



Appendix II-M3

Visual Resources Assessment (VRA) - Onshore Facilities - Larrabee

Note:

On March 26, 2021, Atlantic Shores Offshore Wind, LLC (Atlantic Shores) submitted a Construction and Operations Plan (COP) to BOEM for the southern portion of Lease OCS-A 0499. On June 30, 2021, the New Jersey Board of Public Utilities (NJ BPU) awarded Atlantic Shores an Offshore Renewable Energy Credit (OREC) allowance to deliver 1,509.6 megawatts (MW) of offshore renewable wind energy into the State of New Jersey. In response to this award, Atlantic Shores updated Volume 1 of the COP to divide the southern portion of Lease OCS-A 0499 into two separate and electrically distinct Projects. Project 1 will deliver renewable energy under this OREC allowance and Project 2 will be developed to support future New Jersey solicitations and power purchase agreements.

As a result of the June 30, 2021 NJ BPU OREC award, Atlantic Shores updated Volume I (Project Information) of the COP in August 2021 to reflect the two Projects. COP Volume II (Affected Environment) and applicable Appendices do not currently include this update and will be updated to reflect Projects 1 and 2 as part Atlantic Shores' December 2021 COP revision.

Technical Report

Visual Resource Assessment

Atlantic Shores Offshore Wind Project Onshore Facilities – Larrabee Sites

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

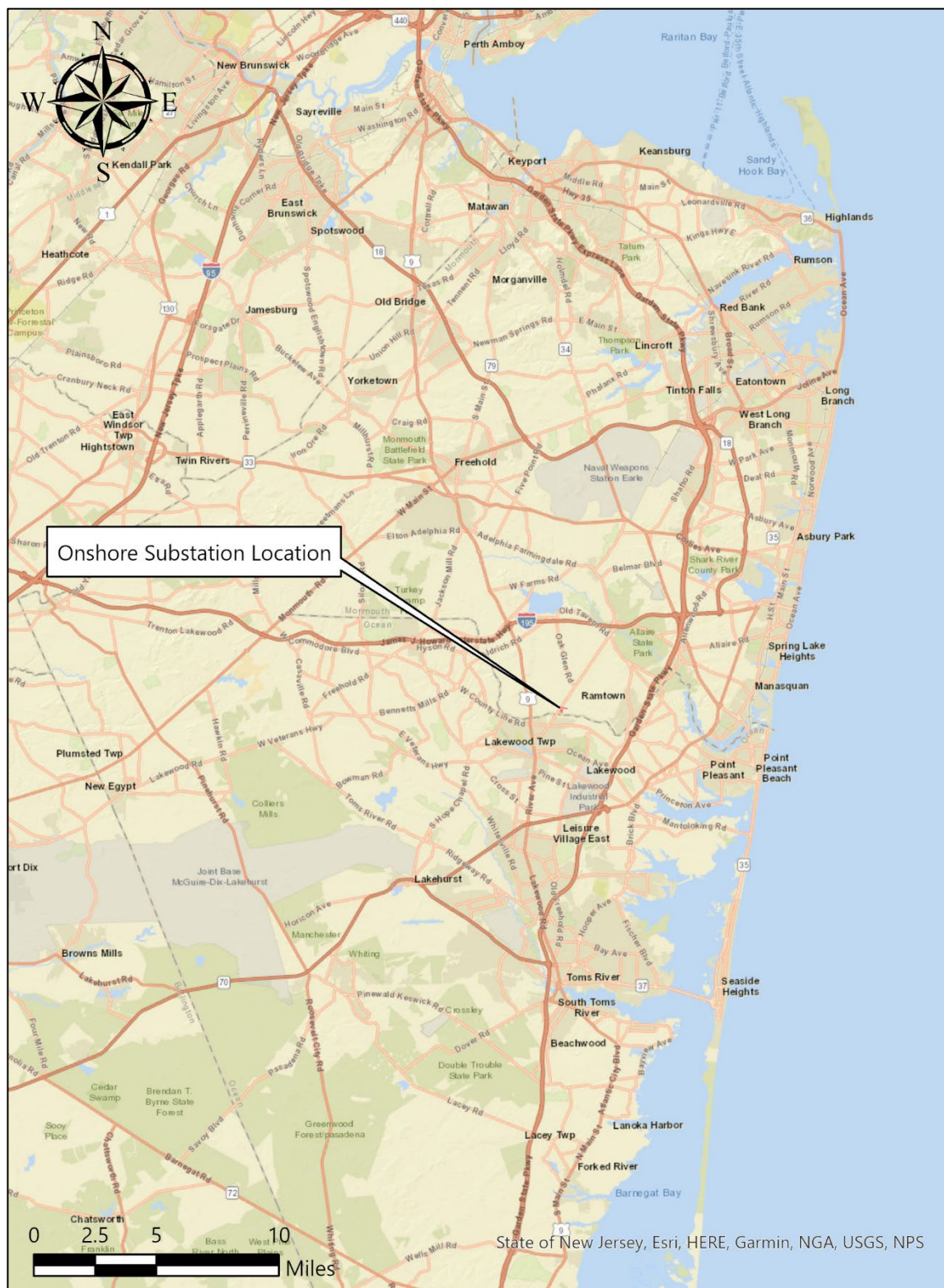
Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) was retained by Atlantic Shores Offshore Wind, LLC (Atlantic Shores) to prepare a Visual Resource Assessment (VRA) for the proposed onshore facilities associated with the Atlantic Shores Offshore Wind Project. The Atlantic Shores Offshore Wind Project is a wind-powered electric generating facility to be located in federal waters on the Outer Continental Shelf (OCS), in Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Areas OCS-A 0499. The Offshore Wind Project is composed of up to 200 WTGs and associated foundations, offshore substations (OSS), inter-array cables connecting the WTGs and the OSSs, inter-link cables connecting the OSSs together, and a submarine export cable to be located in both federal waters and New Jersey territorial waters that will connect the OSSs to the onshore facilities. The onshore facilities include the following components:

- A landfall location where the submarine export cable comes ashore. This facility will consist of underground transition vaults where the submarine cable will connect to the terrestrial circuits. It will be located in a previously disturbed area at the Army National Guard Training Center (NGTC) in Sea Girt Borough, New Jersey. The only visible feature of the landfall will be manhole covers above the transition vaults.
- Up to four underground interconnection cables that run from the landfall location to the proposed onshore substation location. The circuits will be buried beneath public roads and will follow Sea Girt Avenue west approximately 1.5 miles, then run south along Route 35 before turning northwest and following Edgar Felix memorial bikeway for approximately 2.5 miles to Hospital Road. The route then follows Hospital Road to the northeast to Atlantic Avenue (County Route 524). The route travels west along County Route 524 for approximately 2 miles to I-195. The route follows I-195 for approximately 0.75 mile to the County Route 547 interchange and then follows County Route 547 approximately 4 miles to the Larrabee Substation in Howell Township, New Jersey.
- A new onshore substation located at one of two possible sites in Howell Township; one at County Road 547 (Lakewood Farmingdale Road) and Randolph Road, the other on County Road 547 abutting the existing Larrabee Substation.
- An above ground or underground transmission line to connect the new onshore substation to the existing Larrabee Substation.
- A Point of Interconnection (POI) with the existing power grid at the Larrabee Substation.

Components of the onshore facilities that are proposed to be buried underground may involve temporary visual impacts during construction, including materials delivery, excavation/backfill, construction vehicle activity, and construction personnel. However, these will be temporary, short-term impacts, and the underground components will not have any long-term visual impacts once operational. Therefore, these below ground components of the onshore facilities are not addressed in this VRA. In addition, necessary modifications associated with the Larrabee Substation POI are currently being assessed and are unknown at this time. Therefore, any modifications associated with the POI are also not addressed in this report. Consequently, this VRA focusses on the proposed onshore substation (also referred to herein as the Project). The regional location of the onshore substation is shown on Inset 1.1-1. This VRA is based on preliminary and conceptual siting criteria for the proposed onshore substation. At this time a site plan and design specifications have not been developed and therefore visual simulations illustrating the proposed onshore substations cannot be prepared. Consequently, a revised supplemental VRA will be completed to evaluate its potential visual contrast with the existing landscape. This supplemental analysis will include photography of the existing visual conditions, evaluation of the existing landscape character, key observation point (KOP) selection criteria, visual simulations of the proposed onshore substation from representative KOPs, evaluation of the potential visual impacts resulting from the Project, and if required, mitigation recommendations.

Prior to development of the Project design details, the purpose of this VRA is to:

- Define the visual character of the visual study area (VSA) surrounding the onshore substation sites.
- Inventory and evaluate existing visually sensitive resources (VSRs) within the VSA.
- Evaluate potential Project visibility within the VSA.
- Evaluate potential Project visibility from VSRs.
- Evaluate the potential visual compatibility of the Project with the surrounding landscape.



Inset 1.1-1. Regional Project Location

1.2 Project Location and Description

The Project is located in Howell Township, Monmouth County, New Jersey. Two sites are under consideration for construction of the onshore substation; the County Road 547 (Lakewood Farmingdale Road) and Randolph Road site (preferred Site) and the County Road 547 site (alternative Site).

The preferred site is currently used as an active mulching business. This approximately 10.2-acre parcel is bordered to the north by Randolph Road, to the west by forested areas, and to the south by the existing Larrabee substation and forested land (see Inset 1.2-1).

The alternative site is approximately 110 feet south of the preferred site and consists of a junk yard, mixed forest, and transmission line right-of-way (ROW). This approximately 14.6-acre parcel is bordered to the north by the mulching business described above (the preferred site), to the west by a former railbed, to the east by the existing Larrabee Substation and to the south by an existing utility ROW and forested area (see Inset 1.2-1).

The onshore substation may use either an air-insulated or a gas-insulated switchgear design, pending development of the onshore substation final design. The substation design and specific equipment will depend on whether the transmission cables are high voltage alternating current (HVAC) or high voltage direct current (HVDC). If HVAC, the onshore substation will include up to four power transformers, static synchronous compensators (STATCOMs), shunt reactors, service station transformers, harmonic filter banks, and a substation control building. If HVDC, the onshore substation will include one transformer arranged in three single-phase transformers and a control building. Regardless of the specific components within the station, the onshore substation will have the appearance of a typical substation, including a variety of above-ground high voltage electrical structures and cables, generally silver or gray in color, enclosed within a chain link fence. For the purposes of this VRA, it is assumed that the tallest components within the onshore substation preferred site will be the transmission structures for possible above ground connection to the POI, which measure approximately 80 feet (24 m) and 125 feet (38 m) above ground level (AGL) respectively. The tallest components for the alternative site will be the lightning masts which would be approximately 80 feet (24 m) AGL.



Inset 1.2-1. Proposed Project Location

1.2.1 Visual Study Area

In order to define the maximum area of potential visual effect associated with the Project, EDR defined the VSA as all areas within 3 miles of both the preferred and alternative Project Sites (see Inset 1.2-2). The 3-mile VSA is consistent with accepted visual studies completed for aboveground electrical transmission facilities in New York, Rhode Island, and New Hampshire. The 3-mile VSA is a conservative study area for facilities of this type, based on human visual acuity thresholds. Assuming a maximum resolution of the human eye is conservatively 28 seconds of an arc or 0.008 angular degrees (Deering, 2019) at 3 miles, human vision can resolve an object that is approximately 2 feet in diameter. Because the tallest portions of the onshore substation (the lightning masts) are much narrower than this, the VSA conservatively encompasses the area in which the onshore substation could potentially have an effect on visual resources. The VSA includes approximately 31.1 square miles primarily within Howell and Lakewood Townships, and portions of Brick, Jackson, and Wall Townships, New Jersey. Within the VSA, EDR characterized the landscape, identified visually sensitive resources of national, regional, and statewide significance, and assessed potential Project visibility. It should be noted that the VSA represents an inventory area established for the purpose of identifying all potentially affected visual resources. Analyses of potential visual effect will focus on resources within the VSA indicated as potentially visible based on the viewshed analysis (see Section 2.1.1).



Inset 1.2-2. Visual Study Area

1.2.2 Existing Landscape Character

1.2.2.1 Landscape Types

Definition of landscape character within a given VSA provides a useful framework for the analysis of a facility's potential visual effects. Landscape types (LTs) within the VSA were categorized based on the similarity of various features, including landform, vegetation, water, and/or land use patterns, in accordance with established visual resource assessment methodologies (Smardon et al., 1988; USDA Forest Service, 1995; USDOT Federal Highway Administration, 1981; USDI Bureau of Land Management, 1980). The New Jersey Department of Environmental Protection (NJDEP) 2015 Land Use/Land Cover data set (2015 LU/LC) was used to help define the character and location of various LTs within the VSA (see Inset 1.2-3). The landscape types defined within the VSA are described below.

Forest

The Forest LT dominates the landscape within the VSA and comprises approximately 38.8% of the VSA. The Forest LT is mainly comprised of the New Jersey pine barrens, which is represented in the 2015 LI/LU data as Coniferous Forest, Deciduous Forest, Atlantic White Cedar Wetlands, and Mixed Wooded Wetlands. This LT is characterized by large areas of successional and mature forest. Local roads, parkland, small areas of open water, and an

occasional isolated residence are also present in places, but are minor components of the LT. Significant areas of undeveloped forest land are located throughout the VSA but are most abundant in the northern portion. Forest vegetation also typically occurs in and around recreational areas, natural areas, and other visually sensitive resources. Public access to most forest land within the study area is limited, and long-distance views within the zone are generally either fully or partially screened by woody vegetation. Outward views from this LT may be available when directly bordering large open areas such as commercial or industrial parking areas, and this LT often provides screening and framing of views from adjacent LTs.

Medium Density Residential

The Medium Density Residential LT occurs throughout the VSA, but primarily within the Townships of Lakewood and Howell, with limited occurrence in the Townships of Brick and Jackson. These areas are characterized by small lot residential neighborhoods that typically occur along the frontage of major roads, and on secondary roads and cul-de-sacs spurring off the main roads. Buildings are one- and two-story wood-framed structures with peaked roofs and clapboard or shingle siding, typically surrounded by well-maintained lawns and landscaped yards with tree-lined streets. The streets are well organized in layout and appearance and are often curvilinear in form. Typical user activities include home and yard use/maintenance, as well as local travel. Views that are available in this LT are generally limited by adjacent structures and/or trees that occur at the edges of the yards.

Industrial

The Industrial LT occurs primarily in scattered locations throughout the northern portion of the VSA and within a concentrated cluster on the southeastern VSA boundary along Cedarbridge Avenue (County Route 528). Industrial sites within the VSA tend to be located on contained sites set further back from the road and/or surrounded by dense vegetation (e.g., Oak Glen Plaza Industrial Park, Oak Glen Road, Howell Township). The industrial development within this LT includes a variety of land uses ranging from solar energy facilities to electric substations, vacant former industrial lots, and structures for warehousing and manufacturing that vary widely in size and age. Views looking out from this LT may be available at sites with large areas of open pavement, such as roadway networks and parking lots. However, many sites, even those with large paved areas, are set within the Forest LT, which provides screening on multiple sides.

Commercial

The Commercial LT occurs primarily along Ocean Avenue, and US Route 9 in the southern and western portions of the VSA, respectively. Development in this area is a combination of automotive retailers, large retail complexes, and older strip development often with additional out-buildings. The businesses within this LT typically include large surface parking and monument signage, which in combination with overhead electric wires and road signage, often results in visual clutter. Views within the LT are generally oriented along roadway corridors and toward the commercial buildings. While commercial structures and modest onsite landscaping in the form of planted parking islands may provide some visual screening, long distance views across parking areas and down open roadway corridors are available in many locations.

Low Density Residential

The Low Density Residential LT tends to be scattered throughout the northern portion of the VSA, often in association with the Forest LT. Development in this LT generally consists of large lot single family residential structures of the mid to late 20th century. However, a small section along Lakewood Farmingdale Road (County Route 547) holds a cluster of mobile and modular homes tucked off the main road within a forested setting. Views in this LT are mostly obstructed, or partially blocked by surrounding forest vegetation.

High Density Residential

The High Density Residential LT occurs primarily in small clusters scattered throughout the southern portion of the VSA. Buildings are relatively new multi-family townhouses or multi building apartment complexes. The structures in this LT are typically closely spaced and have shared parking facilities. Where landscaping is available it presents

as well-maintained lawns and landscaped yards with scattered trees throughout. Individual development complexes are often separated by remnant areas of forest. The streets within a complex vary considerably and may be set as a grid, on diagonals, or be curvilinear formation. Views that are available in this LT are generally limited by the adjacent structures, and/or trees that occur at the edges of the yards.

Transportation

The Transportation LT contains the Garden State Parkway, which generally runs north to south through the southeastern to eastern portion of the VSA. This highway is a limited access roadway that is dominated by utilitarian, transportation-oriented features including automobiles, large expanses of pavement, guardrails, overpasses, and directional signs. Views within the Transportation LT are generally focused along the orientation of the highway. Viewer perspective is generally at ground level and heavily screened by dense surrounding forestation, although the zone is occasionally elevated at overpass locations and offers more distant peripheral views. However, adjacent forest vegetation and/or roadside development generally limits these outward views.

Inland Water

This LT consists of the lakes, ponds, and streams within the VSA, including Lake Carasajlo and Lake Shenandoah. Several of these waterbodies have public access areas for water-based recreational activities, including boating and fishing. The character-defining component of this LT is the presence of open water as a dominant foreground element in the view. The open water may also provide opportunities for unobstructed views of more distant features in the surrounding landscape, although the majority of inland waterbodies associated with this LT have heavily forested shorelines that screen views beyond the waterbody. Views from the shorelines are typically oriented toward the water, while views from the surface of these waterbodies typically include dense shoreline vegetation and occasional roadways, recreation areas, or residential/industrial development.

Recreation

The Recreation LT is scattered throughout the VSA in small areas typically surrounded by developed lands. Areas within the Recreation LT include sport fields and courts, playgrounds, and golf courses, as well as shoreline parks with walking trails. Views within this LT are typically available across open lawn areas, roads, and parking areas but visibility becomes quickly obstructed by vegetation, and/or structures and buildings along the LT border. Typical viewer activity in this LT ranges from passive recreation to active sporting events.

Agriculture

The Agriculture LT is scattered throughout the northern portion of the VSA, with small areas also present in the southeastern quadrant. Agricultural lots within the VSA are typically small cultivated fields that sit at the periphery of developed areas. However, within the northeastern portion of the VSA larger clusters of the Agricultural LT tend to support equestrian uses. Agricultural fields in either area typically provide longer range open views. However, these fields are typically surrounded by dense forest vegetation which effectively screens outward views.

1.2.2.2 Environmental Justice Areas

In addition to the identified landscape types within the VSA, Environmental Justice Areas (EJAs) were identified and mapped (see Inset 1.2.3). Implemented in 1994, Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," directs attention to a project's environmental and human health effects on minority and low-income populations. While this order addresses actions undertaken by federal agencies, states have additionally identified parameters to define EJAs at the state level to mitigate the potential for disproportionately high and adverse human health of environmental impacts on minority, low-income, and/or Indian tribes and indigenous communities and populations from state actions. The parameters for identifying these areas is further described in Section 7.2 of the Construction and Operation Plan (COP). While EJAs are not defining characteristics of the landscape, these areas, designated by census tracts and/or block groups, cover a broad landscape area. As such, EJAs are identified as a landscape type overlay to ensure the visibility and potential visual impacts can be adequately addressed.

1.2.3 Distance Zones

Distance zones are typically defined in visual studies to divide the VSA into distinct subareas based on the various levels of landscape detail that can be perceived by a viewer. Three distinct distance zones were developed for this purpose. To define these zones, EDR consulted several well-established agency protocols, including those published by the U.S. Forest Service (USFS), Bureau of Land Management (BLM), and U.S. Department of Transportation (USDOT), to determine the appropriate extent of each distance zone. Based on the characteristics of the specific landscape being evaluated in this VRA, EDR defined distance zones within the VSA (as measured from the proposed Project) as follows:

- **Near-Foreground:** 0 to 0.5 mile. At this distance, a viewer is able to perceive details of an object with clarity. Surface textures, small features, and the full intensity and value of color can be seen on foreground objects.
- **Foreground:** 0.5 to 1.5 miles. At this distance, elements in the landscape tend to retain visual prominence, but detailed textures become less distinct. Larger scale landscape elements remain as a series of recognizable and distinguishable landscape patterns, colors, and textures.
- **Middle Ground:** 1.5 to 3.0 miles. The middle ground is usually the predominant distance at which landscapes are seen. At these distances, a viewer can perceive individual structures and trees but not in great detail. This is the zone where the parts of the landscape start to join together; individual hills become a range, individual trees merge into a forest, and buildings appear as simple geometric forms. Colors will be distinguishable but subdued by a bluish cast and softer tones than those in the foreground. Contrast in texture between landscape elements will also be reduced.

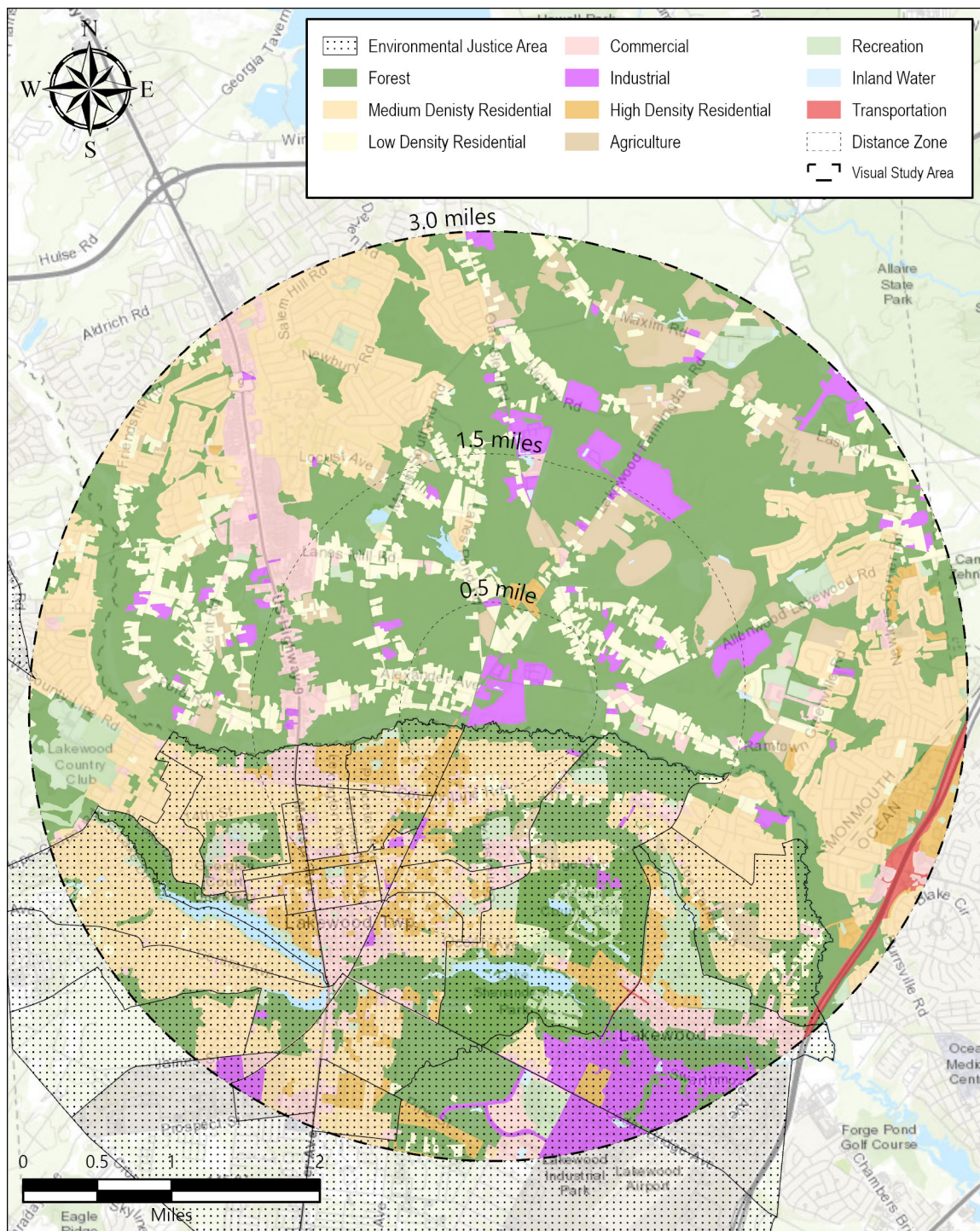
1.2.3.1 Landscape Type Occurrence by Distance Zone

The area of each LT falling within each distance zone in the VSA is summarized in Table 1.2-2. As shown in this table, the distribution of LTs within the individual distance zones is fairly consistent. The Forest LT makes up the greatest percentage in all three zones. Within the near-foreground and foreground distance zones Forest is represented at 53% and 47%, respectively. However, within the middle ground distance zone the Forest LT makes up only 35%. Low Density Residential is primarily found within the near foreground and foreground at 15% and 13%, respectively, and decreases within the middle ground to 6%. This can be attributed to the increase of Medium Density Residential within the middle ground distance zone (31%). However, High Density Residential remains roughly consistent throughout all distance zones, ranging from 4% to 6%.

Table 1.2-2 Landscape Types Occurring in Each Distance Zone

Landscape Type	Percent of LT within the Near Foreground	Percent of LT within the Foreground	Percent of LT within the Middle Ground
Forest	53.0	46.8	35.4
Medium Density Residential	13.3	14.1	31.0
Low Density Residential	15.4	12.6	6.0
Commercial	0.6	8.9	6.9
Industrial	11.1	2.4	5.4
High Density Residential	5.2	6.3	4.0
Agriculture	1.4	5.3	4.3
Recreation	<0.1	3.0	4.9
Inland Water	0.1	0.7	1.3

Landscape Type	Percent of LT within the Near Foreground	Percent of LT within the Foreground	Percent of LT within the Middle Ground
Transportation	0.0	0.0	0.8
Total	100	100	100



Inset 1.2-3. Landscape Types and Environmental Justice Areas within the Visual Study Area

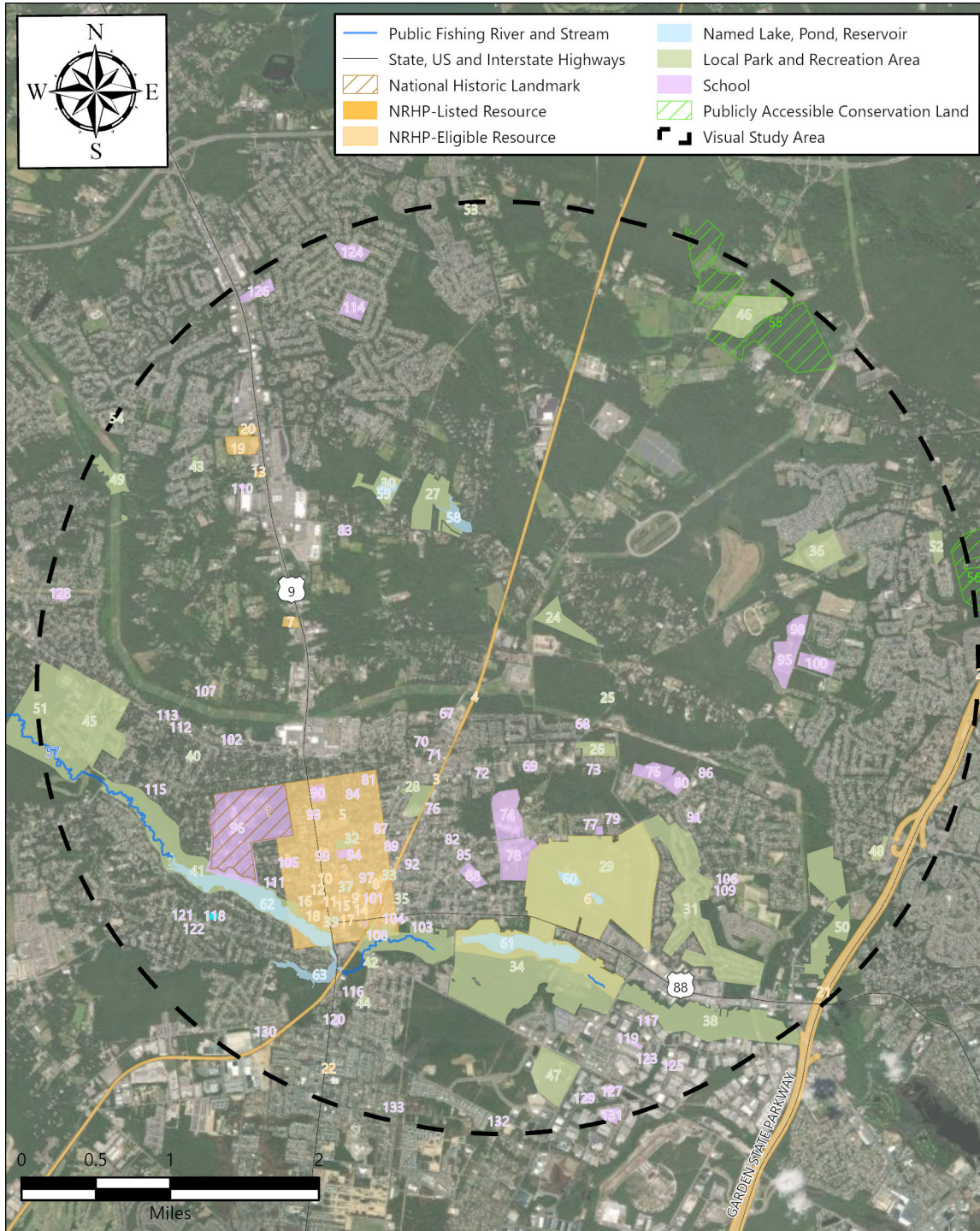
1.2.4 Visually Sensitive Resources

The identification of visually sensitive resources is an important step in determining locations which may be particularly sensitive to visual change. These resources have generally been identified by national, state, or local governments, organizations, and/or Native American tribes as important sites which are afforded some level of recognition or protection. Avoiding or minimizing impacts to these resources is an important consideration in the planning stages of a project. For this VRA, an inventory of visually sensitive resources within the VSA was prepared. This inventory determined that the VSA includes 133 visually sensitive resources (VSRs), which are listed by category in Table 1.2-3 and depicted in Inset 1.2-4, below. Attachment A includes a complete list of individual resources.

Table 1.2-3 Visually Sensitive Resources within the VSA

Visually Sensitive Resources	Total VSRs within the VSA	VSRs within the Preferred ZVI	VSRs within the Alternative ZVI
Properties of Historic Significance	Total: 23	Total: 2	Total: 3
National Historic Landmarks (NHL)	1	0	0
National/State Historic Sites	0	0	0
Properties Listed on National or State Registers of Historic Places (NRHP/SRHP)	1	0	0
Properties Eligible for Listing on NRHP or SRHP	21	2	3
Designated Scenic Resources	Total: 0	Total: 0	Total: 0
Rivers Designated as National or State Wild, Scenic or Recreational	0	0	0
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic	0	0	0
Other Designated Scenic Resources (Easements, Roads, Districts, and Overlooks)	0	0	0
Public Lands and Recreational Resources	Total: 41	Total: 1	Total: 0
National Parks, Recreation Areas, Seashores, and/or Forests [16 U.S.C. 1c]	0	0	0
National Natural Landmarks [36 CFR Part 62]	0	0	0
National Wildlife Refuges [16 U.S.C. 668dd]	0	0	0
State Parks	0	0	0
State Nature and Historic Preserve Areas	0	0	0
State Forest Preserves	0	0	0
Other State Lands	0	0	0

Visually Sensitive Resources	Total VSRs within the VSA	VSRs within the Preferred ZVI	VSRs within the Alternative ZVI
Wildlife Management Areas & Game Refuges	0	0	0
State Natural Areas	0	0	0
State Forests	0	0	0
State Boat Launches/Waterway Access Sites	0	0	0
Designated Trails	0	0	0
Local Parks and Recreation Areas	31	1	0
Publicly Accessible Conservation Lands/Easements	2	0	0
Rivers and Streams with Public Fishing Rights Easements	1	0	0
Named Lakes, Ponds, and Reservoirs	6	0	0
High-Use Public Areas	Total: 70	Total: 2	Total: 3
State, US, and Interstate Highways	3	1	1
Schools	67	1	2
Total Number of Visually Sensitive Resources	133	5	6



Inset 1.2-4. Visually Sensitive Resources Within the Visual Study Area

2.0 VISUAL RESOURCE ASSESSMENT

Viewshed analysis was used to assess potential Project visibility within the VSA. Viewshed methodology and results are described below.

2.1 Viewshed Analysis

2.1.1 Viewshed Analysis Methodology

To determine the geographic areas of potential Project visibility, EDR conducted a lidar-based viewshed analysis. This analysis considers the height of the tallest aboveground Project components, along with a digital surface model (DSM) representing ground level elevations, vegetation, and structures present in the VSA. The DSM was derived from 2014 and 2018 United States Geological Survey (USGS) lidar data with a horizontal resolution of one meter. A geographic information systems (GIS) analysis of these data was conducted to determine whether a direct line of sight would be available from ground level vantage points to the tallest proposed Project components. If a direct line of sight is available, the position is coded as visible. The viewshed calculations for the preferred onshore substation site were based on 26 sample points to represent the tallest proposed structures; 24 sample points representing lightning masts, each with an assigned height of 80 feet and 2 sample points representing transmission structures, each at 125 feet. Sample points representing the lightning masts were placed throughout the onshore substation footprint as the precise location of these structures has not yet been determined. The alternate onshore substation site considered 67 sample points, all with an assigned height of 80 feet. The resulting geographic areas of potential Project visibility are referred to as the Project zone of visual influence (ZVI).

To assure an accurate assessment of potential Project visibility, a few modifications were made to the lidar-derived DSM prior to analysis. Transmission lines and road-side utility lines that are included in the lidar data are misrepresented in the DSM as solid walls/screening features. In order to correct this inaccuracy, DSM elevation values within such utility corridors were replaced with bare earth elevation values. Additionally, all areas within the Project limit of disturbance were modeled with bare earth elevation to reflect potential Project-related clearing/demolition in these locations. This modified DSM was then used as a base layer for the viewshed analysis. Once the viewshed analysis was completed, a conditional statement was used within ArcGIS® to set Project visibility 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 vantage point of standing on the tree top or building roof, 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 generally will be screened from views of the Project.

2.1.2 Viewshed Analysis Results

The viewshed analysis results suggest that approximately 0.6% of the VSA could have some level of Project visibility if either the preferred or alternate site is selected. In other words, 99.4% of the VSA will be completely screened from view of the proposed onshore substation on either site. The greatest potential for onshore substation visibility if located on the preferred site occurs within the near-foreground distance zone directly adjacent to the Project. These areas include industrial sites north of the Project Site associated with the existing Larrabee substation and utility ROWs connecting to it. Potential visibility in these areas is largely the result of close proximity to the Project and minimal vegetative screening. Potential visibility is also indicated to extend across the New Jersey Southern railbed and enter an adjacent residential area. However, due to existing vegetative screening in this area it is likely that visibility of the Project would be limited. The near-foreground distance zone also indicates potential visibility from an agricultural field north of the facility. Again, potential visibility at this location is likely limited due to screening provided by intervening vegetation and structures. Potential visibility within the foreground and middle ground distance zones is limited to the open transmission line ROWs connecting to the Larrabee substation and the Monmouth County Howell Landfill, both of which have minimal vegetation for screening.

Potential Project visibility of the onshore substation on the alternative site within the near-foreground distance zone generally occurs within the same areas described above, but with additional area along the utility corridor to the west of the site and extending further along the New Jersey Southern railbed to the south. Additionally, visibility is indicated to extend along Squankum Road and onto open industrial sites located between Squankum Road and the railbed. Lack of vegetative screening at these industrial sites allows visibility to spread to an adjacent apartment complex. However, intervening vegetation is likely to limit visibility to the upper portions of the onshore substation. Within the foreground ground distance zone potential Project visibility continues along the New Jersey Southern railbed, Squankum Road, and the ROWs connected to the Larrabee substation. An additional discrete area of visibility is indicated in the middle ground distance zone from the Monmouth County Howell Landfill.

The majority of Project visibility (70.8% if the preferred site is selected and 80.7% if the alternative site is selected), will occur within the Industrial and Forest LTs. If the preferred site is selected, an additional 19.1% of the ZVI occurs within the Agriculture LT. No other LTs within the VSA account for more than 5% of the ZVI. Of the 0.6% of the total VSA that falls within the ZVI for either of the potential project sites, the Industrial LT accounts for 0.3% in both scenarios.

Table 2.1-1 Landscape Types Within the VSA

Landscape Type	Acres Within VSA	Percent of VSA ¹	Percent of Visible Area within each LT Preferred Site ²	Percent of Visible Area within the VSA – Preferred Site	Percent of Visible Area within each LT Alternative Site ³	Percent of Visible Area within the VSA – Alternative Site
Forest	7733.3	38.8	24.9	0.2	37.8	0.2
Medium Density Residential	5251.3	26.4	0.1	<0.1	1.3	<0.1
Low Density Residential	1583.5	7.9	5.1	<0.1	4.2	<0.1
Commercial	1412.5	7.1	4.6	<0.1	4.1	<0.1
Industrial	976.0	4.9	45.9	0.3	42.9	0.3
High Density Residential	907.7	4.6	1.1	<0.1	7.1	<0.1
Agriculture	886.5	4.4	19.1	0.1	2.3	<0.1
Recreation	840.6	4.2	0.0	0.0	0.0	0.0
Inland Water	220.0	1.1	0.4	<0.1	0.3	<0.1
Transportation	116.2	0.6	0.0	0.0	0.0	0.0
Total	19927.6	100	100	0.6	100	0.6

¹The VSA includes approximately 31.1 square miles (80.5 sq. km.)

²The preferred ZVI includes approximately 0.2 square miles (0.5 sq. km.)

³The alternative ZVI includes approximately 0.2 square miles (0.5 sq. km.)



2.1.3 Viewshed Analysis Results from Environmental Justice Areas

A total of 26 EJAs were identified within the VSA. Based on the viewshed analysis results, 6 of these EJAs may have visibility of some portion of either Project site, and additional 4 EJAs may have visibility if the alternative site is selected.

Potential visibility relating to the preferred site is primarily concentrated in EJAs 340297154013, 340297153014, and 340297152001 (See Table 2.1-2 and Figure 2.1-2). Visibility in these areas make up an area consisting of 9.5 acres, or 0.3% of the combined area of the 3 EJAs. Potential visibility associated with the alternative site is primarily concentrated in EJAs 340297153011, 340297152001, 340297152003. Visibility within these areas comprise approximately 17.8 acres, or 0.5% of the 3 EJA's combined. Visibility of the preferred site within the EJAs is generally limited to areas surrounding the New Jersey Southern Railroad Historic District and Squankum Road which are aligned with Project and provide the potential for a direct line of site to portions of the preferred and alternative sites.

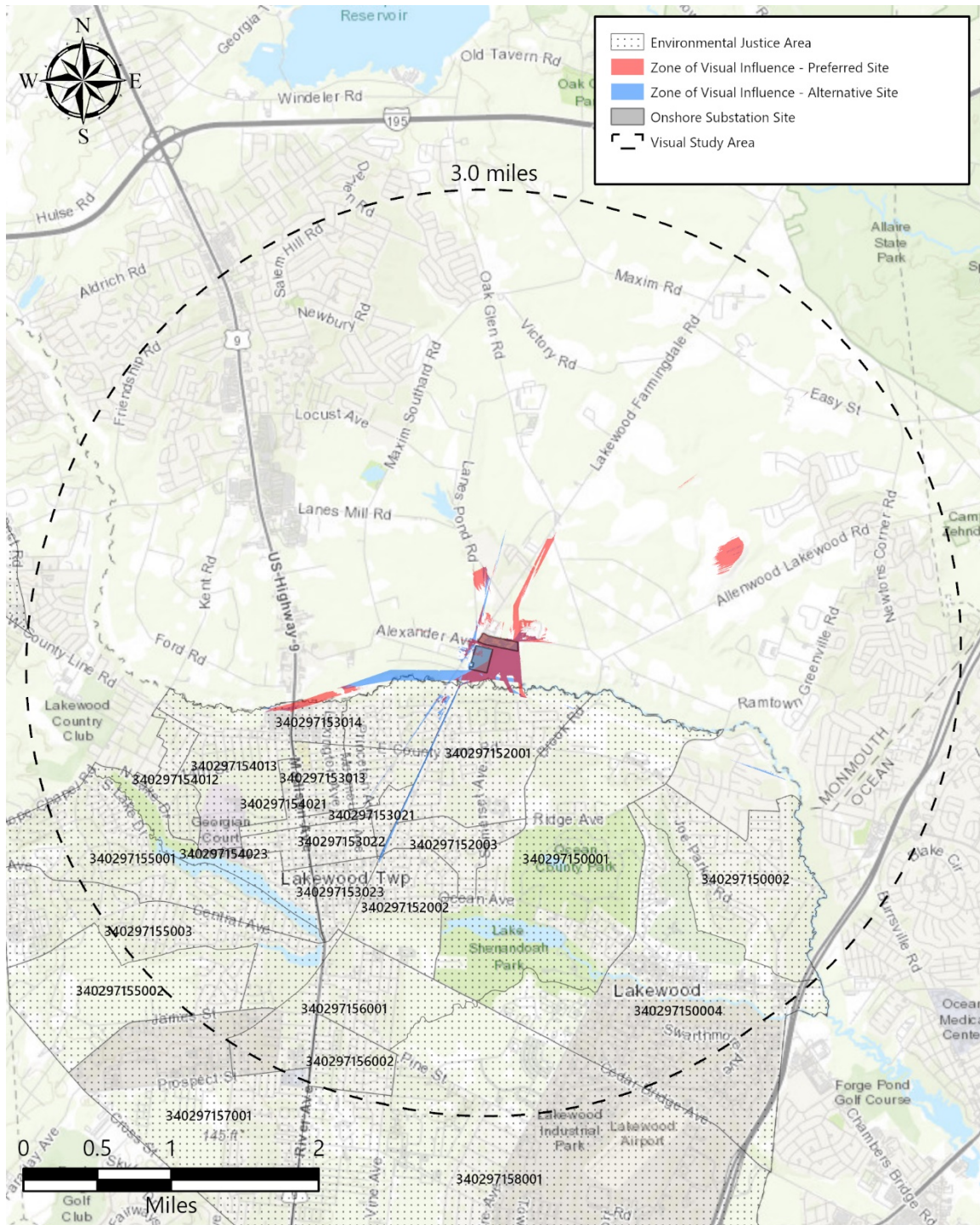
Table 2.1-2 Viewshed Analysis Results by Environmental Justice Area

Environmental Justice Area	Acres Within VSA	Percent of VSA ¹	Percent of Visible Area within each EJA Preferred Site ²	Percent of Visible Area within each EJA Alternative Site ³
340297152001	472.7	2.4	0.5	1.6
340297153012	100.1	0.5	<0.1	1.1
340297154013	378.4	1.9	0.9	0.4
340297150001	1249.9	6.3	0.0	<0.1
340297158001	543.8	2.7	<0.1	<0.1
340297152003	139.9	0.7	0.0	1.5
340297153011	188.5	0.9	0.4	4.3
340297153014	63.3	0.3	5.5	0.6
340297153021	61.7	0.3	0.0	0.6
340297153023	96.5	0.5	0.0	<0.1
340297152002	270.4	1.4	0.0	0.1
Total:	3,565.2			

¹The VSA includes approximately 31.1 square miles (80.5 sq. km.)

²The preferred ZVI includes approximately 0.2 square miles (0.5 sq. km.)

³The alternative ZVI includes approximately 0.2 square miles (0.5 sq. km.)



Inset 2.1-2. Viewshed Analysis Results by Environmental Justice Areas

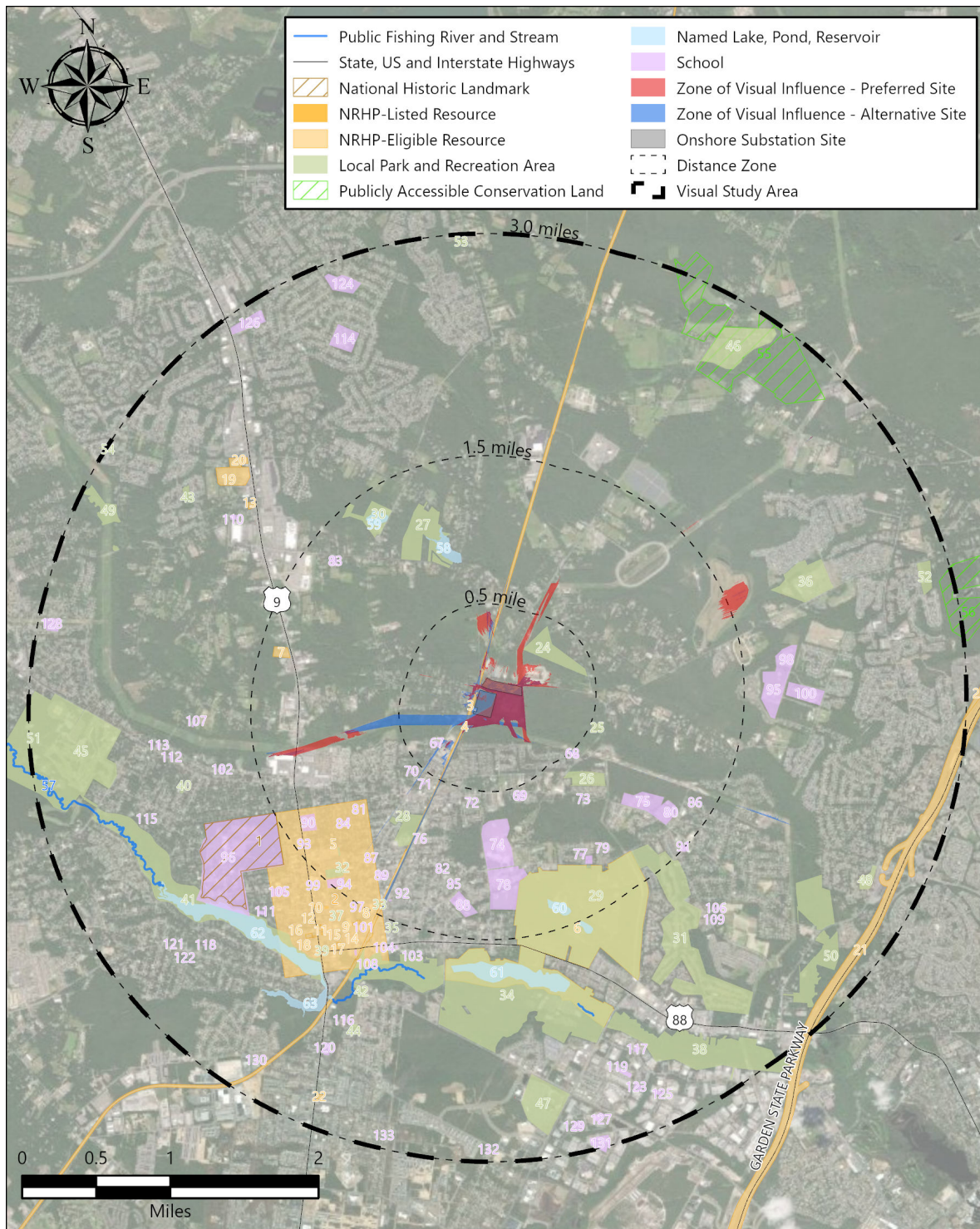
2.1.4 Visibility Results from Visually Sensitive Resources

Only seven (5%) of the 133 VSRs occurring within the 3-mile radius VSA were indicated as having potential visibility of the Project. Four of these VSRs indicate potential visibility if either site is selected. One additional VSR is affected if the preferred site is selected (i.e., five sites, 3.8%), and two additional VSRs are affected if the alternative site is selected (i.e., six sites, 4.5%). A description of these resources, their distance from the Project, and the nature and degree of potential Project visibility as indicated by the viewshed analysis for each site, is provided in Table 2.1-3 and Inset 2.1-3, below. Attachment A contains a full list of VSRs keyed to Inset 2.1-3, and potential Project visibility.

Table 2.1-3 Visually Sensitive Resources with Project Visibility

Resource Type	Resource Name	Distance from the Project (preferred/alternative mi.)	Description of Potential Visibility
Eligible Listing S/NRHP for	New Jersey Southern Railroad Historic District	0.0/0.0	The New Jersey Southern Railroad Historic District is a historically significant transportation corridor that passes both proposed facility sites along their western edge. Potential visibility of the onshore substation on the preferred site from this resource is largely limited to the near-foreground distance zone, however a narrow corridor of visibility extends approximately 0.1 mile into the foreground distance zone. Areas of potential visibility if the alternate site is used extend north of the site for approximately 0.8 mile and south of the site 1.4 miles before breaking up and then dissipating.
	NJS Stone Arch Bridge	0.3/0.1	The NJS Stone Arch Bridge, located within the near-foreground distance zone, occurs within the New Jersey Southern Railroad Historic District. While a majority of this resource is screened by dense vegetation views of the onshore substation on either site are indicated to be available at the northern edge of the bridge.
	Lakewood Historic District	1.1/0.9	Views of the onshore substation on the alternative site are indicated within the foreground distance zone as a thin corridor of visibility following the New Jersey Southern Railroad, and entering the Lakewood Historic District along Mary's Lane just after the East 4 th Street crossing. An additional corridor of visibility approximately 0.1 mile in length enters the Lakewood Historic District along Squankum Road. This resource is not indicated to have visibility if the preferred facility site is utilized.
Local Parks and Recreation Areas	Metedeconk River Greenway	0.2/0.4	The Metedeconk River Greenway is connected to the Project sites by an existing utility ROW. Running north from the eastern edge of the preferred site to the Metedeconk River Greenway, this open corridor offers no vegetative screening and provides a direct line of site to the preferred Project site. However, due to dense onsite vegetation this potential visibility is limited to an approximately 1,600 square foot area along the southwestern tip of the Greenway. No visibility of the onshore substation is indicated if the alternative site is selected.
State, US, and Interstate Highways	US Route 9	1.2/1.2	US Route 9 crosses the VSA roughly north and south within the foreground and middle ground distance zones. Potential visibility of the onshore substation on either site is limited to the location where an open ROW connecting to the facility sites crosses the roadway. This location, just south of Ford Road, indicates potential visibility of the onshore substation on both the preferred and alternative sites.

Resource Type	Resource Name	Distance from the Project (preferred/ alternative mi.)	Description of Potential Visibility
Schools	Talmud Torah Toldos Yakov Yosef	0.5/0.3	The Talmud Torah Toldos Yakov Yosef school, located in the near-foreground distance zone, is indicated to have potential visibility of the onshore substation within the front parking area. Potential visibility is primarily related to the alternative facility site, but some areas of potential visibility of the onshore substation on the preferred site is also indicated. In either instance potential visibility enters the site along an access drive where vegetative screening is lacking.
	Yeshiva Gedolah Keren Hatorah	0.5/0.6	Yeshiva Gedolah Keren Hatorah, which straddles the near-foreground and foreground distance zones, is indicated to have limited visibility of the Project if the onshore substation is located on the alternate facility site. This potential visibility extends into the school site from an open ROW along the northern parcel boundary. This visibility is indicated to be limited to narrow path from specific locations. No Project visibility is indicated if the preferred site is used.



Inset 2.1-3. Visibility from Visually Sensitive Resources

2.1 Visibility and Potential Visual Effects

Based on results of the viewshed analysis, the Project will be screened from view in 99.4% of the VSA if either proposed site is selected. The onshore substation will also be screened from 128 (96.2%) of the 133 identified VSRs within the VSA if the preferred site is used, or from 127 (95.5) of the 133 identified VSRs if the alternative site is selected. Thus, the vast majority of the VSA and the visually sensitive resources within that area will not have views of the proposed Project. In addition, presence of VSRs within the Project ZVI does not necessarily indicate that the Project will result in adverse visual impacts to that resource. In fact, for areas outside of the near foreground distance zone, Project visibility will be limited to the upper portions of the proposed lightning masts or transmission structures due to screening provided by existing adjacent structures and vegetation. As indicated in the results above, areas where the Project may be visible are largely within the Industrial and Forest LTs. Industrial areas are generally not considered to have high scenic quality and are often characterized by an eclectic mix of structure types and a high degree of visual interference. In addition, potential visibility in the Forest LT is indicated to occur primarily within cleared areas associated with an existing utility corridor. Consequently, the visual character of the proposed onshore substation would likely be compatible with the dominant visual character of the Industrial LT. Views of the onshore substation from the Forest LT beyond the utility corridor are likely to be restricted to forest edges and road corridors. Within the interior of these forested areas, outward views are typically well screened by the trunks, branches, and canopy of the surrounding trees.

Viewers in these LTs are typically travelers on major highways and local roads, as well as workforce at the industrial enterprises in the area. Neither of these viewer groups are likely to have high sensitivity to visual change in the surrounding environment, and are typically focused on other activities (driving, working, etc.) that divert their attention from the surrounding landscape. Viewers on nearby roads and at historic sites are also likely to be within moving vehicles and focused on the road or the historic features along the road. Any views of the onshore substation will generally be peripheral and limited to small portions of the site. Viewers at the schools indicated as having potential views of the Project will generally be exposed to such views only within small portions of the school grounds, which will require viewing in specific directions, with little if any visibility available from the schools themselves. Students and teachers at the schools will primarily be focused on classroom and school activities and only secondarily on views of the surrounding landscape. Consequently, any views of the proposed onshore substation are not anticipated to have an adverse effect on the activities in which these viewers are involved.

3.0 RECOMMENDATIONS

As discussed previously, the visibility of the proposed onshore substation will be limited to discrete areas within the VSA and most concentrated in the near-foreground zone. The viewshed analysis results suggest with a reasonably high degree of confidence that visibility could occur over an area measuring approximately 0.2 square miles (0.5 sq. km.) for either the preferred or alternative site.

In order to determine the potential visual effects within the limited areas of visibility, a supplemental analysis will be completed to evaluate the following.

- complete a refined viewshed analysis using the location and height of Project components,
- field verify the result of the viewshed analysis,
- identify and photographically document potential KOPs,
- generate visual simulation(s) and characterize the degree of Project visibility,
- evaluate the potential visual impacts resulting from the proposed onshore substation, and
- provide recommendations for mitigation, if required.

4.0 MITIGATION

Pending the results of the supplemental visual analysis, several mitigation measures will be considered during the design phase of the onshore substation. The list below provides a broad overview of typical mitigation measures either already included in Project siting or that will be considered in Project design. The supplemental analysis described in Section 3.0 will include a more detailed analysis of potential mitigation measures if it is determined that potential visual impacts could be minimized through the application of specific mitigation strategies.

- **Siting.** The Project will be located near an existing substation which will limit perceived changes in land use and scenic quality. Given that the Project has been proposed in an area intended for industrial development, the Project sites are generally in keeping with this intended land use.
- **Screening.** The preferred and alternative sites are effectively screened on a majority of all sides by forest vegetation. The need for screening in the minimal areas where it is currently lacking will be evaluated once the site is selected and the onshore substation proceeds to final design.
- **Camouflage.** While camouflage is not an appropriate or realistic mitigation option, careful consideration of the color of materials used for buildings, fences, and other non-operational features of the Project can help minimize the potential visual contrast presented by these features.
- **Low Profile.** The height of the lightning masts and transmission structures associated with the onshore substation cannot be reduced due to reliability and safety considerations. Other major components of the onshore facilities are being installed underground to avoid long-term visual impact.
- **Downsizing.** The Project design responds to the on-site environmental constraints and the space available around an existing substation. As such, the onshore substation will occupy the smallest facility footprint and limit the horizontal and vertical extent of the proposed equipment to the extent practicable.
- **Alternate Technologies.** The onshore facilities will utilize buried electrical cables rather than overhead conductors to minimize visual impacts. Alternate technologies for the onshore substation are not available.
- **Non-specular Materials.** The Project will likely utilize non-specular conductors and galvanized materials that while reflective at the time of installation, become dull over time. If determined beneficial, alternative fencing materials will be considered to minimize visual contrast and specular reflection.
- **Lighting at the onshore substation** will be kept to a minimum, and turned on only as needed, either by switch or timer. Where possible, lights will be directed downward and will utilize full cut-off fixtures to minimize off-site light trespasses
- **Maintenance.** The Project components and site will be maintained to ensure a clean and orderly appearance.

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5.0 REFERENCES

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Attachment A: Visibility from Visually Sensitive Resources

Visually Sensitive Resource	Location		Distance ¹		Project Visibility (viewshed Results)	
					+ Visible	- Not Visible
	Town	County	Miles from OnSS Preferred Site	Miles from OnSS Alternative Site	DSM Viewshed Preferred (Topography, Structures, and Vegetation)	DSM Viewshed Alternative (Topography, Structures, and Vegetation)
Properties of Historic Significance						
National/State Historic Landmarks						
1. Georgian Court (George Jay Gould Estate)	Lakewood	Ocean	1.6	1.5	-	-
National/State Historic Sites						
None in Study Area						
Sites Listed on National or State Registers of Historic Places (NRHP/SRHP)						
2. Strand Theatre	Town of Lakewood	Ocean	1.8	1.6	-	-
Sites Eligible for Listing on NRHP or SRHP						
3. New Jersey Southern Railroad Historic District	Towns of Lakewood, Jackson, Howell, Wall	Monmouth	0.0	0.0	+/-	+/-
4. NJS Stone Arch Bridge	Towns of Lakewood, Howell	Monmouth	0.3	0.1	+/-	+/-
5. Lakewood Historic District	Town of Lakewood	Ocean	1.1	0.9	-	+/-
6. Rockefeller Park Buildings and Site	Town of Lakewood	Ocean	1.2	1.1	-	-
7. W. Dwinell House	Town of Howell	Monmouth	1.3	1.3	-	-
8. 115-117 Second Street	Town of Lakewood	Ocean	1.8	1.6	-	-
9. YMCA	Town of Lakewood	Ocean	1.8	1.6	-	-
10. 411 Madison Avenue	Town of Lakewood	Ocean	1.8	1.7	-	-
11. All Saints Episcopal Church	Town of Lakewood	Ocean	1.9	1.8	-	-
12. All Saints Episcopal Church Parish House	Town of Lakewood	Ocean	1.9	1.8	-	-
13. Southard Grange	Town of Howell	Monmouth	2.0	2.0	-	-
14. United States Post Office	Town of Lakewood	Ocean	2.0	1.8	-	-
15. Harriet Hall/Dr. George W. Lawrence House	Town of Lakewood	Ocean	2.0	1.8	-	-
16. 422 Second Street	Town of Lakewood	Ocean	2.0	1.8	-	-
17. J. Mott Ironworks Water Trough	Town of Lakewood	Ocean	2.0	1.8	-	-
18. Falkenburg	Town of Lakewood	Ocean	2.0	1.8	-	-
19. J.T. Reynolds House	Town of Howell	Monmouth	2.1	2.1	-	-
20. J.W. Reynolds House and Outbuildings	Town of Howell	Monmouth	2.2	2.2	-	-
21. Garden State Parkway Historic District (Ocean)	Towns of Lakewood, Brick	Ocean	2.7	2.8	-	-
22. Lorenzo Richardson House	Town of Lakewood	Ocean	3.0	2.8	-	-
23. Garden State Parkway Historic District (Monmouth)	Towns of Brick, Wall	Monmouth	3.0	3.2	-	-
Designated Scenic Resources						
Rivers Designated as National or State Wild, Scenic or Recreational						
None in Study Area						
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic						
None in Study Area						
Scenic Areas of Statewide Significance						
None in Study Area						
Other Designated Scenic Resources (Easements, Roads, Districts, and Overlooks)						
None in Study Area						

Visually Sensitive Resource	Location		Distance ¹		Project Visibility (viewshed Results)	
					+ Visible	- Not Visible
	Town	County	Miles from OnSS Preferred Site	Miles from OnSS Alternative Site	DSM Viewshed Preferred (Topography, Structures, and Vegetation)	DSM Viewshed Alternative (Topography, Structures, and Vegetation)
Public Lands and Recreational Resources						
National Parks, Recreation Areas, Seashores, and Forests						
None in Study Area						
National Natural Landmarks						
None in Study Area						
National Wildlife Refuges						
None in Study Area						
Heritage Areas						
None in Study Area						
State Parks						
None in Study Area						
State Nature and Historic Preserve Areas						
None in Study Area						
State Forest Preserve						
None in Study Area						
Other State Lands						
None in Study Area						
Wildlife Management Areas & Game Refuges						
None in Study Area						
State Forests						
None in Study Area						
State Fishing/Waterway Access Sites						
None in Study Area						
Trails						
State and Federal Trails						
None in Study Area						
Bike Trails/Routes						
None in Study Area						
Other Trails						
None in Study Area						
Local Parks and Recreation Areas						
24. Metedeconk River Greenway	Town of Howell	Monmouth	0.2	0.4	+/-	-
25. Turkey Swamp Park	Town of Howell	Monmouth	0.5	0.7	-	-
26. Brook Road Park	Town of Lakewood	Ocean	0.6	0.6	-	-
27. Lake Loise Park	Town of Howell	Monmouth	0.8	0.9	-	-
28. Lakewood Little League Fields	Town of Lakewood	Ocean	1.0	0.8	-	-
29. Ocean County Park	Town of Lakewood	Ocean	1.2	1.1	-	-
30. Echo Lake Park	Town of Howell	Monmouth	1.2	1.3	-	-
31. Woodlake Country Club	Town of Lakewood	Ocean	1.3	1.3	-	-
32. Clifton Avenue Playground	Town of Lakewood	Ocean	1.5	1.4	-	-
33. Lakewood Township Community Center	Town of Lakewood	Ocean	1.6	1.4	-	-
34. Lake Shenendoah Park	Town of Lakewood	Ocean	1.7	1.6	-	-
35. School Garden Street Park	Town of Lakewood	Ocean	1.7	1.5	-	-
36. Deerwood Park	Town of Howell	Monmouth	1.8	2.0	-	-
37. Lakewood Township Municipal Park	Town of Lakewood	Ocean	1.8	1.6	-	-
38. Metedeconk River Recreation Area	Towns of Lakewood, Brick	Ocean	1.9	1.7	-	-
39. Campbell Park	Town of Lakewood	Ocean	2.1	1.9	-	-

Visually Sensitive Resource	Location		Distance ¹		Project Visibility (viewshed Results)	
					+ Visible	- Not Visible
	Town	County	Miles from OnSS Preferred Site	Miles from OnSS Alternative Site	DSM Viewshed Preferred (Topography, Structures, and Vegetation)	DSM Viewshed Alternative (Topography, Structures, and Vegetation)
40. Canterbury Park	Town of Lakewood	Ocean	2.1	2.0	-	-
41. Carasaljo Park	Town of Lakewood	Ocean	2.1	1.9	-	-
42. Cedar Bridge Avenue Ballfield	Town of Lakewood	Ocean	2.2	2.0	-	-
43. Tioga Fields	Town of Howell	Monmouth	2.3	2.3	-	-
44. John Street Park	Town of Lakewood	Ocean	2.4	2.2	-	-
45. Lakewood Country Club	Towns of Lakewood, Jackson	Ocean	2.5	2.4	-	-
46. Soldier Memorial Park	Town of Howell	Monmouth	2.5	2.6	-	-
47. FirstEnergy Park	Town of Lakewood	Ocean	2.6	2.4	-	-
48. Bernard J Cooke Memorial	Town of Brick	Ocean	2.6	2.7	-	-
49. Linear Park	Towns of Jackson, Howell	Monmouth	2.6	2.6	-	-
50. Metedeconk River Conservation Area	Towns of Lakewood, Brick	Ocean	2.6	2.7	-	-
51. Pine Park	Towns of Lakewood, Jackson	Ocean	2.7	2.6	-	-
52. Ramtown Manor Park	Town of Howell	Monmouth	2.8	2.9	-	-
53. Monmouth Ridings	Town of Howell	Monmouth	2.9	3.0	-	-
54. Priscilla Lane Park	Town of Howell	Monmouth	3.0	3.0	-	-
Publicly Accessible Conservation Lands/Easements						
55. Bear Swamp Natural Area	Town of Howell	Monmouth	2.4	2.6	-	-
56. Camp Zehnder	Town of Wall	Monmouth	2.9	3.1	-	-
Rivers and Streams with Public Fishing						
57. South Branch Metedeconk River	Towns of Lakewood, Jackson	Ocean	1.9	1.7	-	-
Named Lakes, Ponds, and Reservoirs						
58. Lake Loise	Town of Howell	Monmouth	0.8	0.9	-	-
59. Echo Lake	Town of Howell	Monmouth	1.3	1.3	-	-
60. Ocean County Park Lake	Town of Lakewood	Ocean	1.4	1.3	-	-
61. Lake Shenandoah	Town of Lakewood	Ocean	1.8	1.7	-	-
62. Lake Carasaljo	Town of Lakewood	Ocean	2.2	2.0	-	-
63. Lake Manetta	Town of Lakewood	Ocean	2.3	2.1	-	-
High-Use Public Areas						
State, US, and Interstate Highways						
64. US 9	Towns of Lakewood, Howell	Monmouth	1.2	1.2	+/-	+/-
65. NJ 88	Towns of Lakewood, Brick	Ocean	1.7	1.5	-	-

Visually Sensitive Resource	Location		Distance ¹		Project Visibility (viewshed Results)	
					+ Visible	- Not Visible
	Town	County	Miles from OnSS Preferred Site	Miles from OnSS Alternative Site	DSM Viewshed Preferred (Topography, Structures, and Vegetation)	DSM Viewshed Alternative (Topography, Structures, and Vegetation)
66. Garden State Parkway (NJ 444)	Towns of Lakewood, Brick, Wall	Monmouth	2.8	2.9	-	-
Schools						
67. Talmud Torah Toldos Yakov Yosef	Town of Lakewood	Ocean	0.5	0.3	+/-	+/-
68. Yeshiva Gedolah Keren Hatorah	Town of Lakewood	Ocean	0.5	0.6	-	+/-
69. Toras Imecha, Inc.	Town of Lakewood	Ocean	0.6	0.5	-	-
70. Chaburah, The	Town of Lakewood	Ocean	0.7	0.6	-	-
71. Talmud Torah Yesodei Hatorah, Inc.	Town of Lakewood	Ocean	0.8	0.6	-	-
72. Congregation Pri Aharon	Town of Lakewood	Ocean	0.8	0.6	-	-
73. Ateres Nechama	Town of Lakewood	Ocean	0.8	0.8	-	-
74. Lakewood High School	Town of Lakewood	Ocean	0.8	0.7	-	-
75. Calvary Academy	Town of Lakewood	Ocean	1.0	1.0	-	-
76. Yeshiva Bais Aharon	Town of Lakewood	Ocean	1.1	0.9	-	-
77. Cheder Eitz Chaim	Town of Lakewood	Ocean	1.1	1.1	-	-
78. Lakewood Middle School	Town of Lakewood	Ocean	1.2	1.0	-	-
79. Yeshiva Toras Chaim	Town of Lakewood	Ocean	1.2	1.1	-	-
80. Piner Elementary School	Town of Lakewood	Ocean	1.2	1.3	-	-
81. Bais Sarah, Inc.	Town of Lakewood	Ocean	1.3	1.1	-	-
82. Yeshiva Birchas Yaakov	Town of Lakewood	Ocean	1.3	1.1	-	-
83. Bais Chinuch L'Bonos Bayis Ruchel Inc.	Town of Howell	Monmouth	1.3	1.3	-	-
84. Bais Chinuch L'Bonos Bayis Ruchel	Town of Lakewood	Ocean	1.3	1.1	-	-
85. Beis Yesocher Tiferes Aryeh	Town of Lakewood	Ocean	1.3	1.1	-	-
86. Mesivta Gaon Yaakov	Town of Lakewood	Ocean	1.4	1.5	-	-
87. United Talmudical Academy	Town of Lakewood	Ocean	1.4	1.2	-	-
88. Ella G. Clark Elementary School	Town of Lakewood	Ocean	1.4	1.2	-	-
89. Ohr Avrohom Chaim	Town of Lakewood	Ocean	1.4	1.2	-	-
90. Bais Faiga Sch For Girls	Town of Lakewood	Ocean	1.4	1.3	-	-
91. Yeshiva Gedola Of Woodlake Village	Town of Lakewood	Ocean	1.5	1.6	-	-
92. Yeshivas Sharei Binah	Town of Lakewood	Ocean	1.6	1.4	-	-
93. Mesivta Darkei Noam	Town of Lakewood	Ocean	1.6	1.4	-	-
94. Clifton Avenue Grade School	Town of Lakewood	Ocean	1.6	1.4	-	-
95. Howell Township Middle School South	Town of Howell	Monmouth	1.6	1.8	-	-
96. Georgian Court University	Town of Lakewood	Ocean	1.6	1.5	-	-

Visually Sensitive Resource	Location		Distance ¹		Project Visibility (viewshed Results)	
					+ Visible	- Not Visible
	Town	County	Miles from OnSS Preferred Site	Miles from OnSS Alternative Site	DSM Viewshed Preferred (Topography, Structures, and Vegetation)	DSM Viewshed Alternative (Topography, Structures, and Vegetation)
97. Bais Reuvain Kaminetz	Town of Lakewood	Ocean	1.7	1.5	-	-
98. Greenville School	Town of Howell	Monmouth	1.7	1.9	-	-
99. Mesivta Keser Torah Central Jersey	Town of Lakewood	Ocean	1.7	1.6	-	-
100. Ramtown Elementary School	Town of Howell	Monmouth	1.8	2.0	-	-
101. Yeshiva K'Tana	Town of Lakewood	Ocean	1.8	1.6	-	-
102. Mesivta Of Lakewood	Town of Lakewood	Ocean	1.8	1.7	-	-
103. Yeshiva Masoras Avos	Town of Lakewood	Ocean	1.8	1.6	-	-
104. Damasek Eliezer	Town of Lakewood	Ocean	1.9	1.7	-	-
105. Beth Medrash Gouha	Town of Lakewood	Ocean	1.9	1.7	-	-
106. Chinuch L'Banos	Town of Lakewood	Ocean	1.9	2.0	-	-
107. Yeshivas Emek Hatorah	Town of Howell	Monmouth	1.9	1.9	-	-
108. Cheder Bnei Torah	Town of Lakewood	Ocean	2.0	1.8	-	-
109. Nachlas Bais Yaakov Inc	Town of Lakewood	Ocean	2.0	2.0	-	-
110. Goddard School of Howell	Town of Howell	Monmouth	2.0	2.0	-	-
111. Ocean Academy Charter School	Town of Lakewood	Ocean	2.1	1.9	-	-
112. Freehold Kolell-Krasne	Town of Lakewood	Ocean	2.1	2.0	-	-
113. Bnos Yaakov Elementary	Town of Lakewood	Ocean	2.2	2.1	-	-
114. Taunton Elementary School	Town of Howell	Monmouth	2.4	2.4	-	-
115. Derech Hatorah Of Lakewood	Town of Lakewood	Ocean	2.4	2.3	-	-
116. Aderes Bais Yaakov	Town of Lakewood	Ocean	2.4	2.2	-	-
117. Torah Institute Of Lakewood	Town of Lakewood	Ocean	2.5	2.4	-	-
118. Meshivta Keren Orah	Town of Lakewood	Ocean	2.6	2.4	-	-
119. Ateres Tzipora	Town of Lakewood	Ocean	2.6	2.5	-	-
120. Bais Rivka Rochel School	Town of Lakewood	Ocean	2.6	2.4	-	-
121. Mesivta Ahavas Hatorah D'Lakewood	Town of Lakewood	Ocean	2.7	2.5	-	-
122. Yeshiva Bais Hachinuch	Town of Lakewood	Ocean	2.7	2.5	-	-
123. Bnos Bais Yaakov High School	Town of Lakewood	Ocean	2.7	2.7	-	-
124. Newbury Elementary School	Town of Howell	Monmouth	2.8	2.8	-	-
125. Kesser Bais Yaakov	Town of Lakewood	Ocean	2.8	2.7	-	-
126. St. Veronica School	Town of Howell	Monmouth	2.8	2.9	-	-
127. Yeshiva Orchos Chaim	Town of Lakewood	Ocean	2.9	2.8	-	-
128. Sylvia Rosenauer Elementary School	Town of Jackson	Ocean	2.9	2.9	-	-

Visually Sensitive Resource	Location		Distance ¹		Project Visibility (viewshed Results)	
					+ Visible	- Not Visible
	Town	County	Miles from OnSS Preferred Site	Miles from OnSS Alternative Site	DSM Viewshed Preferred (Topography, Structures, and Vegetation)	DSM Viewshed Alternative (Topography, Structures, and Vegetation)
129. Bnos Orchos Chaim	Town of Lakewood	Ocean	2.9	2.8	-	-
130. Yeshivat Yagdil Torah	Town of Lakewood	Ocean	2.9	2.7	-	-
131. Lakewood Cheder School	Town of Lakewood	Ocean	3.0	2.9	-	-
132. Imrei Binah School	Town of Lakewood	Ocean	3.1	2.9	-	-
133. Bais Kaila Torah Prep High School	Town of Lakewood	Ocean	3.1	2.9	-	-

¹ For large areas and linear sites, approximate distance to the substation was measured from the respective area's closest point.