	SE
69	**Cody Road** Magnificent Madison, Erie Canalway National Heritage Corridor	150, 132	Fenner	Agricultural/ Rural Residential	Local Residents, Through Travelers	Agricultural/ Rural Residential	340.7 ft	NE
70	**South Road** Erie Canalway National Heritage Corridor	132	Fenner	Agricultural/ Rural Residential	Local Residents	Agricultural/ Rural Residential	342.6 ft	S

[1]The Hamlet, Water, and Forest LSZs was considered in the selection of viewpoints but was not included due to lack of Facility visibility.
[2]Distance from viewpoint to nearest visible wind turbine generator.
[3]N = North, S = South, E = East, W = West.

As indicated in Table 4.2-1, 16 of the selected viewpoints are located within the Agricultural/Rural Residential LSZ and one is within the Village LSZ. Four viewpoints are within the foreground distance zone, 10 are within the middle ground distance zone, and three are in the background distance zone. The distribution of selected viewpoints reflects the distribution of open views within the VSA. Potential views of the Facility from other LSZs and distance zones are substantially more limited, significantly screened, or outside the boundaries of the VSA (see discussion of Field Review in Section 5.1.3). Five of the 18 viewpoints are located within areas of higher viewer exposure (i.e., VSRs or high-traffic roadways), which also reflects the distribution of potential visibility throughout the VSA (see Figure 4.2-1).

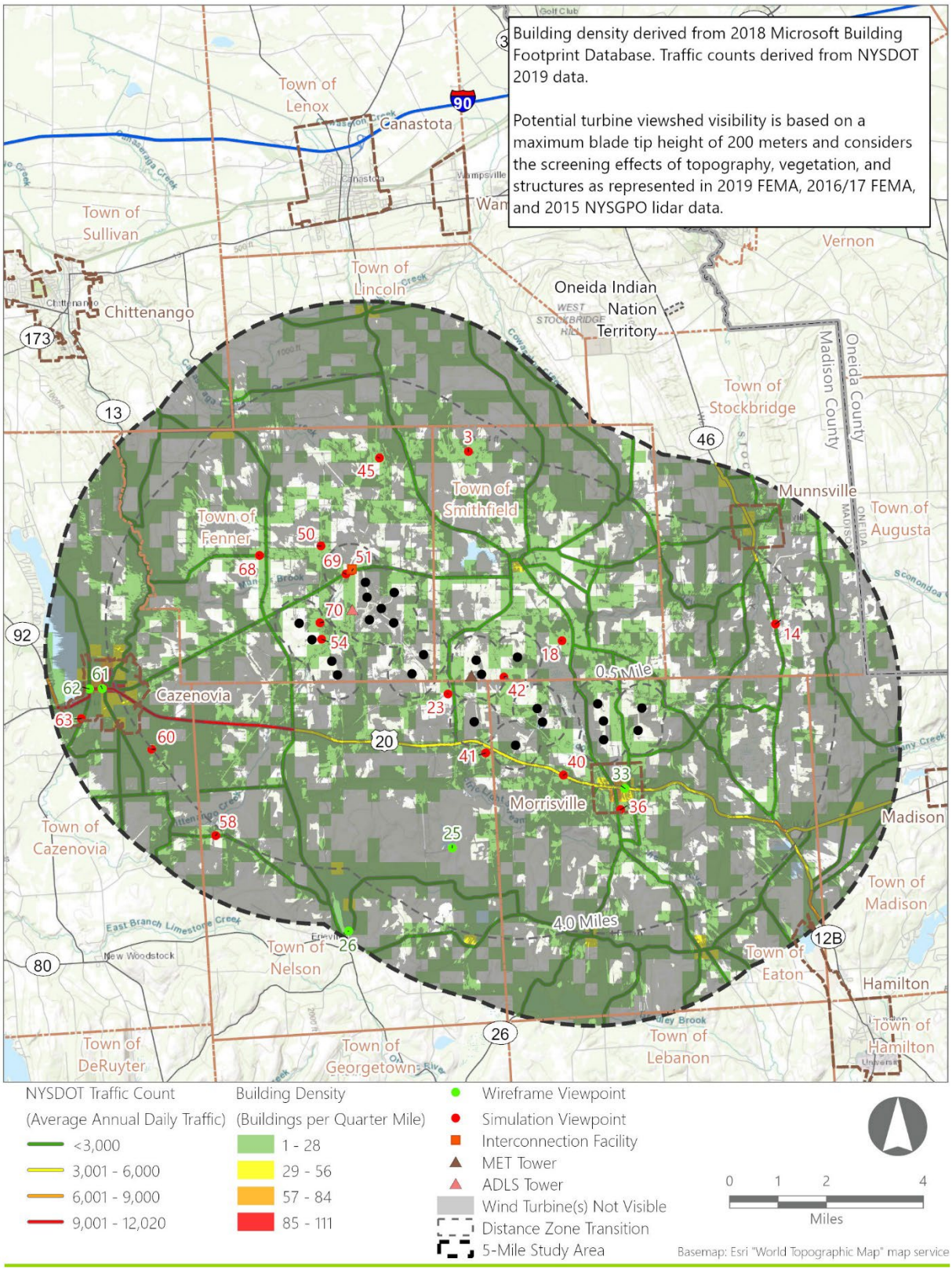
4.2.2 Photosimulations

To show anticipated visual changes associated with the proposed Facility, three-dimensional (3D) computer modeling software was used to create realistic photographic simulations (photosimulations) of the proposed Facility from each of the 17 selected viewpoints. The photosimulations 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 landscape elements in the view were modeled using detailed lidar data representing roads, buildings, vegetation, and topography. Once the camera and existing landscape elements were roughly aligned to match the photo, minor adjustments were made to the camera and target location, focal length, and camera roll to align all modeled elements with the corresponding elements in the photograph. This ensures that any elements introduced to the model space (e.g., the wind turbines) will be shown in proper proportion, perspective, and relation to the existing landscape elements in the view. Consequently, the alignment, elevations, dimensions, and locations of the proposed Facility structures in the photosimulations will be accurate.

Computer models of the proposed wind turbines, collection substation, interconnection facility, O&M facility, and access roads were prepared based on specifications and data provided by the Applicant (see Section 2.2 for a description of Facility component dimensions, materials, and color).[7] Using the camera view as guidance, the visible portions of the modeled Facility components were imported to the previously described landscape model space and set at the proper coordinates. Once the proposed Facility was accurately aligned within the camera view, a lighting system was created based on the actual time, date, and location of each photograph in order to accurately represent light reflection, highlights, color casting, and shadows. The rendered Facility was then superimposed over the photograph in Adobe Photoshop®, and portions of the Facility that fell 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 Facility was added to the photograph, any shadows cast on the ground by the proposed structures were included by rendering a separate "shadow pass" over the DEM or lidar model in 3ds Max® and then overlaying the shadows on the simulated view with the proper fall-off and transparency using Photoshop®. A graphic illustration of the simulation process is included in Figure 4.2-2.

[7] At the time of this analysis, it was unknown what additional interconnection equipment would be required within the existing substation to facilitate the connection into the regional grid; therefore, assumptions for the interconnection structures were used in the photosimulations (see Section 2.2.3).

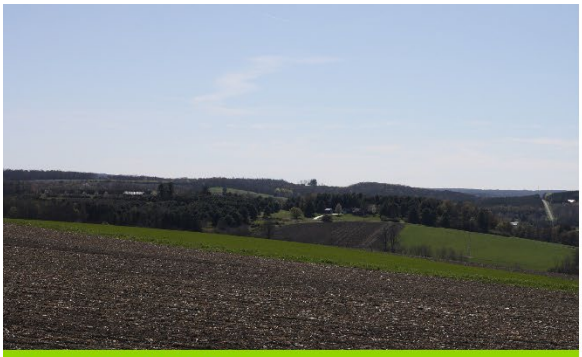
Figure 4.2-1. Viewer Exposure of Wind Turbine Visibility



"Wireframe" Renderings

During the initial viewpoint selection process, a total of 22 viewpoints were identified as candidates for the development of photosimulations. However, following the camera alignment process it was determined that Facility components would be substantially screened from view by existing vegetation, structures and/or topography at five of these viewpoints. For these five viewpoints wireframe renderings were prepared to illustrate the degree of screening provided by existing landscape features within the photograph. In these wireframe renderings, the 3D computer model of the proposed wind turbines (shown in bright green for illustrative purposes), was placed on top of the image at the scale and location in which they would appear if no intervening topography or vegetation was present. The wireframe renderings produced for this report are included in Attachment D.

Figure 4.2-2. Photosimulation Methodology



Photos are selected to illustrate typical views of the proposed Facility that will be available to representative viewer/user groups from landscape similarity zones and visually sensitive resources within the visual study area.

GPS data collected in the field and lidar data are used to accurately align the model camera to the the topography, vegetation, and buildings visible in the exisiting environment. This insures a precise alignment of the camera within the existing photograph.

A 3D model of the Facility is built based on specifications of the wind turbines, access roads, and other components. This model is then placed in the correct geographic position within the 3D model.

The proposed exterior color/finish of the facility components are then added to the model and the appropriate sun angle is simulated based on the specific date, time and location (latitude and longitude) at which each photo was taken.

4.2.3 Visual Contrast Rating

To evaluate anticipated visual change associated with the proposed Facility, photosimulations of the completed Facility were compared to photos of existing conditions from each of the 17 selected viewpoints. These "before" and "after" photographs, identical in every respect except for the Facility components shown in the simulated views, were provided to the rating panel, who were then asked to determine the effect of the proposed Facility in terms of its contrast with existing elements of the landscape. The methodology utilized in this evaluation was developed by EDR in 1999 (and subsequently updated) based on agency-approved/recommended methodologies (e.g., Smardon, et al., 1988; BLM, 1999). It involves using a short evaluation form and a simple numerical rating process to assign visual contrast ratings on a sale of 0 (insignificant) to 4 (strong). This methodology has proven to be accurate in predicting public reaction to wind power facilities. Additionally, this methodology 1) documents the basis for conclusions regarding visual impact, 2) allows for independent review and replication of the evaluation, and 3) allows more viewpoints to be evaluated in a reasonable amount of time. Landscape, viewer, and Facility-related factors considered by the rating panel in their evaluation included the following:

- **Form, Line, Color, and Texture.** These are the four major compositional elements that define the perceived visual character of a landscape, as well as a project. Form refers to the shape of an object that appears unified; often defined by edge, outline, and surrounding space. Line refers to the path the eye follows when perceiving abrupt changes in form, color, or texture and is usually evident as the edges of shapes or masses in the landscape. Texture in this context refers to the visual surface characteristics of an object. The extent to which form, line, color, and texture of a project are similar to, or contrast with, these same elements in the existing landscape is a primary determinant of visual impact.
- **Landscape Composition.** The arrangement of objects and voids in the landscape that can be categorized by their spatial arrangement. Basic landscape components include vegetation, landform, water, and sky. Some landscape compositions, especially those that are distinctly focal, enclosed, detailed, or feature-oriented, are more vulnerable to modification than panoramic, canopied, or ephemeral landscapes.
- **Focal Point.** Certain natural or man-made landscape features stand out and are particularly noticeable as a result of their physical characteristics. Focal points often contrast with their surroundings in color, form, line scale or texture, and therefore tend to draw a viewer's attention. Examples include prominent trees, mountains, and water features. Cultural features, such as a distinctive barn or steeple can also be focal points. If possible, a proposed project should not be sited so as to obscure or compete with important existing focal points in the landscape.
- **Order.** Natural landscapes have an underlying order determined by natural processes. Cultural landscapes exhibit order by displaying traditional or logical patterns of land use/development. Elements in the landscape that are inconsistent with this natural order may detract from scenic quality. When a new project is introduced to the landscape, intactness and order are maintained through the repetition of the forms, lines, colors, and textures existing in the surrounding built or natural environment.

- **Scenic or Recreational Value.** Designation as a scenic or recreational resource is an indication that there is broad public consensus on the value of that particular resource. The characteristics of the resource that contribute to its scenic or recreational value provide guidance in evaluating a project's visual impact on that resource.
- **Duration of View.** Some views are seen as quick glimpses while driving along a roadway or hiking a trail, while others are seen for a more prolonged period. Longer duration views of a project, especially from significant aesthetic resources, have the greatest potential for visual impact.
- **Atmospheric Conditions.** Clouds, precipitation, haze, and other ambient air-related conditions affect the visibility of an object or objects. These conditions can temporarily impact the visibility and contrast of landscape and project components and the design elements of form, line, color, texture, and scale.
- **Lighting Direction.** Backlighting refers to a viewing situation in which sunlight is coming toward the observer from behind a feature or elements in a scene. Front lighting refers to a situation where the light source is coming from behind the observer and falling directly upon the area being viewed. Side lighting refers to a viewing situation in which sunlight is coming from the side of the observer to a feature or elements in a scene. Lighting direction will affect the perceived color of wind turbines and can have a significant effect on the visibility and contrast of landscape and project elements.
- **Project Scale.** The apparent size of a proposed project in relation to its surroundings can define the compatibility of its scale within the existing landscape. Perception of project scale is likely to vary depending on the distance from which it is seen and other contextual factors.
- **Spatial Dominance.** The degree to which an object or landscape element occupies space in a landscape and thus dominates landscape composition from a particular viewpoint.
- **Visual Clutter.** Numerous unrelated built elements occurring within a view can create visual clutter, which adversely impacts scenic quality.
- **Movement.** The movement of wind turbine blades may attract visual attention (Sullivan, 2014). However, this movement may also be preferential to static, non-functioning wind turbines and may, in some cases, contribute to the visual appeal of wind turbines (Vissering, 2002).

To conduct their evaluation, rating panel members were provided instructions for the completion of the rating forms, along with the following VSA and viewpoint-specific information (see Attachment F for a copy of the rating panel instructions and forms):

- General information for the VSA
    - VSA location map
    - LSZ definitions and map
    - Description of user/viewer groups
    - List and map of identified VSRs
    - Contrast rating forms
- Specific information for each viewpoint, including a Google Earth File (KMZ), indicating
    - Viewpoint location

- Direction of view/cone of view
- Location of adjacent Facility components
- Distance from the viewpoint to nearest Facility component within the view
- Applicable LSZ, user/viewer groups, and VSRs
- The selected viewpoint photograph (existing view) and photosimulation (proposed view)
- Context photographs showing the views adjacent to the simulated view.

4.2.4 Local Laws and Ordinances

As required by Section 94-c regulations, relevant local laws and ordinances of host communities were reviewed to identify any potential requirements pertaining to the assessment of visual impacts and instances in which a waiver to a local law may be necessary.

The Facility has been designed to comply with the local law and Section 94-c requirements, and the Applicant has limited its request for setback waivers to only those needed for the construction of the Facility (See Exhibit 24 of this Section 94-c application). Local requirements pertaining to potential Facility visibility are outlined herein, and measures taken to address these items are identified.

4.2.4.1 Towns of Eaton and Smithfield

Town of Eaton's *Code of the Town of Eaton §*120-23.15 Commercial Wind Energy Facilities, and the Town of Smithfield's *Building and Development Control Law* Article 11 *§*1100-5 Wind Energy Facilities:

> §B. (p) i. Shadow Flicker. *The applicant shall conduct a study on potential shadow flicker. The study shall identify locations where shadow flicker may be caused by the WECSs and the expected durations of the flicker at these locations. The study shall identify areas where shadow flicker may interfere with residences and describe measures that shall be taken to eliminate or mitigate the problems.*
>
> §B. 2. (p) ii. Visual Impact. *Applications shall include a visual impact study of the proposed WECS as installed, which may include a computerized photographic simulation, demonstrating any visual impacts from strategic vantage points. Color photographs of the proposed project site from at least two locations accurately depicting the existing conditions shall be included. The visual analysis shall also indicate the color treatment of the system's components and any visual screening incorporated into the project that is intended to lessen the system's visual prominence.*

A shadow flicker analysis was completed and included in the VIMMP, Appendix 8-B, Attachment A. Within the Town of Eaton 12 viewpoints were photographed, two were selected for photosimulation and one was selected for development of a wireframe rendering (see Section 4.2.1 and Attachment D). Within the Town of Smithfield 17 viewpoints were photographed and three were selected for photosimulation.

4.2.4.2 Town of Fenner

While the Town of Fenner currently has a wind facility development moratorium in effect and the Facility is not located within District C established for wind turbine siting. However, the Town of Fenner *Land Use Regulations* Section 606.41 Submission of Additional Supporting Data for Site Plan of Wind Power Electricity Generation and Transmission Facilities §A and B address potential for visibility and visual impacts relating to wind facility development:

> §606.41 A. *Digital elevation model-based project visibility map showing the impact of topography upon visibility of the project from other locations, to a distance radius of three miles from the center of the project. Scale used shall depict 3-mile radius as not smaller than 2.7 inches, and the base map shall be a published topographic map showing cultural features.*
>
> §606.41 B. *No fewer than four and no more than the number of proposed individual wind turbines plus three color photos, no smaller than 3"x5" taken from locations with a 3-mile radius from it an to be selected by the Planning Board, and computer-enhanced to simulate the appearance of the as-built above ground site facilities as they would appear from these locations.*

A viewshed analysis was completed (see Sections 4.1.1 and 5.1.1) and 28 viewpoints were photographed within the Town of Fenner. Of these viewpoints six were selected for development of photosimulations. Four of the viewpoints selected for photosimulation (45, 50, 54, and 68) illustrate visibility of the wind turbines within 3.0 miles. Viewpoints 69 and 70 illustrate the Facility interconnection facility and the O&M facility, respectively.

4.2.4.3 The Town of Nelson

Town of Nelson Land Use and Development Law §512 Wind Energy Facilities:

> §512.2 D. *No individual tower facility shall be installed in any location that would substantially detract from or block view of a portion of a recognized scenic viewshed, as viewed from a public road right-of-way or publicly land within the Town of Nelson, or that extends beyond the border of the Town of Nelson.*
>
> §512.3 A. *Digital elevation model-based project visibility map showing the impact of topography upon visibility of the project from other locations, to a distance radius of three miles from the center of the project. Scale used shall depict 3-mile radius as no smaller than 2.7 inches, and the base map used shall be a published topographic map showing cultural features.*
>
> §512.3 B. *No fewer than four and no more than the number of proposed individual wind turbines plus three, color photos, no smaller than 3"x5", taken from locations within a 3-mile radius from it and to be selected by the Planning Board, and computer-enhanced to*

simulate the appearance of the as-built aboveground site facilities as they would appear from these locations.

Wind turbine T-13 is located within the Town of Nelson Scenic Overlay District. Viewpoint 40, although located in the Town of Eaton, illustrates potential visibility of this wind turbine from Scenic Route 20 at a distance of 2.2 miles. Additionally, a viewshed analysis was completed (see Sections 4.1.1 and 5.1.1) and 11 viewpoints were photographed within the Town of Nelson, four of which are within 3.0 miles of turbine T-13. Of the viewpoints photographed, three photosimulations and two wireframe renderings were developed (see Sections 4.2.1 and Attachment D). The wireframe rendering from Viewpoint 25 illustrates potential visibility, or lack there-of, from Stoney Pond State Park toward wind turbine T-13 at a distance of 2.6 miles. Photosimulations from Viewpoints 23 and 41 also illustrate potential Facility visibility at distances within 3.0 miles. However, these views are directed toward wind turbines sited in adjacent towns. The wireframe rendering from Viewpoint 26 and the photosimulation from Viewpoint 58 both view the Facility at distances greater than 3.0 miles. Assessment of the photosimulations identified above is included in Section 5.2.1 and indicates minimal to moderate contrast with the existing landscape could be presented by turbine T-13.

As indicated above wind turbine T-13 is the only wind turbine proposed to be developed in the Town of Nelson and is located within a portion of the Town's scenic overlay district. As such, sections of the land use and development law pertaining to the overlay district were reviewed:

§ 404.2 Scenic Vista I Scenic Highway Overlay District. The scenic vista I scenic highway overlay district is designated on the Official Zoning Map of the Town of Nelson and comprises areas of the town where sweeping vistas of minimally developed ridges, valleys and rolling hills are visible from public highways. The intention of this overlay district is to preserve the Town's significant viewsheds and their corresponding viewing locations from designated scenic public highways (as denominated on the Official Zoning Map) by applying specific development standards (compatible with the underlying zoning designation) that serve to minimize visual impacts.

It is the intent of these regulations to avoid overly obtrusive development in these locations that may result from any of the following conditions:

a) The color of the structure(s) may not blend with the surrounding vegetation or structures;
b) Construction materials may reflect light (e.g. large un-shaded windows, light colored and metal roofs;
c) Decorative or other lighting that brightens otherwise dark skies;
d) Structures that are bulky or out of scale with other background features, natural or man-made;
e) Structures with tall elements that protrude from their surroundings and are difficult to hide;
f) Landscaping that is inadequate to mute the visual impact of the structure(s);
g) Construction of buildings and/or structures that impair the view of a scenic vista from a scenic public highway.

1) No person shall commence or conduct any of the following regulated activities upon any lot within the scenic vista / scenic highway overlay district except upon the prior issuance of a special use permit by the Planning Board:

a) Construction of new buildings or structures, or additions or modifications to existing buildings or structures.

(b) Any surface modification requiring Planning Board approval pursuant to section 601 of this local law as it applies to quarries.

(c) Extraction of Natural Products.

(d) Removal of trees from an area of one acre or more, unless such removal is in accordance with a forest management plan or is part of an agricultural operation.

(2) No application for a special use permit for a regulated activity within the scenic vista / scenic highway overlay district shall be granted unless:

a) The applicant has demonstrated, and the Planning Board has found that the development activity will not have a substantial adverse effect upon the scenic vista as viewed from any public highway. This shall be demonstrated by the applicant through the use of computer-generated photos depicting the proposed development.

(b) Cutting of trees will be minimized and will not adversely impact the visual quality of the scenic vista.

As discussed in Exhibit 24 of this 94-c application, the applicant has demonstrated, and the Planning Board has found, that there is no reasonable alternative for the proposed development activity to be located on a portion of the site not containing a scenic vista or in a location that will not impair the view from a scenic public highway.

5.0 VISUAL IMPACT ASSESSMENT RESULTS

5.1 Project Visibility

An analysis of visibility was undertaken to identify locations within the VSA where there is potential for the proposed wind turbines and other Facility components to be seen from ground-level vantage points. This analysis included the identification of potential areas of visibility based on viewshed analysis results and field verification.

5.1.1 Wind Turbine Viewshed Analysis Results

The wind turbine "blade tip" viewshed analysis was used to determine "conservative case" visibility based on the maximum height of the turbines while the rotor is in the upright position, and therefore, indicates the maximum geographic area of potential turbine visibility. As indicated by the blade tip viewshed analysis (see Figure 5.1-1 and Table 5.1-1), some portion of the proposed wind turbines could potentially be visible from approximately 24% (45.3 square miles) of the VSA (i.e., the wind turbines would be entirely screened from approximately 76% [146.0 square miles] of the VSA).[8] The limited wind turbine visibility throughout the VSA is generally due to the presence of forestland on steep hillsides, woodlots and hedgerows adjacent to open agricultural land, and the rolling topography throughout the VSA. This variable topography provides opportunities for open, long-distance and/or panoramic views of the wind turbines from upland areas that are adjacent to open fields, but views become much more limited to where topography and vegetation interrupt visibility within forested or lowland areas. Areas of actual visibility are anticipated to be more limited than indicated by the viewshed analysis due to the slender profile of the turbines (especially the blades, which make up the top 231 feet of each turbine) and other visibility limiting factors, such as atmospheric perspective and visual acuity. By subtracting the Nacelle/FAA viewshed results (see Table 5.1-3), from the blade tip viewshed results the remaining area defines the extent of the VSA where only the blades would be visible (but none of the turbine tower or nacelle). Based on this analysis, approximately 3.9% of areas where potential visibility is indicated by the blade tip viewshed will have views of only the turbine blades.

The blade tip viewshed analysis results for each distance zone are summarized in Table 5.1-1. The largest geographic area with potential views of the proposed wind turbines will occur in the middle ground distance zone of the VSA. The DSM viewshed indicates that 31.5 square miles (16.4% of the VSA [69.5% of the total visible area within the VSA]) within the middle ground distance zone could potentially have views of the proposed wind turbines. However, due to the large geographic area that the middle ground distance zone occupies within the VSA, 31.5 square miles represents only approximately 27.8% of this zone. This indicates that, while this distance zone includes the greatest geographic area with potential views of the wind turbines, these areas of potential visibility still comprise a limited portion of the overall land area within this

[8] The calculations used to generate these numbers were based on unrounded numbers; therefore, the rounded results may not add up precisely.

distance zone. As illustrated in Figure 5.1-1 locations of potential visibility in the middle ground distance zone are more concentrated in the northern portion of the VSA and in areas closest to the Facility Site.

The near-foreground distance zone has the greatest proportional area of potential wind turbine visibility. Viewshed results indicate that 0.2 square mile of the near-foreground distance zone could have potential visibility of the proposed wind turbines. Although this only represents 0.1% of the VSA, due to the small geographic area that the near-foreground zone occupies within the VSA, this distance zone has the highest percentage of land with potential wind turbine visibility (84.0%) of all distance zones. However, it is worth noting that these locations are located entirely within the established wind turbine set-back area and that excludes homes and public roads.

Wind turbine visibility in the foreground and background distance zones is indicated as potentially occurring within 6.7 and 6.9 square miles of these distance zones, respectively. Proportionally, this equates to 51.1% of the foreground zone and 10.7% of the background zone. However, in the foreground distance zone 40.4% of the visible area (2.7 square miles) occurs within the boundary of the Facility Site. When the Facility Site is excluded from the results, areas within the foreground zone with potential for wind turbine visibility are reduced to 30.4% (4.0 square miles).

A wind turbine count analysis was performed to provide specific information on the number of wind turbines that are potentially visible from any given area within the Facility viewshed. The results of this analysis were then broken into categories based on the number of wind turbines potentially visible (1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21 to 24). The potential visibility of wind turbines in each distance zone, broken down by turbine count, is presented in Table 5.1-1 and illustrated in Figure 5.1-1.

Areas with a high number of potentially visible wind turbines are most likely in the middle ground distance zone due to the location of the wind turbines on elevated areas within an agricultural setting, and rolling topography throughout the VSA which allows for more expansive views. The near-foreground and foreground distance zones are more likely to have fewer wind turbines visible from any given location as the closest turbines are typically visible, and more distant turbines are screened by adjacent forest land or hedgerows and intervening topography. Similarly, fewer turbines are also indicated to have visibility in the background distance zone, primarily due to the abundance of forest land and intervening topography which limits expansive views in the direction of the Facility Site from this distance zone. Other conclusions that can be drawn from the turbine count analysis include the following:

- The wind turbine count analysis indicates that 21.9 square miles (11.4%) of the VSA would have wind turbine visibility limited to 1 to 5 turbines. This area comprises approximately 48.3% of the total area of potential wind turbine visibility. An additional 10.7 square miles (5.6%) of the VSA could have views of 6 to 10 turbines, meaning that from 72% of locations within the VSA indicated to have wind turbine visibility, views would be limited to 10 turbines or less.

- Potential visibility of 21 to 24 turbines is indicated to occur within 2.9 square miles (1.5%) of the VSA which comprises just 2.9% of the total visible area. The greatest geographic area with potential

for views of 21 to 24 turbines would occur in the middle ground distance zone where 1.5% (1.7 square miles) of the distance zone could have visibility of the wind turbines.

Table 5.1-1. Wind Turbine Blade Tip Viewshed Results by Distance Zone and Count

Number of Turbines Potentially Visible	Wind Turbine Visibility by Distance Zone and Count (square miles) [1]								Visibility within the VSA [2]	
	Near-Foreground 0-300 Feet		Foreground 300 Feet-0.5 Miles		Middle Ground 0.5-4.0 Miles		Background >4.0 Miles			
	Sq. Mi	% of distance zone area	Sq. Mi.	% of distance zone area	Sq. Mi.	% of distance zone area	Sq. Mi.	% of distance zone area	Sq. Mi.	% of total VSA
0	**<0.1**	**16.0%**	**6.4**	**48.9%**	**81.9**	**72.2%**	**57.6**	**89.3%**	**146.0**	**76.3%**
1 - 5	0.1	34.0%	2.9	22.4%	15.3	13.5%	3.5	5.5%	**21.9**	**11.4%**
6 - 10	0.1	23.2%	2.14	15.8%	7.5	6.6%	1.1	1.6%	**10.7**	**5.6%**
11 - 15	<0.1	14.9%	1.2	9.3%	4.8	4.2%	0.7	1.0%	**6.7**	**3.5%**
16 - 20	<0.1	6.8%	0.4	3.0%	2.2	2.0%	0.5	0.8%	**3.2**	**1.7%**
21 - 24	<0.1	5.1%	0.1	0.6%	1.7	1.5%	1.1	1.7%	**2.9**	**1.5%**
Total Visibility	**0.2**	**84.0%**	**6.7**	**51.1%**	**31.5**	**27.8%**	**6.9**	**10.7%**	**45.3**	**23.7%**

[1] The visual study area includes approximately 191.3 square miles, or approximately 122,462 acres.
[2] The calculations used to generate this table were based on unrounded numbers, therefore, the rounded results may not add up precisely.

The potential visibility of the wind turbines in each landscape similarity zone, broken down by wind turbine count, is presented in Table 5.1-2 and illustrated in Figure 5.1-2. The greatest potential for visibility of the proposed wind turbines, in terms of both geographic area and percent of the LSZ's total area, occurs within the Agricultural/Rural Residential LSZ due to the limited number of screening features and the geographic extent of this LSZ within the VSA. The blade tip viewshed analysis indicates that 42.0% (43.5 square miles) of this LSZ could potentially have visibility of the proposed wind turbines. Potential visibility in this LSZ is concentrated in the near-foreground, foreground, and middle ground distance zones, including the area within the Facility Site itself. Areas of potential visibility beyond the middle ground are smaller and more scattered due to intervening landform and vegetation. Additionally, areas with a high number of wind turbines potentially visible are more likely in this LSZ. Visibility of 11 or more turbines could occur within 13.0% (12.6 square miles) of this LSZ, whereas the potential for visibility of 11 or more turbines in all other LSZs combined is approximately 1.6% (0.2 square mile). Views of 16 or more turbines could occur within 6.2% (6.0 square miles) of the Agricultural/Rural Residential LSZ, and in less than 0.4% (0.1 square mile) of all other LSZ combined.

Figure 5.1-1. Blade Tip DSM Viewshed Analysis and Distance Zones

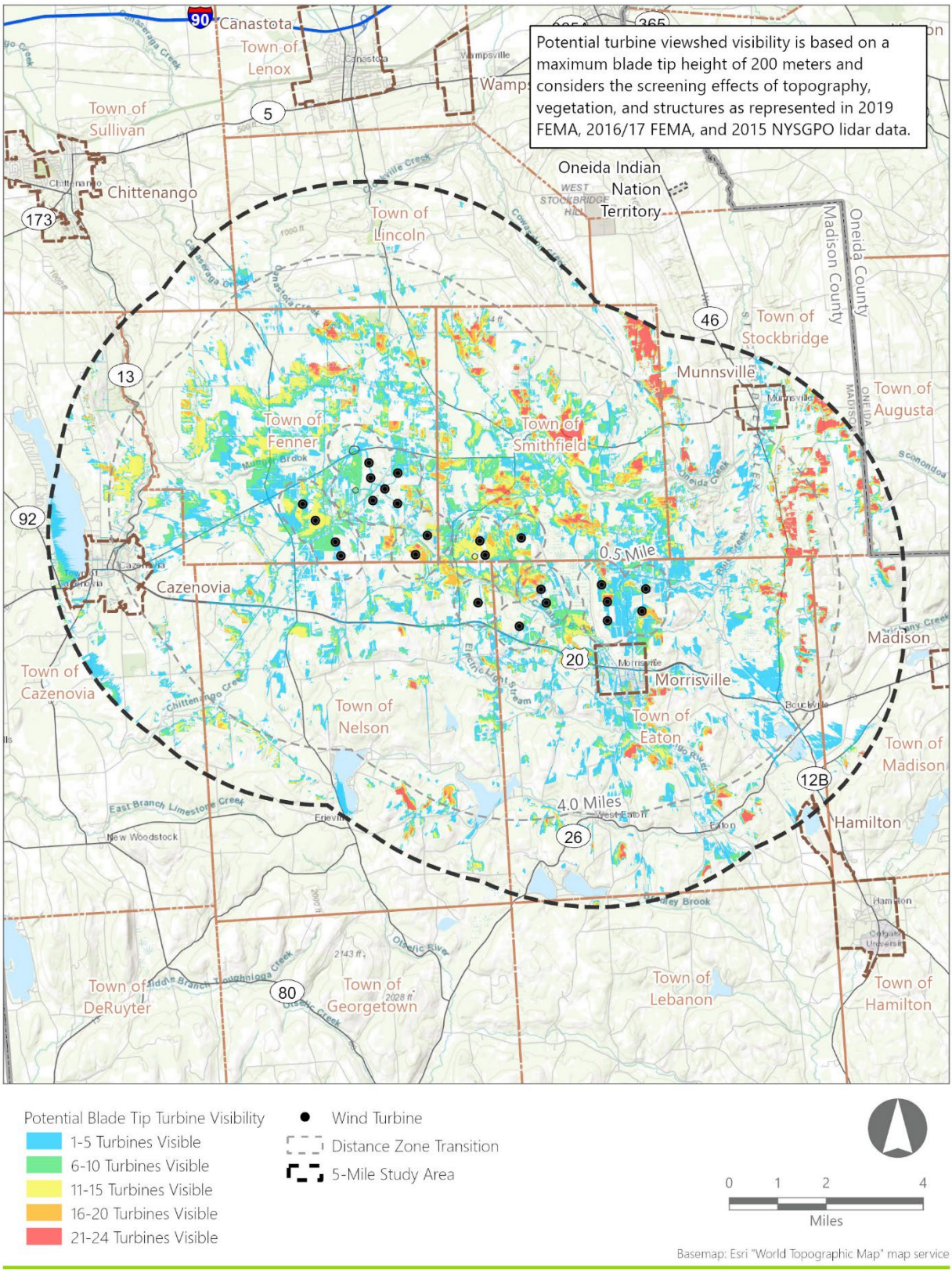


Table 5.1-2. Wind Turbine Blade Tip Viewshed Results by Landscape Similarity Zone and Count

Landscape Similarity Zone	Wind Turbine Visibility (square miles) by Landscape Similarity Zone and Count Turbines Potentially Visible[1, 2]						Total Visibility (square miles)
	0	1-5	6-10	11-15	16-20	21-24	
Agricultural/Rural Residential	**54.6 (56.4%)**	19.3 (19.9%)	10.2 (10.5%)	6.6 (6.8%)	3.1 (3.2%)	2.9 (3.0%)	**42.0 (43.5%)**
Forest	**84.6 (97.4%)**	1.7 (2.0%)	0.3 (0.4%)	0.1 (0.1%)	<0.1 (<0.1%)	<0.1 (<0.1%)	**2.2 (2.6%)**
Water	**3.2 (85.1%)**	0.5 (12.6%)	0.1 (2.0%)	<0.1 (0.3%)	-	-	**0.6 (14.9%)**
Village	**2.8 (86.0%)**	0.3 (10.5%)	0.1 (2.4%)	<0.1 (0.8%)	<0.1 (0.4%)	<0.1 (0.1%)	**0.5 (14.0%)**
Hamlet	**0.8 (92.2%)**	0.1 (7.4%)	<0.1 (0.4%)	<0.1 (<0.1%)	-	-	**0.1 (7.8%)**
Total Visibility	**146.0 (76.3%)**	**21.9 (11.4%)**	**10.7 (5.6%)**	**6.7 (3.5%)**	**3.2 (1.7%)**	**2.9 (1.5%)**	**45.3 (23.7%)**

[1] The visual study area includes approximately 191.3 square miles, or approximately 122,462 acres.
[2] The calculations used to generate this table were based on unrounded numbers, therefore, the rounded results may not add up precisely.

Due to the limited opportunity for outward views in forested settings, the potential for visibility of the proposed wind turbines occurs in only 2.6% (2.2 square miles) of the Forest LSZ. Visibility within this LSZ occurs most frequently along the forest edges where abutting open fields (sometimes occupied by the Facility) provide opportunities for outward views. Visibility is also indicated in small breaks or clearings in the forest vegetation which occur infrequently and are often associated with roads and transmission line rights of way. Approximately 22.1% of the visible area in the Forest LSZ (0.5 square mile) occurs on the Facility Site and includes areas where Project-related vegetation clearing will occur.

The Potential for wind turbine visibility is indicated within approximately 14.9% (0.6 square mile) of the Water LSZ. Within this LSZ, long-distance visibility will generally be limited due to the screening effects of forest vegetation along the lake and pond edges. Additionally, by their very nature, waterbodies are typically located in topographic depressions, which can also limit outward visibility. The viewshed results indicate that visibility will be limited to the western edge of Cazenovia Lake, the southwest edge of Tuscarora Lake, the southern and eastern edges of Eaton Reservoir, southern and eastern portions of the Leland Ponds, and portions of Woodman Pond, all occurring primarily within the background distance zone. The southern edge of Stoney Pond, located in the middle ground distance zone is also indicated to have potential turbine visibility.

The potential for wind turbine visibility is indicated within approximately 14.0% (0.5 square mile) of the Village LSZ. Visibility in this LSZ is concentrated in the Village of Morrisville, which occurs primarily in the middle ground distance zone (with a small portion in the foreground distance zone). Views of the wind turbines in the Village of Morrisville are indicated to occur in open sports fields and greens on the SUNY Morrisville campus, along roadway corridors, and in open unvegetated areas at the village edge such as cemeteries, residential yards, industrial lots, and hill crests. Potential turbine visibility from the Villages of Cazenovia and Munnsville, which overlap the middle ground and background distance zones, is substantially more limited. Potential visibility in the Village of Cazenovia is limited to residential yards and

open agricultural fields closest to the Facility, and where roadways are oriented toward the Facility Site. Potential visibility in the Village of Munnsville primarily occurs on roadway corridors and in open residential yards or agricultural fields on geographic highpoints at the eastern edge of the village farthest from the Facility Site. As roadway networks are most concentrated in the Village LSZ, potential Facility visibility is likely overstated in these locations due to the viewshed analysis process, which does not consider the screening provided by roadside vegetation (see Section 4.1.1).

The potential for wind turbine visibility is indicated in approximately 7.8% (0.1 square mile) of the Hamlet LSZ. Potential turbine visibility occurs within the hamlets of Peterboro, Pratts Hollow, Nelson, and Pine Woods in the middle ground distance zone, and the hamlet of Eaton in the background distance zone. Visibility in these areas is generally concentrated on roadway corridors oriented toward the Facility Site and in open fields or areas of lower density development near the hamlet outskirts. As hamlets are typically centered along primary travel routes Facility visibility is likely overstated in these locations due to the viewshed analysis process which does not consider the screening provided by roadside vegetation (see Section 4.1.1).

5.1.1.1 Nacelle/FAA Light Viewshed Analysis

Areas of potential nighttime visibility (and daytime visibility of the nacelle and turbine tower) from each distance zone is summarized in Table 5.1-3 and Figure 5.1-3. As indicated by the nacelle/FAA light viewshed analysis, one or more FAA lights could potentially be visible within approximately 19.8% of the VSA (37.9 square miles). This analysis indicates that 16.3% (7.4 square miles) of areas with wind turbine visibility will not have views of the wind turbine nacelle/FAA lights. As indicated previously, these locations are areas where wind turbine visibility is limited to only the upper portion of the turbine blades. It is also important to note that, if technically feasible and approved by the FAA, the ADLS system (see description in Section 2.2.5) will significantly reduce the nighttime visual impacts associated with the FAA lights during the majority of nighttime hours.

A visibility count analysis was performed to provide specific information on the number of FAA lights that are potentially visible from any given area within the VSA and the various distance zones. The results of this analysis were then categorized by the number of FAA lights potentially visible (1 to 5, 6 to 10, 11 to 15, 16 to 20, and 21 to 24).

Figure 5.1-2. Blade Tip DSM Viewshed Analysis and Landscape Similarity Zones

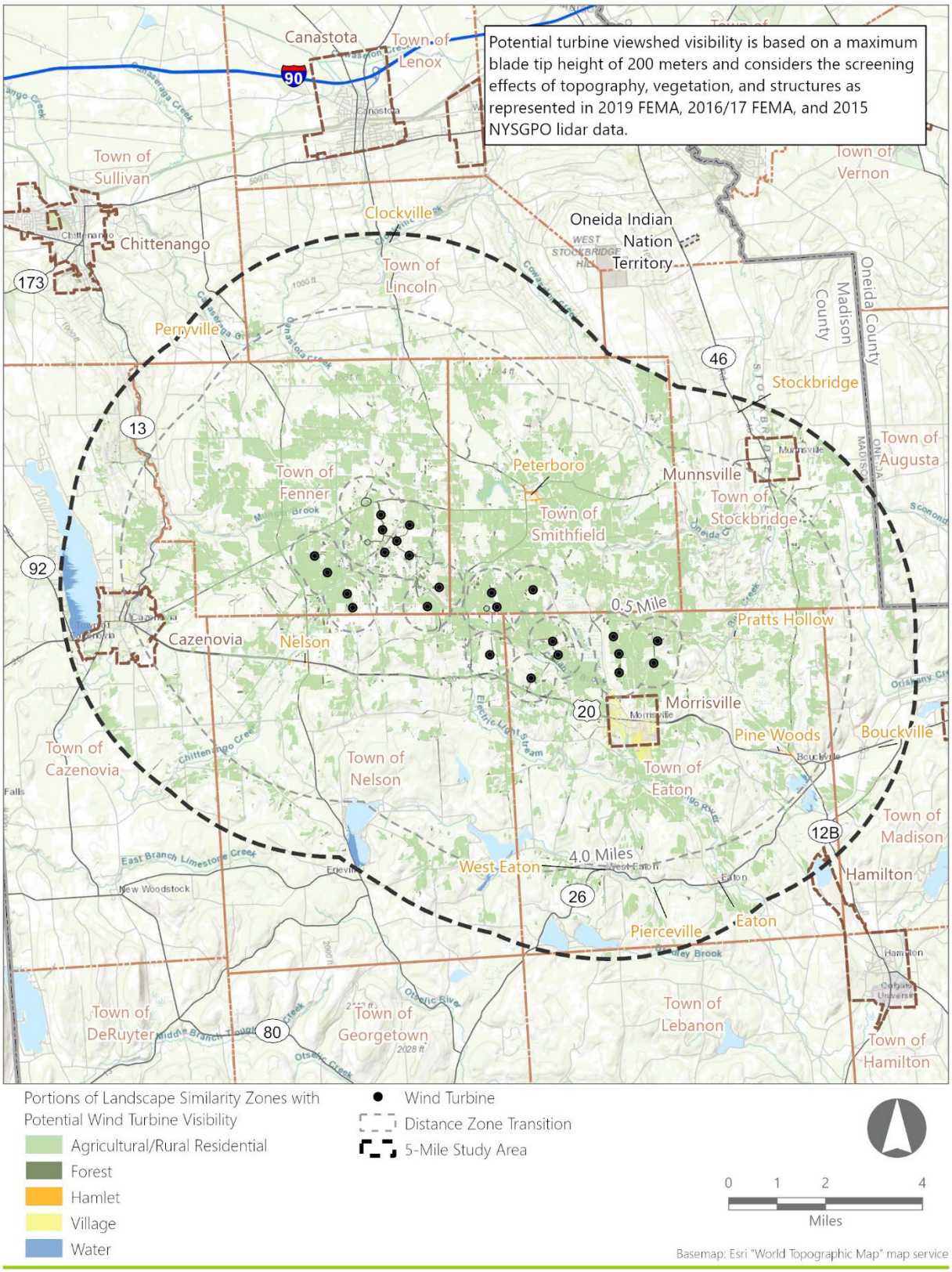


Table 5.1-3. Wind Turbine Nacelle/FAA Warning Light Viewshed Results by Distance Zone

Number of Turbines Potentially Visible	Visibility by Distance Zone (square miles) [1]				Total Visibility within the VSA (square miles)
	Near Foreground 0-300 Feet	Foreground 300 Feet-0.5 Miles	Middle Ground 0.5-4.0 Miles	Background >4.0 Miles	
0	**<0.1 (16.5%)**	**6.7 (50.9%)**	**87.2 (76.9%)**	**59.5 (92.2%)**	**153.4 (80.2%)**
1 - 5	0.1 (47.2%)	3.7 (28.3%)	15.0 (13.2%)	2.5 (3.8%)	**21.3 (11.1%)**
6 - 10	<0.1 (14.9%)	1.8 (13.8%)	5.9 (5.2%)	0.7 (1.1%)	**8.5 (4.5%)**
11 - 15	<0.1 (14.6%)	0.7 (5.7%)	3.1 (2.8%)	0.5 (0.8%)	**4.4 (2.3%)**
16 - 20	<0.1 (3.2%)	0.1 (1.1%)	1.3 (1.2%)	0.5 (0.7%)	**1.9 (1.0%)**
21 - 24	<0.1 (3.6%)	<0.1 (0.2%)	0.8 (0.7%)	0.8 (1.3%)	**1.7 (0.9%)**
Total Visibility	**0.2 (83.5%)**	**6.4 (49.1%)**	**26.3 (23.1%)**	**5.0 (7.8%)**	**37.9 (19.8%)**

[1] The visual study area includes approximately 191.3 square miles, or approximately 122,462 acres.
[2] The calculations used to generate this table were based on unrounded numbers, therefore, the rounded results may not add up precisely.

The FAA light count analysis indicates 56.2% of areas with potential FAA light visibility would be limited to views of one to five FAA lights. Only 9.5% of areas with potential FAA light visibility would have visibility of 16 or more FAA lights (16 to 20 and 21 to 24 categories combined). Geographic areas with a greater number of potential FAA lights visible are more likely in the middle ground and background distance zones due to the greater land area in these zones and expansive views available from elevated vantage points in these areas. While a greater percentage of the area within the near-foreground distance zone (6.8%) would have visibility of 16 to 24 wind turbines due to the smaller land area in this zone, this area is limited to approximately 0.02 square mile, occurs entirely within participating parcels, and excludes homes and public roads. Geographic areas limited to 1 to 5 FAA lights potentially visible are greatest in the foreground and middle ground distance zones, and the greatest proportion of total land area with potential visibility of this many turbines occurs in the near-foreground and foreground.

5.1.2 Ancillary Structure Viewshed Analysis

5.1.2.1 Meteorological Tower Viewshed Analysis

The proposed Facility will also include one permanent MET tower that will contribute to both potential daytime and nighttime visibility. As the proposed MET tower lighting will be placed at the tower's highest point, potential visibility under daytime and nighttime conditions will be the same. As indicated by the MET tower viewshed analysis (see Figure 5.1-4), some portion of the proposed MET tower could potentially be visible from approximately 8.7% (4.4 square miles) of the 4-mile study area (i.e., the MET tower would be entirely screened from approximately 91.3% [45.9 square miles] of the 4-mile study area). The limited MET tower visibility is attributable to the fact that it is a single structure that is effectively screened by forestland and rolling topography throughout the VSA.

Figure 5.1-3. Nacelle/FAA Light DSM Viewshed Analysis

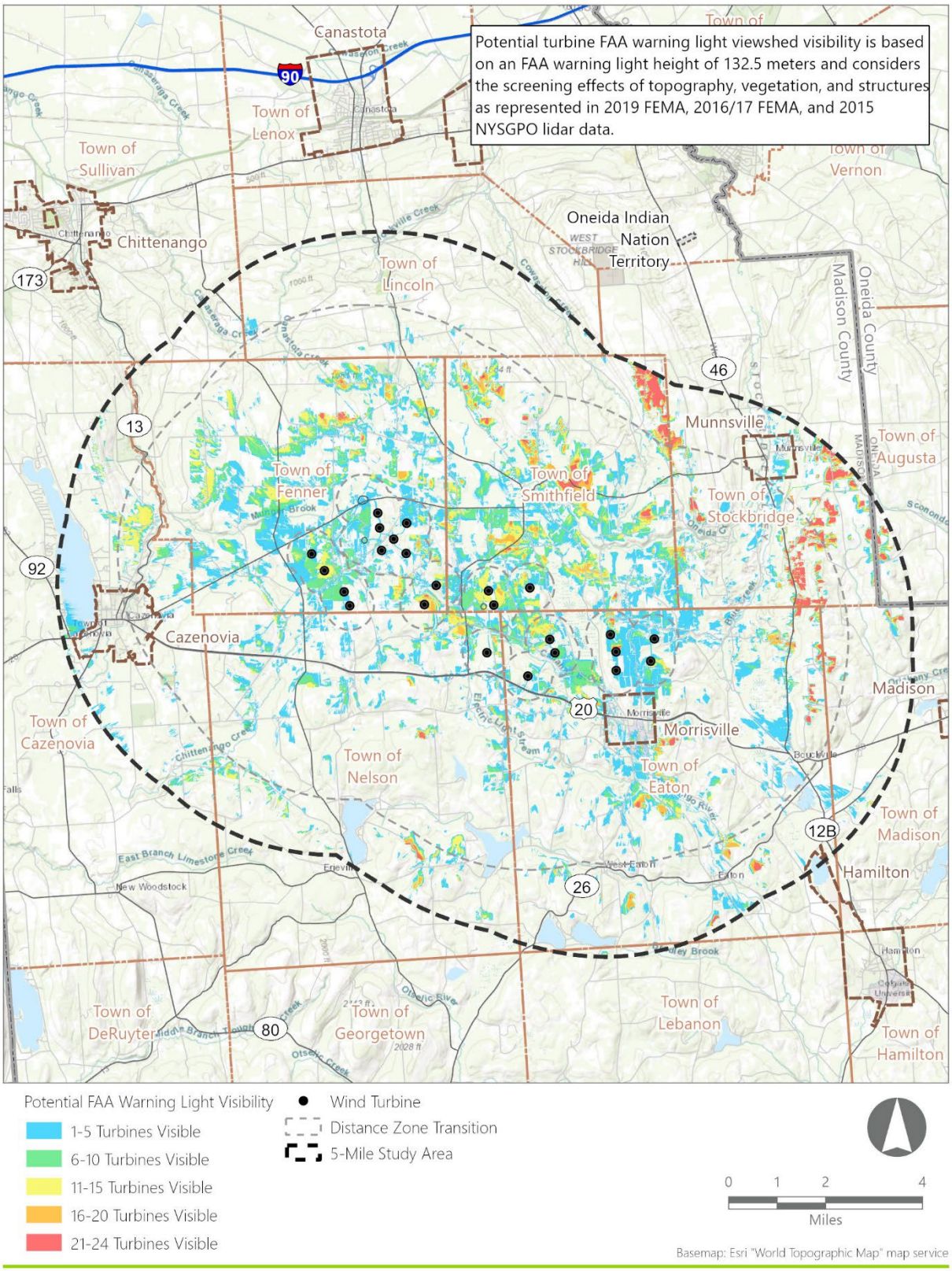
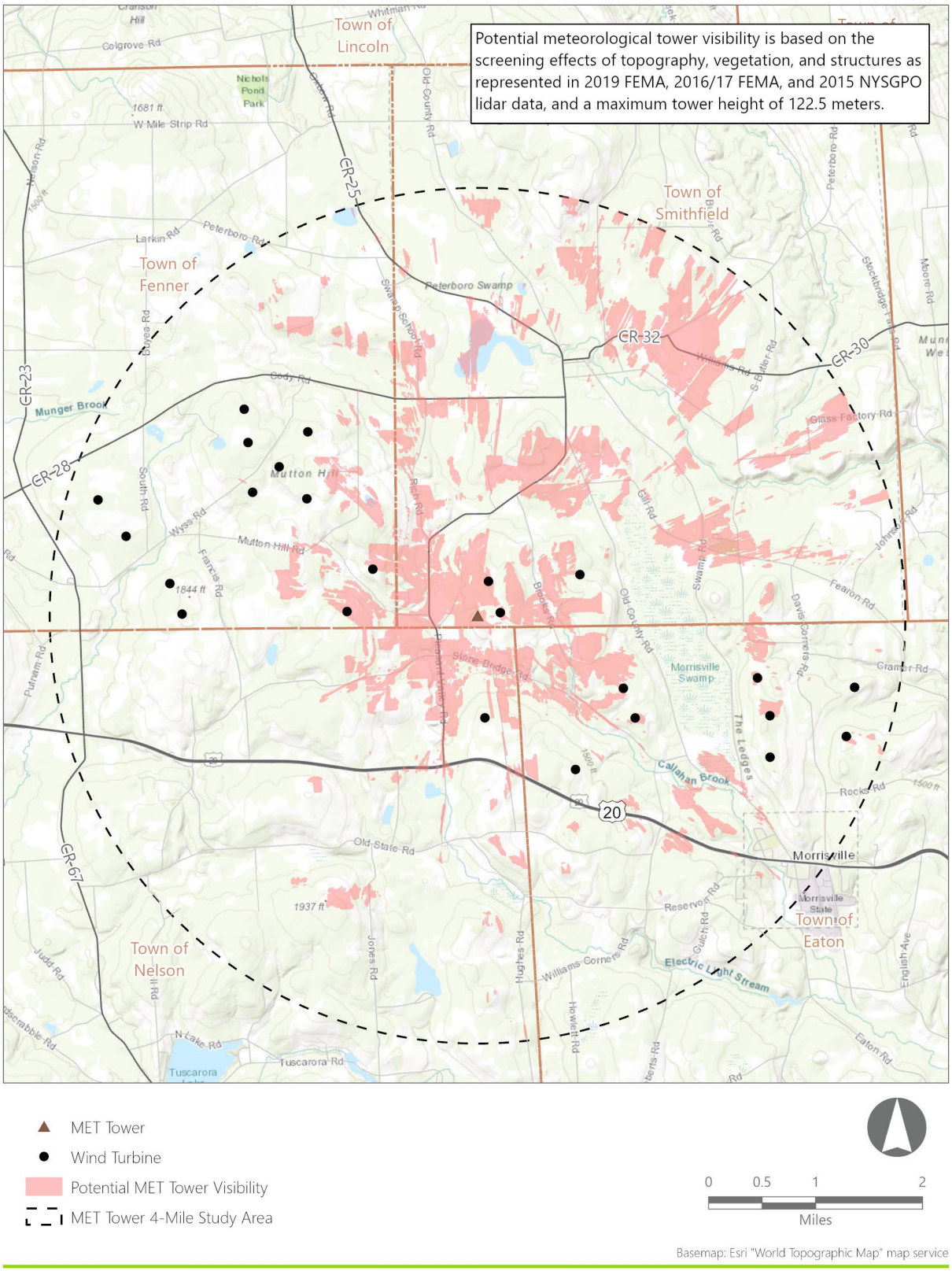


Figure 5.1-4. MET Tower DSM Viewshed Analysis



5.1.2.2 Aircraft Detection Lighting System Viewshed Analysis

While the ADLS tower is considered a mitigation measure for potential nighttime impacts by limiting the amount of time the wind turbine FAA lights are in operation, the ADLS tower will include one tower which will contribute to potential daytime Facility visibility. Due to its height under 200 feet, the ADLS tower will not require lighting and will therefore not contribute to nighttime visibility. As indicated by the ADLS tower viewshed analysis (see Figure 5.1-5), some portion of the proposed ADLS tower could be visible from approximately 3.7% (1.8 square miles) of the 4-mile study area (i.e., the ADLS tower would be entirely screened from approximately 96.4% [48.4 square miles] of the 4-mile study area). The limited ADLS tower visibility is attributable to the lower height of this Facility component.

5.1.3 Interconnection Facility Viewshed Analysis

Potential visibility of the interconnection facility is presented in Table 5.1-4 and illustrated in Figure 5.1-6. The viewshed analysis results indicate that some portion of the interconnection facility could be visible from approximately 2.1% (1.1 square miles) of the 4-mile study area (i.e., the interconnection facility would be entirely screened from approximately 97.9% of the assessed area). As indicated in Table 5.1-4, potential visibility of the of the interconnection facility would occur almost entirely within the Agricultural/Rural Residential LSZ, with limited locations within the Forest LSZ.

Consistent with the interconnection facility viewshed analysis results, areas where views of the interconnection facility will actually be available are anticipated to be more limited than indicated by the DSM viewshed analysis for the same reasons outlined in Section 5.1.1. The interconnection facilities viewshed also considers a maximum height of 74.5 feet for the lightning masts and an assumed maximum height of 88.5 feet for structures relating to the proposed point of interconnect with the existing grid, and most of the other facility components should not exceed approximately 28 feet. In addition, when viewed from vantage points at a distance greater than 1 mile, the narrow, linear form of the lightning masts and upper portions of the interconnection facility components become difficult for the human eye to discern.

Table 5.1-4 Interconnection Facility Viewshed Results by Landscape Similarity Zone

Electrical System Visibility	Visibility within the Landscape Similarity Zones Occurring in the 4-mile Study Area						Visibility within the 4-mile Study Area [1]	
	Agricultural/ Rural Residential		Forest		Hamlet			
	Sq. Mi	% of 4-mile LSZ area	Sq. Mi	% of 4-mile LSZ area	Sq. Mi	% of 4-mile LSZ area	Sq. Mi.	% of 4-mile area
Total Visibility	1.1	3.6%	<0.1	0.1%	-	-	**1.1**	**2.1%**
Total Screened	28.3	96.4%	21.6	99.9%	0.2	100%	**50.1**	**97.9%**

[1] The interconnection facilities study area includes approximately 51.2 square miles, or approximately 32,779 acres.
[2] The calculations used to generate this table were based on unrounded numbers, therefore, the rounded results may not add up precisely.

Figure 5.1-5. ADLS Tower DSM Viewshed Analysis

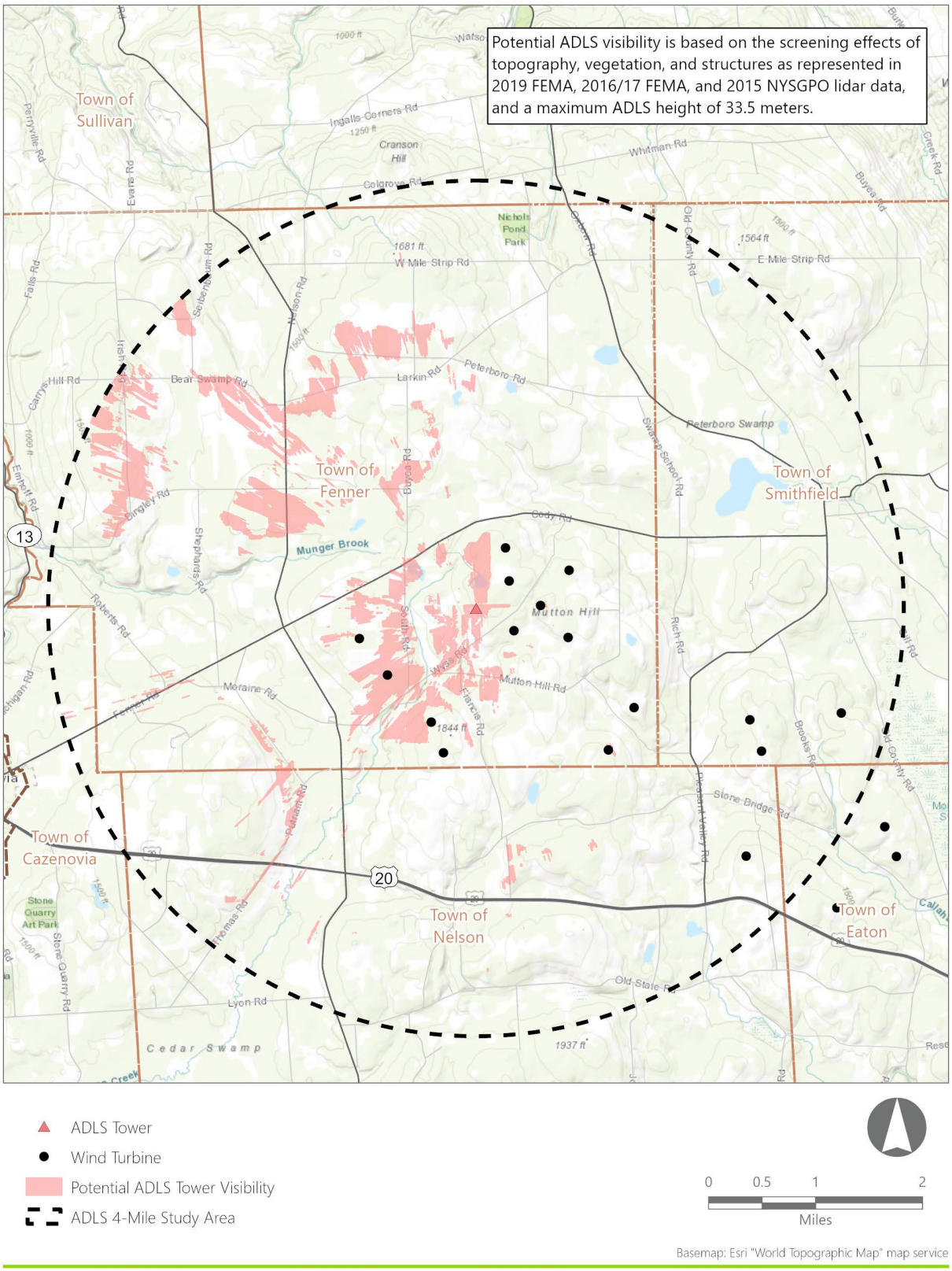
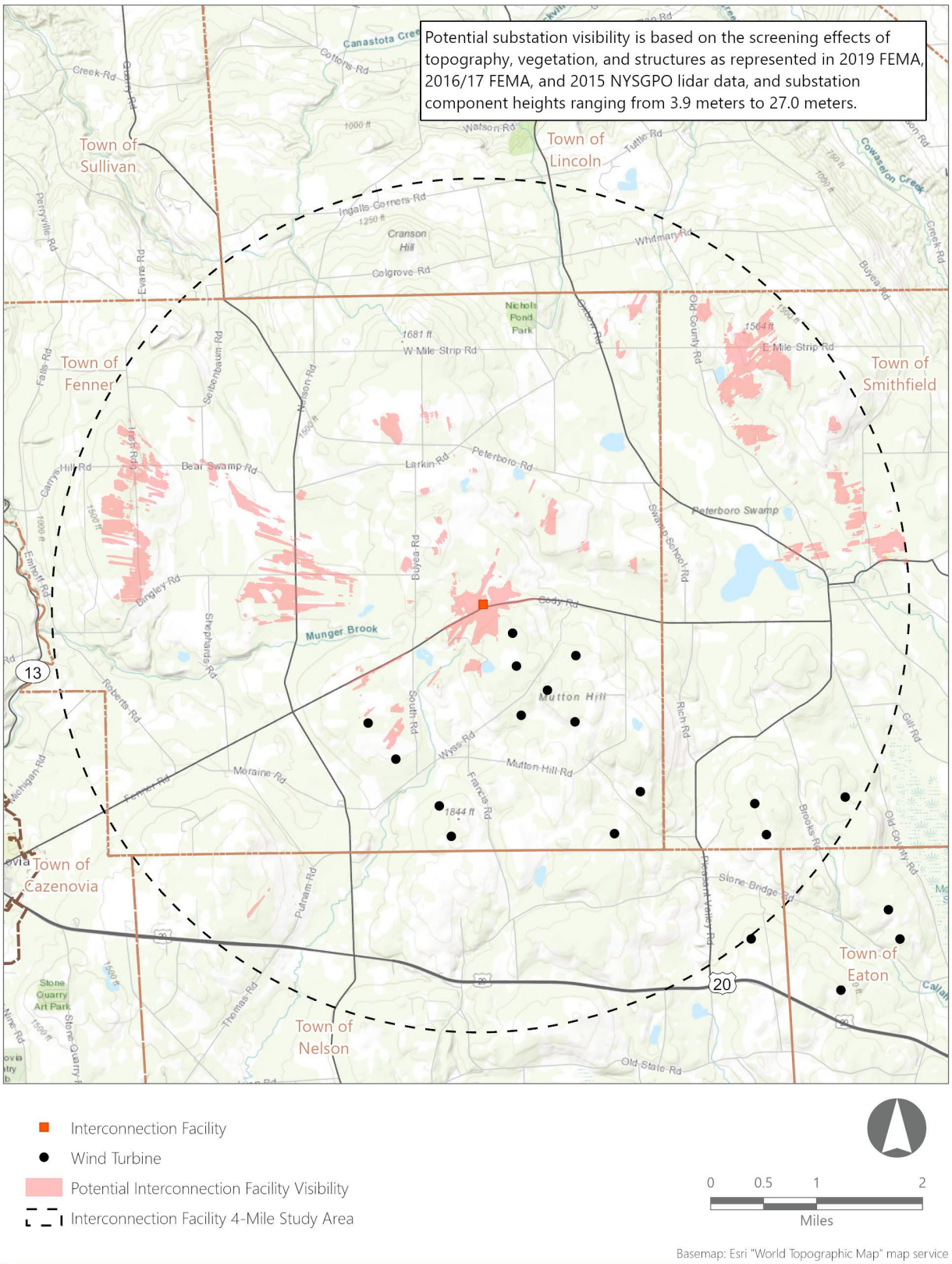


Figure 5.1-6. Interconnection Facilities DSM Viewshed Analysis



5.1.4 Field Review Results

As discussed in Section 4.1.3, field crews were provided with digital mapping that indicated their position relative to the blade tip viewshed results while travelling public roads throughout the VSA. Field observations suggested that larger areas of potential Facility visibility, as shown on the viewshed maps, generally provided more expansive open views toward the Facility Site, while small pockets of potential visibility shown on the maps were typically characterized by specific locations with tightly framed, short duration views toward the Facility Site. All photographs referenced in this summary can be found in the viewpoint photolog (Attachment B).

5.1.4.1 Agricultural/Rural Residential LSZ

Field review confirmed that the Agricultural/Rural Residential LSZ generally offers the greatest opportunity for open views of the proposed Facility. Open views in the foreground distance zone typically included the nearest wind turbine locations in adjacent agricultural fields, but more distant turbine locations were substantially screened by topography or dense forest vegetation. This is consistent with viewshed results indicating potential visibility in the foreground as substantially limited to views of less than 10 turbines. This condition is also assumed to be true within the near-foreground distance zone, although this could not be confirmed as these locations are contained entirely on private property. Open views toward the Facility Site from the middle ground and background distance zones also typically included only a limited number of turbine sites viewed in a single direction. The lower portion of turbine towers viewed at these distances would typically be screened by vegetation and topography. In many instances it was observed that the actual number of visible turbines would likely be more limited as blade-tips at such distances will be difficult to resolve and distinguish from other elements on the horizon. Locations where views of a greater portion of the Facility are likely to be available were limited to long distance views in elevated locations adjacent to open agricultural fields.

5.1.4.2 Forest LSZ

Facility visibility from the Forest LSZ was observed during field review to be even more limited than indicated by the viewshed analysis. In locations where visibility was indicated to be limited to the turbine blade-tips, particularly when viewed above densely vegetated woodlots or hedgerows in the middle ground and background distance zones, it was observed that viewers would be unlikely to distinguish the narrow blade-tips above the vegetation. In addition, Facility visibility from portions of roadways in the Forest LSZ will also be more limited than indicated by the viewshed analysis due to roadside vegetation and vegetation occurring along utility corridors not considered in the viewshed analysis (see Section 4.1.1). Consistent with the viewshed analysis, locations from which open views of the Facility Site were observed to be available are limited to discrete locations along forest edges oriented toward the Facility Site and occurring in the foreground and middle ground distance zone. More distant views from forest edges and roadways in forested locations were also observed, although turbines were more often partially screened or obscured by existing hedgerows. From most locations, under both leaf-on and leaf-off conditions the density of forested vegetation in large forest stands, as well as small woodlots, effectively screened most outward views toward the Facility Site.

5.1.4.3 Water LSZ

Field review from the Water LSZ was limited to locations occurring on the shoreline, and locations of visibility indicated over open water could not be confirmed. From shoreline locations, Facility visibility was substantially indicated on roadway corridors in which portions were observed to have roadside vegetation not considered by the viewshed analysis. Where open views in the direction of the Facility were observed, views are likely to be consistent with the viewshed analysis which is also anticipated to be true in locations over open water. However, the viewshed indicates visibility from a majority of these locations will be limited to the turbine blade-tips viewed above the dense shoreline vegetation and distant topography. As the Water LSZ occurs entirely in the middle ground and background distance zones the narrow turbine blade-tips may be difficult for some viewers to resolve, particularly when engaged in highly active uses such as boating or swimming. Where views of the wind turbines are recognizable, movement of the blades would likely draw viewer attention.

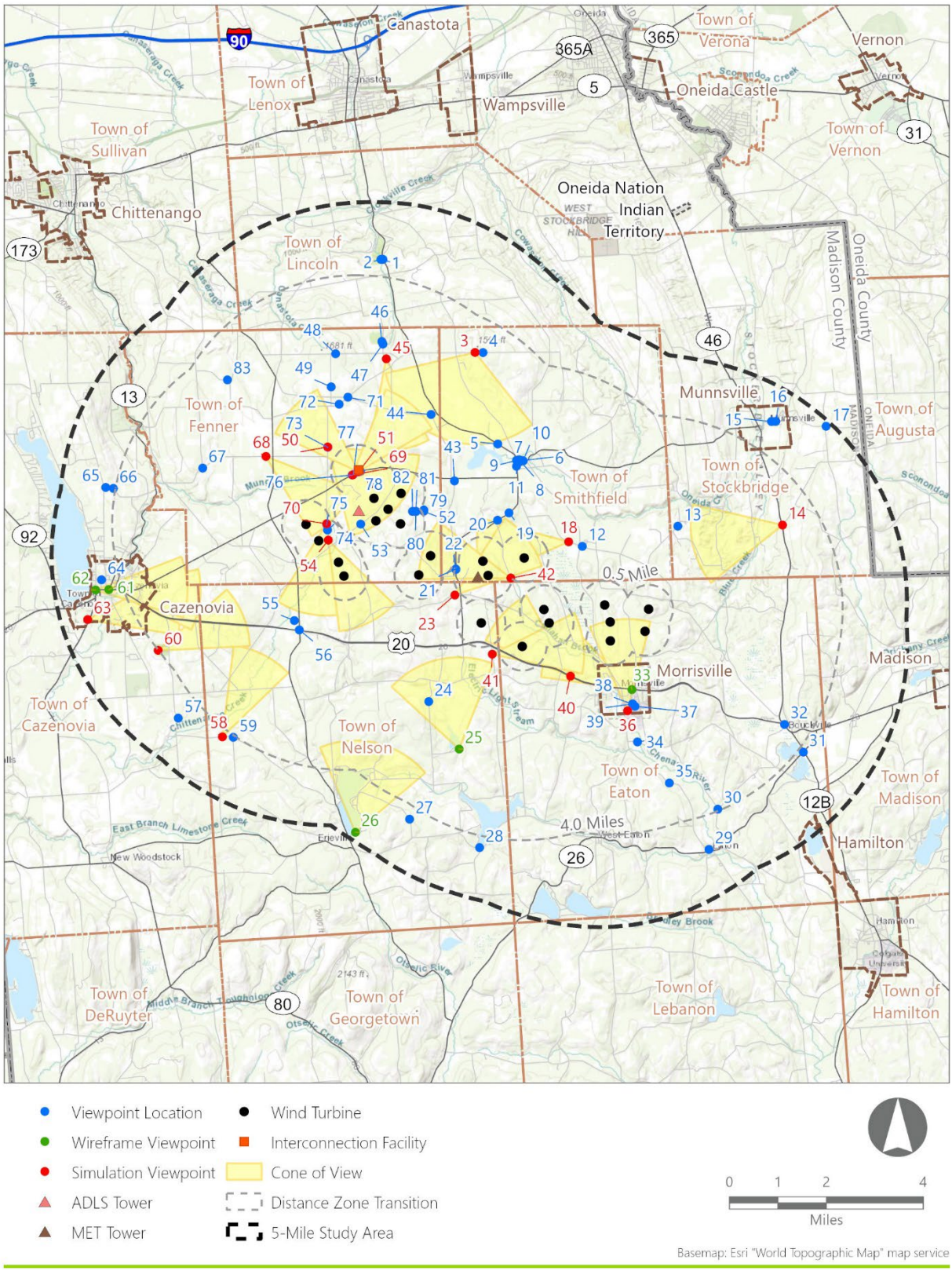
5.1.4.4 Village LSZ

As the Village LSZ has the greatest density of roadway networks, field verified visibility within this LSZ is somewhat less consistent with the viewshed results due to the presence of roadside vegetation not considered by the viewshed analysis (Section 4.1.1). This is particularly true in portions of this LSZ within the Villages of Cazenovia and Munnsville where views are largely limited to the background distance zone and primarily occur on roadways oriented toward the Facility Site. As illustrated by Viewpoints 16 and 61 actual visibility of the turbines from these locations would be limited to distant turbines that, where visible, would be tightly framed by vegetation and structures and softened by atmospheric haze. Locations of potential visibility occurring in the Village of Morrisville, beyond roadways, were observed to be somewhat consistent with the viewshed analysis. However, the number of turbines likely to be visible in these locations was observed to be more limited than indicated by that analysis. While potential visibility of the nacelle and upper portions of discrete turbines closest to the Village was confirmed, particularly in the open greens and sports fields on the SUNY Morrisville campus, more distant turbines with visibility limited to blade-tips would be likely to go unnoticed by viewers in the village.

5.1.4.5 Hamlet LSZ

Field review indicated that visibility of the Facility from the Hamlet LSZ is likely to be somewhat more limited than indicated by the viewshed analysis. Similar to the Village LSZ, a substantial portion of locations indicated by the viewshed analysis to have potential visibility occur along roadways where the screening effect of roadside vegetation was not considered by the viewshed analysis. As indicated in Table 5.1-2, potential Facility visibility based on the viewshed analysis would be substantially limited to five turbines or fewer, and field review within the Hamlet LSZ confirmed that where visibility of the Facility would occur, views will likely be limited to glimpses of discrete turbines tightly framed by structures and vegetation. However, in the hamlet of Pine Woods, which occurs along a substantially open portion of US Route 20, views are anticipated to be more consistent with the viewshed analysis and viewers are likely to have one of the more open views of up to five turbines. However, because visibility from the Hamlet LSZ occurs entirely in the middle ground and background distance zones, in most instances these limited views will be of short duration and require viewing along a specific line of sight.

Figure 5.1-7. Viewpoint Location Map



5.1.5 Potential Visibility from Visually Sensitive Resources

A total of 279 VSRs were identified within the VSA, with 212 of these resources indicated as having potential Facility visibility based on the results of the viewshed analysis as summarized in Table 5.1-5.

Table 5.1-5. Total VSRs with Visibility

Visually Sensitive Resources	Total Number of Resources within the VSA	Total Number of Resources with Facility Visibility
Properties of Historic Significance [6 NYCRR 617.4 (b)(9)]	**Total 128**	**Total 107**
National Historic Landmarks (NHL)	1	1
National/State Historic Sites	39	1
Properties Listed on National or State Registers of Historic Places (NRHP/SRHP)	87	18
Properties Eligible for Listing on NRHP or SRHP	1	87
Designated Scenic Resources	**Total 3**	**Total 3**
Rivers Designated as National or State Wild, Scenic or Recreational	None identified.	None identified.
Adirondack Park Scenic Vistas [Adirondack Park Land Use and Development Map]	Not Applicable (NA)	NA
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic ([ECL Article 49, Title 1] or equivalent)	1	1
Scenic Areas of Statewide Significance [Article 42 of Executive Law]	None identified.	None identified.
Other Designated Scenic Resources (Easements, Roads, Districts, and Overlooks)	2	2
Public Lands and Recreational Resources	**Total 82**	**Total 60**
National Parks, Recreation Areas, Seashores, and/or Forests [16 U.S.C. 1c]	None identified.	None identified.
National Natural Landmarks [36 CFR Part 62]	None identified.	None identified.
National Wildlife Refuges [16 U.S.C. 668dd]	None identified.	None identified.
Heritage Areas [Parks, Recreation and Historic Preservation Law Section 35.15]	2	2
State Parks [Parks, Recreation and Historic Preservation Law Section 3.09]	2	2
State Nature and Historic Preserve Areas [Section 4 of Article XIV of the State Constitution]	None identified.	None identified.
State Forest Preserves [NYS Constitution Article XIV]	None identified.	None identified.
Other State Lands	1	1
Wildlife Management Areas & Game Refuges	1	1
State Forests	1	1
Public Boat Launches/Waterway Access Sites	4	2

Visually Sensitive Resources	Total Number of Resources within the VSA	Total Number of Resources with Facility Visibility
Designated Trails	26	20
Palisades Park [Palisades Interstate Park Commission]	NA	NA
Local Parks and Recreation Areas	26	17
Publicly Accessible Conservation Lands/Easements	5	4
Rivers and Streams with Public Fishing Rights Easements	2	2
Named Lakes, Ponds, and Reservoirs	12	8
High-Use Public Areas	**Total 28**	**Total 22**
State, US, and Interstate Highways	5	5
Cities, Villages, Hamlets	15	9
Schools	8	8
Other Resources Identified by Stakeholders	**Total 38**	**Total 20**
Total Number of VSRs in the VSA	**279**	**212**

A VSR table that provides location and visibility information for all 279 VSRs identified within the VSA is included in Attachment C. Each VSR is assigned an identification number which corresponds to the mapped locations in Attachment A. This table also indicates whether any photographs from the VSR are provided in Attachment B.

For each of the 101 VSR of statewide concern that are indicated to have Facility visibility, and which are not represented by a photosimulation, specific visibility information is provided in Attachment E. This information is ordered by VSR identification number and includes the following:

- A line-of-sight (LOS) cross section to the nearest visible wind turbine, as described in Section 4.1.2.
- A wind turbine visibility map representing the results of the VSR Viewshed Analysis described in Section 4.1-1. This map, located on the left side of the sheet, illustrates the VSR location, LOS cross section centerline, blade tip viewshed analysis results, and the wind turbine locations. The wind turbines that have potential visibility are categorized based on whether they would fall in the VSR's near-foreground, foreground, middle ground, or background distance zone. Within the legend, the number of wind turbines that fall within the VSR's respective distance zone is noted.
- A context map, located on the right side of the sheet, is centered on the VSR boundary and illustrates the blade tip viewshed analysis results over aerial imagery. This map is provided to illustrate the locations where potential visibility of the turbines is indicated within the boundary of each VSR and the location of the LOS cross section.
- A bar graph representing the number of turbines that could potentially be visible within each VSR's near foreground, foreground, middle ground, and background distance zone.

5.1.6 Potential Visibility from Significant Resources Beyond the Visual Study Area

Twenty-one of the 59 significant visual resources identified outside of the VSA but within 5 miles of the Facility Site are indicated to have some degree of wind turbine visibility. Based on the results of a viewshed analysis completed for these resources, views of the Facility will be entirely screened from 38 of these resources. One State Historic Site, 16 NRHP-Listed resources, two state forests, and two state trails are indicated to have visibility of some portion of the wind turbines. A comprehensive list of all significant resources, their location, and their potential for Facility visibility is included in Attachment C and the location of these resources is illustrated in Attachment A.

5.2 Project Visual Impact

5.2.1 Photosimulation Rating and Assessment of Visual Impact

As described in Section 4.2.3 of this VIA, the rating panel evaluated the contrast and compatibility of the Facility with various components of the landscape (landform, vegetation, land use, water, sky, land use and viewer activity) and assigned quantitative visual contrast ratings on a scale of 0 (insignificant) to 4 (strong). The average contrast score assigned by each rating panel member was calculated for each viewpoint, and a composite average score for each viewpoint was determined. Attachment D provides a detailed review of the rating panel results and existing and proposed view descriptions for each of the photosimulations. Copies of each panel member's completed rating forms are included in Attachment F. The results of this evaluation process are summarized in Table 5.2-1 and the discussion that follows. Wireframes renderings for viewpoints meeting a majority of the viewpoint selection criteria but located where turbines were determined to be substantially screened from view, are also provided in Attachment D. However, wireframe renderings were not included in the rating panel evaluation.

Table 5.2-1. Summary of Rating Panel Results

Viewpoint Number	Viewing Distance[1]	Distance Zone Represented in View	Landscape Similarity Zone	Viewer Groups			Contrast Rating Scores[2]				
				Local Residents	Through Travelers	Tourists/ Recreation	#1	#2	#3	Average	Contrast Rating Result
Photosimulations That Depict Facility Components (Install Mitigation)											
3	3.3 miles	Middle Ground	Agricultural/Rural Residential	•			1.6	1.6	1.8	1.7	Minimal/Moderate
14	3.3 miles	Middle Ground	Agricultural/Rural Residential	•	•		1.4	1.0	1.1	1.2	Minimal
18	1.0 mile	Middle Ground	Agricultural/Rural Residential	•			1.5	2.9	2.7	2.4	Moderate/Appreciable
23	0.8 mile	Middle Ground	Agricultural/Rural Residential	•			2.0	2.9	2.7	2.5	Moderate/Appreciable
36	1.5 miles	Middle Ground	Village	•		•	1.5	2.5	2.3	2.1	Moderate
40	1.2 miles	Middle Ground	Agricultural/Rural Residential	•	•		0.9	1.6	1.7	1.4	Minimal/Moderate
41	0.6 mile	Middle Ground	Agricultural/Rural Residential	•		•	1.7	2.9	2.3	2.3	Moderate/Appreciable
42	0.5 mile	Foreground	Agricultural/Rural Residential	•			1.6	3.1	2.6	2.4	Moderate/Appreciable
45	2.6 miles	Middle Ground	Agricultural/Rural Residential	•			1.8	2.2	1.8	1.9	Moderate
50	1.2 miles	Middle Ground	Agricultural/Rural Residential	•		•	2.0	2.5	1.5	2.0	Moderate
54	0.5 mile	Foreground	Agricultural/Rural Residential	•			2.6	3.2	3.2	3.0	Appreciable
58	4.2 miles	Background	Agricultural/Rural Residential	•	•		1.9	1.2	1.1	1.4	Minimal/Moderate

Viewpoint Number	Viewing Distance[1]	Distance Zone Represented in View	Landscape Similarity Zone	Viewer Groups			Contrast Rating Scores[2]				
				Local Residents	Through Travelers	Tourists/ Recreation	#1	#2	#3	Average	Contrast Rating Result
60	4.0 miles	Background	Agricultural/Rural Residential	•		•	1.5	0.7	1.0	1.1	Minimal
63	4.9 miles	Background	Agricultural/Rural Residential	•		•	0.0	0.0	0.0	0.0	Insignificant
68	1.6 miles	Middle Ground	Agricultural/Rural Residential	•	•		1.7	1.7	1.7	1.7	Minimal/Moderate
69	340.7 feet	Foreground	Agricultural/Rural Residential	•	•		3.4	3.4	3.3	3.4	Appreciable/Strong
70	342.6 feet	Foreground	Agricultural/Rural Residential	•			2.1	2.8	1.6	2.2	Moderate
Total average rating for the photosimulations that depict Facility components										1.9	Moderate
Photosimulations That Depict Mature Mitigation Plantings (5-7 years post-installation)											
69	340.7 feet	Foreground	Agricultural/Rural Residential	•	•		3.4	3.3	3.3	3.3	Appreciable/Strong
70	342.6 feet	Foreground	Agricultural/Rural Residential	•			2.0	2.4	1.5	2.0	Moderate
Total average rating for the simulations that depict plantings at 5-7 years post-installation										2.7	Moderate/Appreciable

[1] Distance as measured from the viewpoint to the Facility (in feet) within the simulated photograph's field of view.

[2] Contrast Rating Scale: 0.0–0.2 (Insignificant), 0.3–0.7 (Insignificant/Minimal), 0.8–1.2 (Minimal), 1.3–1.7 (Minimal/Moderate), 1.8–2.2 (Moderate), 2.3–2.7 (Moderate/Appreciable), 2.8–3.2 (Appreciable), 3.3–3.7 Appreciable/Strong), 3.8–4.0 (Strong).

5.2.1.1 Wind Turbine Photosimulation Rating Panel

The rating panel results suggest that, following installation, the Facility will result in moderate visual contrast with the existing landscape, as indicated by the overall average contrast score of 2.1. However, as indicated by the average contrast rating scores for each viewpoint (the combined average of each panel member's scores), there is a high degree of variability between views (ranging from 0.6 [insignificant/minimal] to 3.4 [appreciable]).

The five photosimulations (Viewpoints 18, 23, 41, 42, and 54) showing the Facility wind turbines from the closest distances (0.5 to 1.0 miles) received the highest contrast ratings (moderate/appreciable and appreciable). In these views the turbines were indicated to have contrast with the line, form, scale, and color of the existing landscape. Of these views, Viewpoint 54 received the highest average contrast score 3.0 (appreciable). While the simulation from this viewpoint included two foreground turbines located on rolling topography occurring at a slightly higher elevation than the viewer. From this vantage point the turbines were noted to dominate the sky and draw viewer attention from existing focal points in the landscape. Viewpoints 18, 23, 41, and 42 all received a moderate/appreciable contrast rating with scores from 2.3 to 2.5. In these views the rating panel indicated the limited number of viewers, the Facility's consistency with the working agricultural landscape, and/or the presence of foreground vegetation served to limit to the contrast presented by the Facility. Distance from the Facility was also described as softening the view from Viewpoint 18, located 1.0 mile from the Facility.

Views that received minimal/moderate and moderate ratings (Viewpoints 3, 36, 40, 45, 50, 58 and 68) all occur in the middle and background ground distance zones and represent views of the Facility Site from distances between 1.2 to 4.2 miles. Due to distance from the viewer, the rating panel indicated somewhat reduced contrast primarily relating to the perceived scale of the wind turbines. However, the expansiveness of the majority of these views and the presence of existing turbines in Viewpoints 3, 45, 50, 58, and 68 were also indicated to reduce contrast. Of the views receiving a moderate contrast score, Viewpoint 36, located in the Village LSZ, received the highest contrast score (2.1). While the rating panel indicated that contrast with land use in this developed environment was minimal/moderate, the contrast with viewer activity was considered to be moderate/appreciable. Viewpoints 45, 50, and 68 also received a moderate contrast rating. Based on the existing wind turbines in the views from Viewpoints 45 and 50 some rating panel members indicated that consistency with the existing land use limited contrast, while other panel members noted the increased intensity of the use. Viewpoints 3, 40, and 58 all received minimal/moderate contrast ratings. Viewpoints 3 and 58 represent views of the Facility in which the rating panel indicated that distance and the presence of existing turbines would reduce the contrast of the Facility. The rating panel also noted that views of the Facility from these locations, while extensive, would only occupy a portion of the overall panoramic view available. The even distribution of the turbines was also described as bringing order to the view and not introducing additional clutter. Viewpoint 40 is a view of the Facility from the Route 20 Scenic Byway and views wind turbines T-16 at a distance of 1.2 miles and T-13 at a distance of 2.1 miles. Turbine T-13 is of particular concern to the Town of Nelson as stated by the Town Land Use and Zoning Law Section 512.2 D (see Section 4.2.4.3, herein). While the rating panel indicated some contrast with the existing landform and vegetation at this viewpoint, they also noted consistency with other linear elements in the view. Considering the lack of existing focal points along this section of roadway panel members also noted

that the wind turbines may introduce an element of visual interest for some viewers. This does not suggest a potential for turbine T-13 to "substantially detract from or block view of a portion of a recognized scenic viewshed" from this vantage point, and therefore meets the standard outlined in Town of Nelson Land Use and Zoning Law. Considering all viewpoints that received minimal/moderate and moderate contrast rating scores, the low average contrast scores for these views suggests that visual impacts of the Facility outside of the near-foreground and foreground distance zones will be minimal.

Viewpoints 14, 60, and 63 all view the Facility from distance greater than 3.3 miles and received minimal/insignificant to minimal contrast ratings. From these viewpoints the expansiveness of the existing view, distance from the Facility, and consistency with existing land uses was indicated to absorb potential impact and limit Facility contrast. Additionally, Viewpoints 14 and 60 which received a minimal contrast score (1.2 and 1.1, respectively), include visibility of existing wind turbines which the rating panel indicated to soften potential contrast introduced by the new turbines. Viewpoint 63 received the lowest average contrast rating, 0.6 (minimal/insignificant), which, in addition to the reasons indicated above, was also viewed to have relatively low existing scenic quality and was noted to view limited number of turbines.

5.2.1.2 Interconnection Facility and O&M Facility Rating Panel Results

The collection substation and POI switchyard (collectively referred to as the interconnection facility) are proposed to be located adjacent to each other on a site north of Cody Road in proximity to an existing utility corridor. Viewpoint 69 illustrates potential visibility of these components and received an average contrast rating of 3.4 (appreciable/strong). Despite the existing utility infrastructure and low scenic quality of this view the rating panel indicated significant contrast in scale, form, line, and color with these components. The rating panel noted the scale and massing of the components would draw significant viewer attention and somewhat enclose the viewer due to the position of the facility directly adjacent to the roadway. With the mitigation plantings in place, and after five to seven years growth, the rating panel indicated the vegetation would soften or screen portions of the interconnection facility but would not effectively reduce the visual contrast of the Facility due to the height of the components and proximity to viewer.

The O&M facility is proposed to be located west of South Road in an agricultural/rural residential setting. Viewpoint 70 illustrates visibility of the O&M Facility backed by a single Facility wind turbine. This view received an average contrast rating of 2.2 (moderate), and the scenic quality was considered to be low to moderate. The rating panel indicated some consistency in use and design of the O&M buildings with other structures in the existing environment. However, they also noted the size and layout of these structures to present scale contrast and somewhat enclose the view of the previously open agricultural field backed by forest vegetation. The background wind turbine was also noted to be somewhat out of place and likely to draw viewer attention particularly due to the movement of the blades. With the mitigation plantings in place, and after five to seven years growth, the visual contrast was reduced to an average rating of 2.0. While the mitigation plantings were indicated to effectively integrate the O&M structures into the view and soften or screen hard angles, the wind turbine would continue to draw viewer attention toward the Facility.

5.2.2 Potential Visual Effects from Visually Sensitive Resources

An evaluation of the potential visual effect of the Facility on VSRs within the VSA is presented in this subsection. This evaluation is based on the results of the viewshed analysis, field review, line-of-sight cross section analysis, and photosimulation evaluation conducted for the Facility. Attachment A includes the VSRs overlaid with the viewshed results and viewpoint locations, Attachment B includes photographs from each VSR that was visited during field review, Attachment D provides a description of the existing and proposed view and results of the panel's contrast rating for each of the photosimulations, and Attachment E includes line-of-sight cross sections from VSRs of statewide significance where the viewshed analysis indicated potential Facility visibility and no photosimulation was produced.

Generally, those VSRs located in the near-foreground and foreground distance zones with a high percentage of visibility (as indicated by the viewshed analysis) will likely experience greater visual impact than those resources with a limited amount of Facility visibility and/or that occur in the middle ground and background distance zones. This condition is somewhat independent of the number of turbines visible, as the localized impacts of open views of fewer than five turbines at a distance less than 1.0 mile from the Facility Site were indicated by the rating panel to have a greater degree of contrast than long-range views with a greater number of turbines visible. While the viewshed analysis is a good indication of locations from which some degree of Facility visibility is likely to occur, and is anticipated to be consistent with actual visibility (see Section 5.1.3), the potential for this visibility to adversely affect the landscape or impact viewer/user groups at a VSR is highly variable based on VSR distance from the Facility, degree of screening, the character of the LSZ in which the VSR occurs, and the activity in which a viewer is engaged in at these sites.

As the near-foreground distance zone occurs entirely within the Facility Site, only six VSRs are indicated to have potential Facility visibility within this distance zone: the Erie Canalway National Heritage Corridor, two NRE farmsteads on participating parcels, one snow mobile trail, and one designated scenic district.

The northern portion of the VSA occurs within the Erie Canalway National Heritage Corridor (VSR ID #132), a 4,834-square mile resource occurring in 23 counties across New York State. Within the VSA, land use and potential Facility visibility will vary considerably across this VSR and viewer/users of this resource are likely to have variable sensitivity to the view based on the activity in which they are engaged. However, unless actually in the immediate vicinity of the Canal (which does not occur within the VSA), viewer sensitivity is unlikely to be related to their use of the heritage corridor as a historic or recreational resource. The Moonlight Riders Snowmobile Trail (VSR ID #144), the Snow Valley Riders Snowmobile Trail [VSR ID #145], and the Town of Nelson Scenic Overlay District (VSR ID #130) are also resources that occur in a significant portion of the VSA, and from which visibility will be quite variable. While the snowmobile trails are anticipated to have open foreground views of up to three wind turbines as they crosse the Facility Site, users of these trails are engaged in a highly active, focused use in which views of the turbines will typically be of limited duration. The purpose of the Town of Nelson Scenic Overlay District is "… to preserve the Town's significant viewsheds and their corresponding viewing locations from designated scenic public highways…" (Town of Nelson, 2011). As such, the siting of a single wind turbine within this district, as proposed, would not result in near-foreground visual impacts, as the closest designated scenic roadway, Scenic Route 20,

would view this turbine from approximately 0.4 miles at its nearest point. Again, sensitivity and potential impact to viewers/users of designated scenic routes will be highly variable and views of the wind turbines for those traveling public roadways are likely to be fleeting and of short duration. However, residents traveling on public roadways within the overlay district will likely have regular/repeated views of the proposed turbine and sensitivity to changes in the landscape.

Within the foreground distance zone, 13 VSRs are indicated to have potential wind turbine visibility. These resources include four linear resources (roads and trails), four NREs, three locally identified resources, the Morrisville Swamp, and the SUNY Morrisville Equine Center. Similar to potential Facility visibility in the near-foreground distance zone, views of the Facility from the foreground distance zone are likely to focus on the nearest turbines with limited screening. The closest turbines have the greatest potential to produce visual impact at any given resource, while more distant turbines will typically be more substantially screened, and visibility is likely to be less impactful. Of the VSRs with foreground visibility only three will view more than two turbines from this distance (the Magnificent Madison Bike Trail [VSR ID #150], Bicentennial Architecture Trail [VSR ID#149], and Morrisville Swamp [VSR ID #202]). Views of the Facility Site from Morrisville Swamp could include up to five foreground turbines based on viewshed results. However, field review suggests that these views will be limited to discrete locations. Additionally, potential visibility from this resource was indicated by the viewshed analysis to occur primarily on private land in locations susceptible to seasonal flooding.

When considering the linear resources (Bicentennial Architecture Trail [VSR ID#149], the Magnificent Madison [VSR ID #150] and Heaven and Hell [VSR ID #151] Bike Trails, and Scenic Route 20 [VSR ID #129]) only a limited portion of these resources will occur within the foreground distance zone and Facility visibility from other portions of these VSRs will be variable depending on proximity to the Facility and the availability of open views in the direction of the Facility at any given location. The Magnificent Madison Bike Trail has the greatest number of turbines visible at foreground distances, (up to seven turbines), and the Bicentennial Architecture Trail could view up to four foreground wind turbines. However, due to the linear nature of these VSRs, views of all the foreground turbines would not typically occur from any single location, rather, individual turbines will be viewed in sequence as a viewer moves along the trails. Up to 17 turbines are also indicated to be visible in the middle ground distance zone at various locations across the Magnificent Madison Bike Trail and up to 20 turbines may be viewed at middle ground distances from the Bicentennial Architecture Trail. As previously discussed, potential visual impact will depend on the sensitivity of the viewer and the intensity of the activity in which they are engaged. However, presence of the turbines will not necessarily affect viewer appreciation of historic architectural resources or change the rural agricultural character of the landscape through which these trails pass.

Potential views of the Facility from the SUNY Morrisville Equine Center (VSR ID #219), as illustrated by the photosimulation from Viewpoint 41 and described by the visual contrast rating panel, will be most impacted by views of the nearest turbine (approximately 0.6 miles away). More distant turbines may catch viewer attention but are unlikely to hold their gaze, and those engaged in equestrian activities are unlikely to be affected, as their attention will be focused on horseback riding. Of the NRE resources indicated to have wind turbine visibility in this distance zone, views from the Lyons Cemetery (VSR ID #47), a former schoolhouse (VSR ID #44), and a farmstead on Fearon Road (VSR ID #46) will occur in open yards with limited vegetation

and will include one to two foreground turbines. However, there is potential for visibility of up to 11 more distant turbines at discrete locations within these VSRs. Potential visibility from the Westcott Cemetery (VSR ID #45) will also be limited to one foreground turbine. However, an additional 19 turbines could be viewed at middle ground distances from discrete locations within this resource. It is important to note that the cemetery itself comprises a very small portion of the overall VSR area and has more limited visibility.

Stakeholder identified resources indicated to have potential foreground wind turbine visibility include the Pleasant Valley Cemetery (VSR ID #243) and two geographic high points within the Town of Fenner (VSR IDs #242 and 244) representing significant viewsheds. Potential visibility from the Pleasant Valley Cemetery is likely to be more limited than indicated by the viewshed analysis as it occurs primarily along the roadway corridor where the screening effect of roadside vegetation was not considered in the analysis. Due to the nature of the high points in the Town of Fenner, 360-degree views are anticipated from these locations. To illustrate potential wind turbine visibility, DSM data used for the viewshed analysis and LOS analysis were used to produce 360-degree renderings from these locations (see Figures 5.2-1 and 5.2-2). As illustrated in these views, existing and proposed turbines will be visible in multiple directions from these vantage points. At the Cody Road highpoint (VSR ID #242), potential visibility is indicated to include one foreground turbine and seven middle ground turbines. The Mutton Hill highpoint (VSR ID #244) is also indicated to have visibility of one foreground turbine, and views could include an additional 15 turbines viewed at middle ground distances and five at background distances. The presence of existing wind turbines in these views will minimize the contrast presented by the new turbines although the perceived intensity of wind power development will increase somewhat in these views. Views of the proposed interconnection facility from the Cody Road high point will result in greater visual contrast with the surrounding landscape.

Figure 5.2-1. Photorealistic Rendering from the Cody Road Highpoint (VSR ID #242)

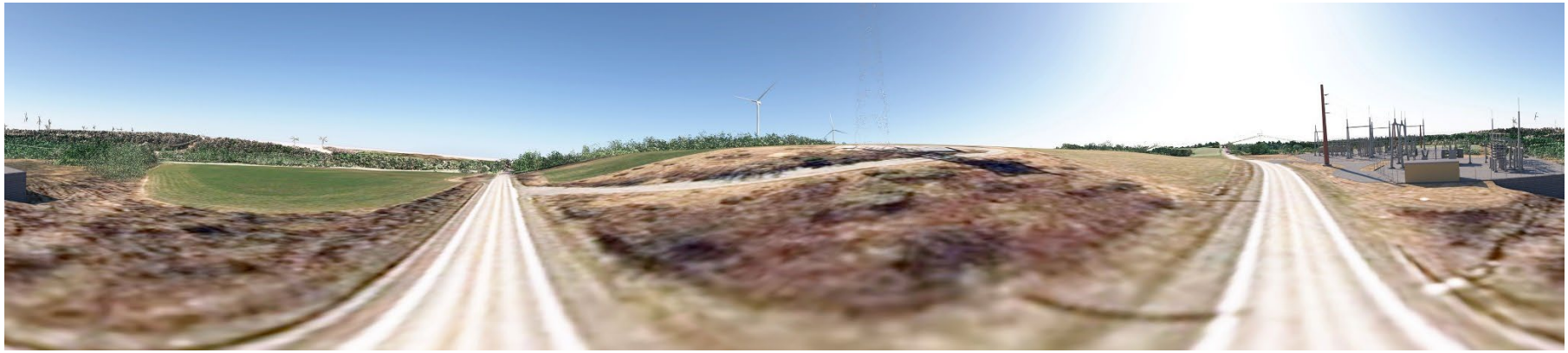
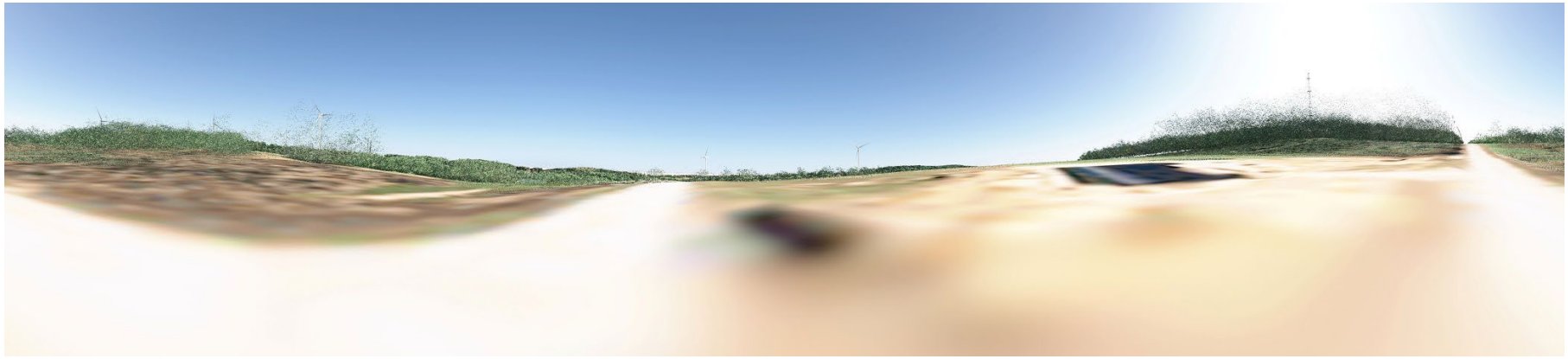


Figure 5.2-2. Photorealistic Rendering from the Mutton Hill Road High-point (VSR ID #244)



Potential Facility visibility from the middle ground distance zone was indicated by the rating panel to be most impactful when views occur at distances between 0.5 and 1.0 mile from the nearest wind turbine. In total, 127 VSRs in the middle ground distance zone are indicated to have potential Facility visibility, 18 (14%) of which will have views from distances less than 1.0 mile. These19 VSRs include nine NRE resources, one state unique area, one bike trail, one named lake, one village, and four stakeholder identified resources (three cemeteries and land indicated to be owned by the Oneida Indian Nation). Potential visibility from the NRE resources is illustrated by the LOS analysis included in Attachment E. Potential visual impact at the NRE resources is likely to be highly variable. Residents of historic structures are likely to be sensitive to visual change in the areas surrounding their homes, while those visiting a historic hop house may interpret the wind turbines as contributing to the agricultural character of the view.

Potential wind turbine visibility from the remaining nine VSRs in the middle ground distance zone will include middle ground visibility of one to 16 turbines and background visibility of zero to 14 turbines. Resources with the greatest turbine visibility are those situated near the center of the Facility Site, such as land indicated to be owned by the Oneida Indian Nation (VSR ID #245), or VSRs which include large land areas such as and the Village of Morrisville (VSR ID #227). Because of the size and variability of cover/land use within these resources, potential turbine visibility and visual effect will be highly variable.

The remaining VSRs with views of turbines at middle ground distances will view all proposed turbines at distances over 1.0 mile. Potential visibility of the wind turbines at distances greater than 1.0 mile, was indicated by the rating panel to have a greater degree of consistency with the existing landform, land use, and user activity within the VSA. In addition, views from these distances were also indicated to have more limit potential for scale, form, and color contrast with the landscape. Many of the middle ground views will also include views of existing wind turbines which also serves to reduce Facility contrast. Due to the limited number of turbines proposed for this Facility, the rating panel indicated that perceived increase in intensity of wind power as a land use within the VSA would be minimal.

An additional 66 VSRs are indicated to have potential wind turbine visibility from the background distance zone. These resources include one state historic site, 10 NRHP-Listed resources, 22 NRE resources, one state heritage area, one state park, one state wildlife management area, one state fishing access, eight trails, eight location recreation areas, two conservation areas, two named lakes/ponds, three state roadways, two schools, one village, one hamlet, and two stakeholder identified resources. As indicated by the rating panel, views from distances greater than 3.0 miles are likely to have more limited contrast with the existing landscape somewhat independent of the number of turbines viewed. Views from VSRs where a large number of background turbines are visible, typically offer expansive views where the Facility would occupy only a limited portion of the larger view. These views often include existing wind turbines and consistency with this existing land use was indicated by rating panel as substantially limiting Facility contrast within the existing landscape.

5.2.3 Nighttime Impacts

The potential visibility of FAA lights for the proposed turbines is described in Section 5.1.1 of this VIA (see Table 5.1-3 and Figure 5.1-3). Nighttime photos from the Fenner Wind Farm (Figure 5.2-3), which is also

located in the Town of Fenner in proximity to the Hoffman Falls Wind Facility, and has been in operation since 2001, are included to illustrate the type of nighttime visual impact that could occur at certain viewpoints. However, static images do not fully convey the dynamic nature of the FAA lights since they flash in unison. This flashing can attract viewer attention and distract from the night sky.

As discussed previously in Section 2.2.5, ADLS, if approved by the FAA and feasible would significantly reduce nighttime visual impacts to casual viewers due to the infrequency of potential activation (which only occurs when aircraft are passing the facility). However, when the FAA lights are activated, the short duration contrast of the FAA lights with the night sky could be appreciable in dark, rural settings, and their presence suggests a more commercial/industrial land use. Viewer attention is typically drawn by the flashing of the lights, and any positive reaction that wind turbines engender (due to their graceful form, association with clean energy, etc.) is lost at night. However, the FAA lights associated with the Facility will not be a novel concept to many viewers in the area due to the presence of existing turbines already in operation. In these cases, the Facility may contribute to existing visual clutter in the night sky from some locations. However, the addition of the lights may go unnoticed in areas where numerous turbines are already visible at night. While generally not an issue from roads or public resources visited almost exclusively during the day (parks, trails, historic sites, etc.), wind turbine lighting could be perceived negatively by local residents who may be able to view these lights from their homes and yards. However, as discussed in Section 5.1.1, even when the FAA lights are active, they will be screened by vegetation, structures, and/or topography from 80.2% of the VSA. Additionally, in areas of more concentrated human settlement within the VSA, existing light sources will limit the visibility and contrast presented by the aviation warning lights.

The O&M facility will require full-time lighting, not dissimilar to typical residential security lights. Full-cutoff fixtures will be installed in order to minimize light trespass beyond the Facility and its property limits. Similarly, the interconnection facility will require some full-time security lighting. Greater nighttime visual impacts could occur at the O&M facility and interconnection facility during limited time periods when support lighting may be necessary to safely perform nighttime maintenance activities. During such maintenance activities, task lighting will be manually operated as needed. During normal operation, off-site nighttime visual impacts associated with these facilities will be minimal.

Figure 5.2-3. Representative Evening/Nighttime Photos

5.2.4 Visual Impacts During Construction

Visual impacts during construction are anticipated to be relatively minor and temporary in nature. Representative photographs of construction activities are included in Figures 5.2-4 to 5.2-9. As shown on these photographs, anticipated visual effects during construction include the following:

- During construction, truck traffic will temporarily increase on area roadways. Construction vehicles for the Project will include pick-up trucks, dump trucks, crane transporters, concrete trucks, and oversized semi-trailers. The transportation of wind turbine components and associated construction material involves numerous conventional and specialized transportation vehicles. For instance, wind turbine blades are transported on trailers with one blade per vehicle. Blade lengths typically control the length of the vehicle, and transport vehicles are designed with articulating (manual or self-steering) rear axles to allow maneuverability through curves. Towers are typically transported in three to six sections depending on the supplier (one section per truck). Towers generally control the height and width of the transportation vehicle.
- It is anticipated that temporary widening of public roads with an aggregate roadway surface will be required to accommodate the turning movements of delivery vehicles in some locations, including some road intersections. This activity could involve selective tree removal or trimming. The temporary expansions of the pavement surface will generally be removed at the completion of construction and the roads restored to their pre-construction condition. Areas of cleared vegetation will be allowed to regrow. Construction activity could also result in damage to the surface of some public roads. However, after completion of construction activities, damage caused by heavy construction vehicle traffic (especially on any roads that had temporary repairs made during construction activities) will be repaired, and the roads restored to their pre-construction condition.
- Construction of the Facility will result in some vegetation clearing and temporary soil disturbance at turbine sites and along the routes of access roads and electrical collection lines. It is generally assumed that a radius of up to 400 feet will be cleared around each turbine, a 75-foot-wide corridor will be cleared along access roads, and 50- to 80-foot-wide corridor will be cleared along underground and overhead collection centerlines that are not adjacent to access roads, depending on location.
- Vegetation removal will be minimized primarily through careful site planning. Large areas of forest and wetland are being avoided to the extent practicable. Facility access roads will be sited on existing farm lanes and forest roads wherever possible, and areas of disturbance will be confined to the smallest area possible. In addition, a comprehensive sediment and erosion control plan will be developed and implemented. In addition to protecting natural resources, these measures will minimize the visual impact associated with landscape clearing and disturbance during construction of the Facility.
- The construction laydown yards will be developed by stripping the topsoil, grading as necessary, and installing a level gravel-surfaced working area. Electric and communication lines will be brought in from existing distribution poles to allow connection with construction trailers. During construction, the yard will be occupied by vehicles, construction trailers and stockpiled materials.

However, this component of the Facility is temporary, and it is assumed that the laydown yard will be removed, and the site restored, at the completion of construction.

- Access road construction will involve vegetation clearing, topsoil stripping, and grubbing of stumps as necessary. Stripped topsoil will be stockpiled along the road corridor for use in site restoration. Following removal of topsoil, subsoil will be graded, compacted, and surfaced with gravel or crushed stone. During construction, access roads with a travel surface of up to 100 feet wide in certain locations (e.g., temporary turning areas and driveway entrances) will be required to accommodate large cranes and oversized construction vehicles. This road width will be narrowed to 16 feet following completion of construction.
- Once the roads are complete for a particular group of wind turbine sites, wind turbine foundation construction will commence. At each wind turbine site, topsoil will be stripped from the excavation area and stockpiled for future site restoration. Following topsoil removal, heavy equipment will be used to excavate the foundation hole. Subsoil and rock will be segregated from topsoil and stockpiled for reuse as backfill. Once the concrete foundation is poured and sufficiently cured, the excavation area will be backfilled with the excavated on-site material. The base of each tower will be surrounded by a 12-foot-wide gravel skirt.
- Whenever possible, underground collection lines will be installed by direct burial, which involves the installation of bundled cable (electrical and fiber optic bundles) directly into a narrow cut or "rip" in the ground. Where direct burial is not possible, an open trench will be excavated. Using this installation technique, topsoil and subsoil will be excavated, segregated, and stockpiled adjacent to the trench. Following cable installation, the trench will be backfilled with suitable fill material and any additional spoils spread out or otherwise properly disposed of. Following installation of the buried collection line, areas will be returned to pre-construction grades and revegetated.
- Wind turbine assembly and erection involves the use of large track mounted cranes, smaller rough terrain cranes, boom trucks, and rough terrain fork-lifts for loading and off-loading materials. The tower sections, rotor components, and nacelle for each turbine will be delivered to each site by flatbed trucks and unloaded by crane. A large erection crane will set the tower segments on the foundation, place the nacelle on top of the tower, and install the rotor either by individual blade installation or, following ground assembly, placement of the complete rotor onto the nacelle. The visibility of these cranes will be comparable to the visibility of the proposed turbines (in terms of height). However, the presence of crane equipment at each wind turbine site will be temporary and limited to the time necessary to complete wind turbine erection. Additionally, the FAA requires that each turbine be temporarily lit with a low intensity (FAA-L810 steady burning fixture) light once a height of 200 feet above ground level has been reached and until the operation of the permanent light fixtures has been achieved.
- Following construction activities, all temporarily disturbed areas will be restored to original grades (where feasible) and seeded to reestablish vegetative cover. Other than in active agricultural fields, native species will be allowed to revegetate these areas. This will avoid long-term visual impacts associated with soil and vegetation disturbance during construction.

Figure 5.2-4. Transportation of Wind Turbine Components

Figure 5.2-5. Construction Staging and Laydown Area

Figure 5.2-6. Construction of Access Roads (Topsoil Stripping)

Figure 5.2-7. Turbine Foundation Construction

Figure 5.2-8. Turbine Laydown and Assembly

Figure 5.2-9. Stabilization and Restoration of Temporarily Disturbed Soils

5.2.5 Cumulative Visual Impacts

Per the requirements set forth in 19 NYCRR § 900-2.9(a) the potential cumulative visual effect of the Project along with other renewable energy projects currently operating or proposed in the surrounding region must be considered. Cumulative impacts are two or more individual visual effects which, when taken together, compound or increase the visual effects of each project. Operating and proposed renewable energy facilities were identified by consulting multiple sources, including the USGS U.S. Wind Turbine Database, the USGS U.S. Large-Scale Solar Photovoltaic Database, and the ORES Permit Applications database (ORES, 2023).

Cumulative visual impacts can occur when the viewer is able to see two or more developments from a single viewing location (combined visibility) or as the viewer moves through the landscape different facilities become individually visible (sequential). Combined visibility can also include a phenomenon known as succession, which is a viewing circumstance in which more than one project is visible from a single vantage point but cannot be viewed along a single line-of-sight and would require viewers to actively turn their gaze to look at each project (NatureScot, 2020).

Three currently operating wind energy generation facilities are located within 10 miles of the Facility. These include the following:

- The Munnsville Wind Project – Constructed in 2007, the Munnsville Project consists of 23 General Electric 1.5 MW wind turbines, with a generating capacity of 34.5 MW. The turbines each reach a maximum height of approximately 389 feet with the blade in the upright position. The turbines are located in the Towns of Eaton, Madison, Agusta, and Stockbridge. Considering the nearest turbines, the Munnsville Wind Project is approximately 3.3 miles distant from the Hoffman Falls Facility.
- The Fenner Wind Farm is located approximately 1.0 mile north of the nearest Hoffman Falls Facility turbine and consists of 20 General Electric, 1.5 MW turbines with a generating capacity of 30 MW. The Fenner Wind Farm has been a part of the Town of Fenner's landscape since 2001. The turbines each reach a maximum height of 329 feet with the blade tip in the upright position. One replacement unit (installed in 2012), a Goldwind turbine reaches a maximum height of 413 feet.
- Madison Wind Power is located in the Town of Madison, Madison County, New York. The project is approximately 11.2 MW and consists of seven turbines that stand 230 feet tall when the blade is in the maximum upright position. The closest Madison Wind Power turbine is approximately 9.3 miles from the nearest Hoffman Falls turbine.
- Onedia County Wind is located in the Town of Marshall, Oneida County, New York. This is a privately owned and operated Facility with two wind turbines. The closest Oneida County Wind turbine is approximately 10.0 miles from the nearest Hoffman Falls turbine.

One proposed wind energy generation project was identified:

- The Cody Road wind farm is a locally approved proposal to construct approximately five wind turbines in the Town of Fenner. Specific information on the project was not available, but according to the New York Independent System Operator (NYISO), the project would have a total output of approximately 20 MW, suggesting the turbines would each have a generating capacity of 4 MW. Four MW wind turbine units could range in maximum height from 485 to 584 feet. The nearest Proposed Cody Road wind turbine would be approximately 0.6 miles from the closest Hoffman Falls wind turbine.

There are three operational solar facilities within 10 miles of the proposed Facility:

- The first two, Owlville Creek Solar, LLC and Owlville Creek Solar 2, LLC are located in the Town of Lenox, New York, approximately 8.2 miles north of the proposed Facility (Based on the U.S. Large-Scale Solar Photovoltaic Database). Combined, these facilities total approximately 88 acres. Due to

the distance of these projects from the Facility, they would not result in combined visibility (i.e., both the Facility and this operational project would not be viewed in from a single location) but could contribute to sequential viewing opportunities when viewers are travelling on multiple routes exposed to multiple renewable energy facilities.

- Madison County Solar – According to the U.S. Large-Scale Solar Photovoltaic Database this facility is located in the Town of Lincoln, New York and consists of approximately 9 acres of fixed tilt panels. This facility is approximately 5.9 miles north of the proposed Facility and therefore would not result in combined visibility but could contribute to sequential viewing opportunities.

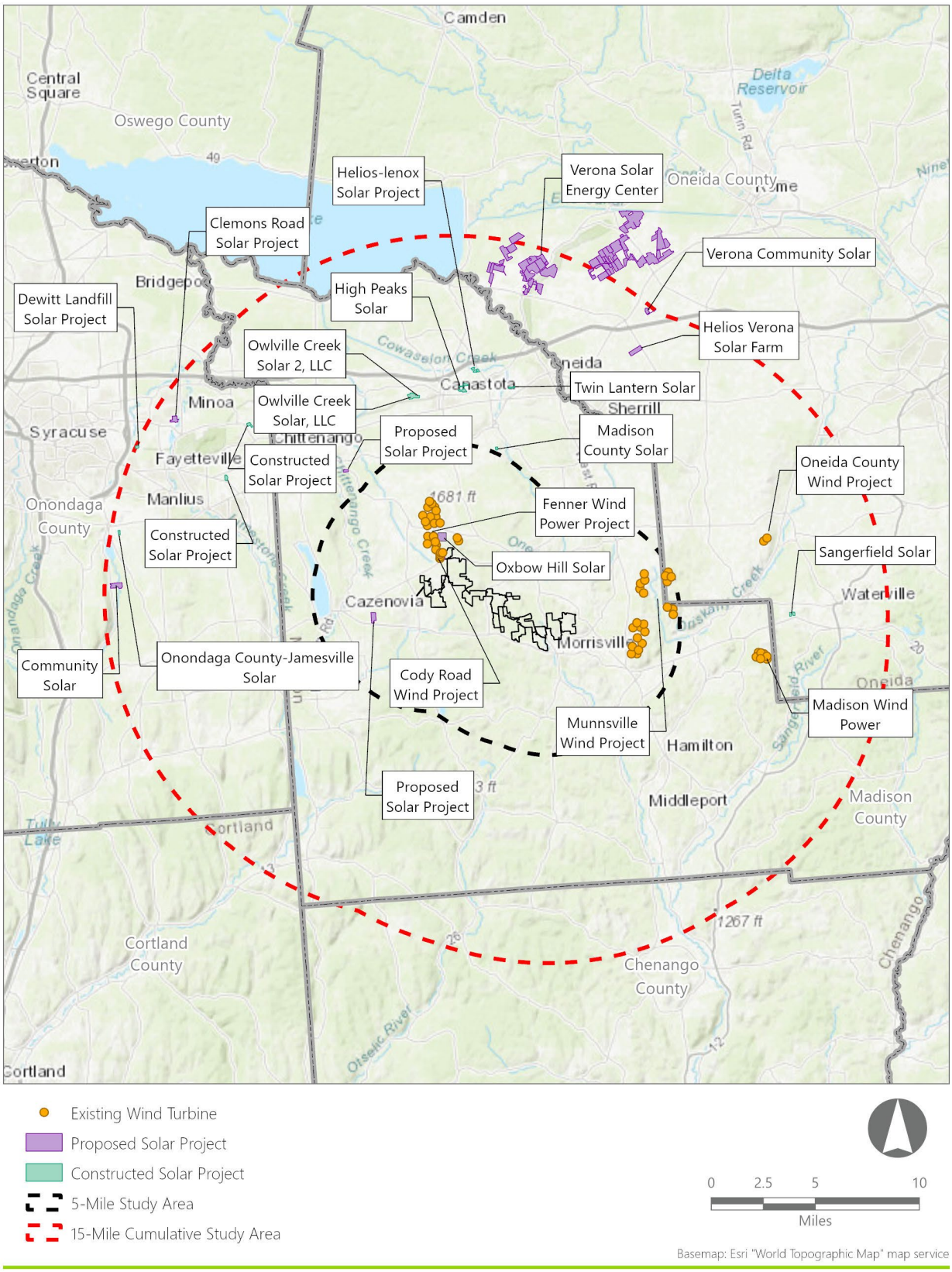
There is one proposed solar Facility in the town of Fenner. The ORES case matter manager states the following:

> *Oxbow Hill Solar, LLC, for a Permit Pursuant to § 94-c of th*e New York State Executive Law to Construct and Operate a Major Renewable Energy Generation Facility to be Located in the Town of Fenner, Madison County, New York

EDR is completing the Section 94-c application for the proposed Oxbow Hill Solar project but is bound by client confidentiality agreements and therefore only publicly available information on the project can be included in this VIA.

The location of these projects relative to the proposed Hoffman Falls Wind Project are shown in Figure 5.2-10.

Figure 5.2-10. Renewable Energy Projects Proximate to the Facility



A number of the photosimulations (Attachment D) include combined visibility scenarios where the proposed Facility turbines are shown along with visible turbines from the Fenner or Munnsville Wind Farms. These include Viewpoints 3 (multiple views), 14, 45, 50, 51, 58 and 68. These simulations illustrate four distinct scenarios:

1. The existing wind turbines are in the foreground and are the dominant feature in the landscape. The addition of the Hoffman Falls Facility in the middle ground constitutes an increase in the affected area. The simulation from viewpoint 50 illustrates this scenario. In viewpoint 50, the rating panel suggested that the addition of the Hoffman Fall Facility results in moderate visual contrast. Due to the distance of the nearest proposed turbine, the scale, in comparison to the existing Fenner turbine appears consistent, but the increased scale, and form contrast with the perceived land use, sky, and viewer activity resulted in moderate to moderate/appreciable contrast, respectively. Some rating panel members stated that the proposed Facility appears as an extension of the existing turbines, but the presence of additional turbines results in an expansion of the affected area within the view, resulting in multiple focal points.

2. Both the existing Fenner Wind Farm and the Hoffman Falls Facility are in the middle ground. Viewpoint 3 is the most comprehensive example of this scenario since most of the Fenner and Hoffman Falls wind turbines are visible across multiple simulations from a single location. In this viewing scenario, the Hoffman Falls wind turbines are noticeably taller than the Fenner turbines, but their form and color is very similar. The proposed turbines appear as an extension of the Fenner wind farm, resulting in an expansion of the impact due to minimal/moderate scale, form, and color contrast with the vegetation, land use, and viewer activity and moderate contrast with the sky. As the existing and proposed turbines are viewed from approximately 3.3 miles, the overall impact of this expansion results in minimal/moderate contrast (Figure 5.2-11).

3. The existing wind turbines are background features, and the Facility is viewed in the near-foreground. In Viewpoint 23 the Munnsville project is visible in the distance at 7.5 miles away. The proposed turbines are the dominant feature in this view and the Munnsville wind turbines have minimal cumulative effect contribution due to the very small perceived scale at this distance from the viewer and intervening topography and vegetation.

4. The wind turbines are out of frame and would require the viewer to turn to view either the Facility or the existing wind farm (combined succession). Viewpoint 68 provides a representative example of this scenario. In this scenario, the viewer is generally surrounded by two renewable energy uses that have similar scale and land use contrasts. From viewpoint 68, the addition of the Hoffman Falls Facility results in minimal to moderate contrast with land use, sky, and viewer activity. If the viewer looks 90 degrees to the left of the photosimulation provided, similar impacts result from the existing Fenner wind turbines. Considered together, this view could be elevated to moderate to appreciable due to the cumulative effect of both projects.

Sequential viewing of multiple energy generation projects experienced while travelling through the region is another form of cumulative visual impacts. Depending on the specific travel route, this could result in views of multiple energy generation facilities as the viewer passes through the area, giving the cumulative impression of a modified landscape. However, sequential viewing of multiple projects would only occur along a very specific route of local roads due to the siting of the existing and proposed solar generation facilities on mostly local roads, as opposed to primary arterial routes. Perryville Road is an example of a local road that offers views of the Fenner Wind Farm and the Hoffman Falls Wind Project in a sequential manner. However, major arterials like Scenic Route 20 would likely have views of small portions of the Hoffman Falls, Fenner, and Munnsville projects, but not the proposed Oxbow Solar project. As such the Hoffman Falls Project will result in a greater number of viewing opportunities along sections of this scenic byway. However, as mentioned previously, the existing wind facilities have been a part of the landscape for 15 to 20 years.

If additional large scale solar and/or wind power projects are proposed and ultimately built in the future, the opportunity for sequential viewings would increase. The overall effect of sequentially passing through or near multiple renewable energy projects while travelling through the VSA will likely be the perceptions of a rather broad-scale transition from an agricultural landscape to one dominated by a mix of agriculture and energy generation uses.

Figure 5.2-11. Panorama Sequence Illustrating the Hoffman Falls and Fenner Wind Projects

6.0 CONCLUSIONS

6.1 Summary of the VIA

The results of the VIA for the Hoffman Falls Wind Project are summarized as follows:

1. Viewshed analysis based on existing topography, vegetation, and structures indicates that the proposed wind turbines will be screened from approximately 76.3% of the VSA (i.e., 23.7% of the VSA is indicated as having potential visibility of one or more wind turbines). This limited visibility from the surrounding area is primarily attributable to the presence of rolling topography and forestland throughout the VSA and woodlots and hedgerows abutting open agricultural area. Areas of actual visibility are anticipated to be more limited than indicated by the viewshed analysis due to the slender profile of the turbines (especially the blades, which make up the top 231 feet of each turbine), roadway vegetation not considered by the viewshed analysis, and other visibility limiting factors, such as atmospheric perspective and human visual acuity.

2. The middle ground distance zone has the greatest geographic area of potential wind turbine visibility (31.5 square miles), but due to the extent of this distance zone the visible area occupies only 27.8% of the total distance zone.

3. The near-foreground distance zone has the greatest proportional area of visibility (84.0%), which, due to the limited extent of this distance zone, occupies only 0.2 square miles of land occurring entirely on the Facility Site or participating parcels. All of this area is within the turbine set-back zone which excludes homes and public roads. The foreground distance zone is indicated to have potential visibility from 51.1% (6.7 square miles) of its total land area, of which, 40.4% (2.7 square miles) square miles would occur on the Facility Site. When the Facility Site is excluded from the results, areas with potential for wind turbine visibility are reduced to 30.4% (4.0 square miles) of the foreground distance zone. Therefore, when the Facility Site is excluded from the viewshed results, the foreground distance zone has the highest percentage of wind turbine visibility from land not within the Facility Site.

4. From 72% (32.6 square miles) of locations indicated to have wind turbine visibility, views would include 10 turbines or less and 48.3% (21.9 square miles) of visible areas would view five turbines or less. In both instances nearly 70% of these locations will occur in the middle ground distance zone. Potential visibility of 16 or more turbines is indicated to occur within 13.5% (6.1 square miles) of the viewshed and only 6.4% (2.9 square miles) would view 20 to 24 turbines. Approximately 59% of views with 20 to 24 turbines would occur in the middle ground distance zone, and approximately 38% would occur in the background distance zone, typically in elevated locations with open agricultural fields.

5. The LSZ with the least amount of potential wind turbine visibility based on geographic area is the Hamlet LSZ (7.8% [0.1 square miles]). Based on the location of this LSZ the visibility occurs entirely in the middle ground and background distance zones, and views would be substantially limited to

five turbines or less. Similarly, the Water and Village LSZs are indicated to have limited wind turbine visibility, occurring within 14.9% (0.6 square miles) and 14.0% (0.5 square miles) of these LSZs, respectively. Potential visibility in the Water LSZ will only occur in the middle and background distance zones and will be substantially limited to less than five turbines. Potential visibility from the Village LSZ is substantially limited to the middle ground and background distance zones and is generally limited to 5 or less turbines. There is potential for views of more than 16 turbines in discrete locations in the Village of Morrisville. The Forest LSZ is indicated to have the lowest proportion of potential wind turbine visibility, with visible areas limited to 2.6% (2.2 square miles) of the total land area within the LSZ due to the combined effect of screening provided by existing forest vegetation and topography.

6. The greatest potential for visibility the proposed wind turbines, in terms of both geographic area and percent of the LSZ's total area, occurs within the Agricultural/Rural Residential LSZ due to the size of this LSZ, elevated viewer positions on rolling topography, and relatively little screening vegetation and structures in this LSZ. Viewshed analysis indicates that 42.0% of this LSZ could potentially have views of one or more of the proposed turbines. Of this visible area 45.9% (19.3 square miles) would have views limited to five turbines or less, and only 14.3% (6.2 square miles) would have views of 16 turbines or more.

7. As described in Section 4.1.1, the viewshed analysis does not consider screening elements within 50 feet of roadways, it is anticipated that the viewshed analysis likely overstates potential visibility from certain roadside locations. As confirmed during field work (see Section 5.1.4), this condition was observed within developed areas in the Hamlet and Village LSZs where street/yard trees and nearby structures would limit or entirely screen views from areas where Facility visibility was indicated by the viewshed analysis. It was also observed throughout the VSA that the count of visible turbines may be more limited than indicated by the viewshed analysis due to the distance at which turbines are viewed, and partial screening by vegetation in the background of many views, particularly in locations where visibility is limited to the narrow turbine blade-tips.

8. Viewshed analysis indicates that the wind turbine FAA lights will be screened from approximately 80.2% of the VSA (i.e., one more FAA lights could be visible from 19.8% of the VSA). The FAA light count analysis indicates that from 78.6% of areas with potential FAA light visibility, views would be limited to 10 turbines or less and from 56.2% of visible areas views would be limited to five turbines or less. Based upon the nighttime photos/observations of existing wind power projects, the red flashing lights on the turbines could result in a nighttime visual impact on certain viewers. The actual significance of this impact from a given viewpoint will depend on how many turbines are visible, what other sources of lighting are present in the view, the extent of screening provided by structures and trees, and nighttime viewer activity/sensitivity. However, night lighting could be somewhat distracting, and could have an adverse effect on rural residents and recreational users that currently experience (or expect) dark nighttime skies. It is anticipated that nighttime visibility/visual impact will be reduced due to the concentration of residences in villages, hamlets, and along highways where existing lights already compromise dark skies and compete for the viewer's attention. If

approved for the Facility, the proposed ADLS tower (see description in Section 2.2.5) could substantially reduce nighttime visual impacts by reducing the amount of time the FAA lights are operating. In the case of an approved ALDS tower, the lights on the turbines would only be operating during the time in which a passing aircraft is overhead.

9. Viewshed analysis indicates that the proposed interconnection facility would be screened from 97.9% of the 4-mile radius study area (i.e., 2.1% of the study area may have some degree of visibility of the interconnection facility). Visibility of the proposed collection substation and POI switchyard would substantially be limited to the Agricultural/Rural Residential LSZ. Visibility of these components is most concentrated within 0.5 miles of the interconnection facility site and on distant hill crests northeast and northwest of the site. Due to topography and the relatively low height of the facility components, open views of the interconnection facility will be limited to locations adjacent to the site. More distant views will be limited to the narrow upper portion of the facility components which will be difficult to resolve at distances greater than 1.0 mile.

10. Viewshed analysis indicates that the proposed MET tower would be screened from 91.3% of the 4-mile radius study area (i.e., 8.7% of the study area may have views of some portion of the MET tower). Visibility of the proposed MET tower is indicated to be most concentrated within 1.2 miles of the tower and on hill crests east of the site. Due to topography and dense vegetation surrounding a majority of this site views from distances greater than 1.0 miles will be substantially limited to the upper portion of the tower which are likely to go unnoticed by casual observers at such distances.

11. Viewshed analysis indicates that the proposed ADLS tower would be screened from 96.4% of the 4-mile radius study area (i.e., 3.7% of the study area may have some degree of visibility of the ADLS tower). Visibility of the proposed ADLS tower would be most concentrated directly adjacent to the tower and in agricultural fields within 1.4 miles west of the tower. Due to the modest height of the tower views from more distant locations will be substantially limited to the upper components of the system which are likely to go unnoticed by observers at distances greater than 1.0 miles.

12. The viewshed analysis indicates that one or more wind turbines could be at least partially visible from 212 of the 279 identified VSRs that occur within the VSA. Generally, those VSRs located in the near-foreground and foreground distance zones with a high percentage of visibility (as indicated by the viewshed analysis) will likely experience greater visual impact typically resulting from the nearest turbines. While six VSRs located in the near-foreground are indicated to have views of the wind turbines, these areas of visibility occur from locations within the Facility Site. Of the 13 VSRs with foreground visibility, views will typically be limited to one or two foreground turbines. However, three of these VSRs, magnificent Madison Bike Trial (VSR ID# 150 [7 foreground turbines]), the Bicentennial Architecture Trail (VSR ID# 149 [4 foreground turbines]), and the Morrisville Swamp (VSR ID# 202 [5 foreground turbines]), are indicated to have visibility of up to seven foreground turbines. Visibility of all foreground turbines from the trails would not typically occur from any single vantage point, rather the view of these turbines would be sequential as users move along the trail. Although potential visibility of foreground turbines is limited a greater number of middle ground

or background turbines could be visible from these resources. However, As indicated by the rating panel results, a small number of foreground turbines introduced to a view would generally result in higher visual contrast than a greater number of turbines viewed at a greater distance.

13. VSRs likely to be least impacted by potential visibility of the Facility typically occur in the background distance zone. Of the 110 VSRs located in the background distance zone 33 are indicated by the viewshed analysis to have potential wind turbine visibility. The extent of Facility visibility from this distance would be variable, with views from any given VSR ranging from one visible turbine to 24. However, views of the Facility from this distance will typically include expansive views where the Facility would occupy a limited portion of the larger view, and, due to the location of the proposed wind turbines, would often include existing wind turbines. As indicated by the contrast rating panel for Viewpoints 58, 60, and 63, occurring at distances of 4.0 to 4.9, and representing resources such as the Lorenzo State Historic Site, Stone Quarry Hill Art Park, and the Town of Nelson Scenic Roadway, visual contrast presented by the Facility would range from insignificant to minimal/moderate.

14. Field review confirmed that the areas with the greatest potential for views of wind turbines in the foreground occur adjacent to open agricultural fields abutting the Facility Site. Open views will also be available from more distant elevated locations within the Agricultural/Rural Residential LSZ that offer open panoramic views oriented toward the Facility. Forested areas offer fewer opportunities for open views of the Facility, but these limited locations where visibility would occur are scattered throughout the VSA. The Hamlet and Water LSZ offer fewer opportunities for views of the wind turbines, and most of these views will be limited to discrete turbines tightly framed and/or partially screened by vegetation, structures., and topography. While this condition was also observed from the majority of the Village LSZ, visibility in the Village of Morrisville will be more substantial. However, even in the Village of Morrisville views will typically be limited to discrete clusters of the nearest turbines that are partially screened by topography and vegetation.

15. Simulations of the proposed Facility indicate that the visibility and visual impact associated with the wind turbines will be variable, based on landscape setting, extent of natural screening, presence of other man-made features and/or visual clutter in the view, baseline scenic quality, viewer sensitivity, distance of the viewer from the Facility, and the number of turbines visible in the view. Evaluation by a rating panel of registered landscape architects and planners indicates that the Project's overall contrast with the visual/aesthetic character of the area will generally result in moderate contrast with the existing landscape. Based on the contrast rating scores and comments, greater levels of contrast can be anticipated where open views of multiple turbines are available from close distance (less than 1.0 mile), which tended to heighten the Facility's contrast with existing elements of the landscape in terms of line, form, and especially scale. Conversely, contrast is reduced when turbines are partially screened, viewed at greater distances, seen in the context of a working agricultural landscape, viewed in a setting with existing visual clutter, or co-located with currently operating wind project. Potential visual impact by LSZ is summarized below:

- The Agricultural/Rural Residential LSZ offers the greatest opportunities for views of the proposed Facility, and from many vantage points, views of multiple wind turbines are available in close proximity to the viewer, resulting in moderate to appreciable contrast with the existing landscape. However, the Facilities overall impact is mitigated by the limited number of viewers and sensitive resources found in this LSZ, visibility of existing wind farms, and the compatibility of the turbines with the working agricultural land use that characterizes most views.

- Within the Village LSZ, sensitive resources and viewers are more abundant. However, the Facility's visual impact is generally limited due to distance from the wind turbines and the compatibility of the turbines with man-made structures and utility infrastructure in the view. However, visibility from portions of the Village of Morrisville, particularly in open portions of the SUNY Morrisville campus, was indicated to have moderate visual contrast due to moderate contrast with the sky and landform and moderate/appreciable contrast with viewer activity. Potential visibility from the Village of Cazenovia was determined to be substantially screened by existing vegetation and topography. Therefore, selected viewpoints were developed as wireframe renderings where were not provided to the rating panel.

- Within the Forest, Water, and Hamlet LSZs, screening provided by trees, structures, and/or topography generally limit the number of visible turbines. As such, viewpoints selected from these locations were developed as wireframe renderings rather than photo simulations, and were not provided to the visual contrast rating panel. Where views are available, the Facility's visual impact is likely to be highly variable based on the number and proximity of visible turbines, the presence or lack of visually sensitive resources, baseline scenic quality, and the visibility of currently operating windfarms.

16. Based on surveys of public attitudes toward wind power, public reaction to the aesthetic qualities of the proposed Hoffman Falls Wind Project turbines is likely to be generally positive, but also highly variable. Reactions will be based on proximity to the turbines, the affected landscape, and personal attitude of the viewer regarding wind power. High visual contrast also does not always indicate adverse visual impact. Many viewers do not consider wind turbines to be an aesthetic liability, and as Stanton (1996) notes, although a wind power project is a man-made facility, what it represents "may be seen as a positive addition" to the landscape.

17. Cumulative visual impacts associated with the Facility and operating or proposed renewable energy projects are anticipated. The opportunity for cumulative views of the Hoffman Falls Wind Project with the existing Fenner Wind Farm and Munnsville Wind Project were observed during field review. These views are also anticipated to be consistent with those likely to be available with the proposed Oxbow Hill Solar Project and Cody Road Wind Farm in place. Cumulative visibility/visual impact of the Hoffman Falls Wind Project and these facilities will vary based on specific viewing conditions.

Sequential viewing of multiple energy generation projects experienced while travelling through the region will also be available. Depending on the specific travel route, this could result in views of multiple energy generation facilities (both wind and solar) as the viewer passes through the area, giving the cumulative impression of a modified landscape. However, sequential viewing of multiple projects including the Hoffman Falls Wind Facility would only occur along specific travel routes. Major arterials like Scenic Route 20 would likely have views of small portions of the Hoffman Falls, Fenner, and Munnsville projects. As such the Hoffman Falls Project will result in a greater number of viewing opportunities along sections of this scenic byway.

18. Construction has the potential to result in short-term adverse visual impacts due to the transportation of Facility components, the presence of large construction equipment, and significant ground disturbance at access roads and turbine positions. However, these impacts are short term/temporary impacts that will last only for the duration of construction. In addition, because the turbines are generally well removed from adjacent public roads and residences, most on-site construction activities (other than increased traffic) will be screened from the majority of viewers. Upon completion of construction, construction vehicles and equipment will depart, and disturbed portions of the site will be restored.

6.2 Mitigation of Visual Impacts

The minimization and mitigation of visual impacts is an important consideration when siting and designing solar facilities. The Section 94-c regulations require development of a VIMMP that evaluates potential mitigation options such as relocation, camouflage/disguise, low profile, downsizing, use of alternative technologies, non-specular material, lighting, and screening. See the VIMMP for the White Creek Solar Project included as Appendix 8-B of the Section 94-c Application.

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ATTACHMENTS

Attachment A

Composite Overlay Map

Attachment B

Viewpoint Photolog

Attachment C

Visually Sensitive Resources Visibility Analysis

Attachment D

Photosimulations and Contrast Rating

Attachment E

Contrast Rating Forms and Panel Information

Attachment F

Stakeholder Outreach and Responses

Attachment G

Line-of-Sight Analysis