VINEYARD MID-ATLANTIC

CONSTRUCTION AND OPERATIONS PLAN

VOLUME II APPENDIX

JANUARY 2025

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VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

PUBLIC VERSION

Vineyard Mid-Atlantic COP

Appendix II-J Seascape, Landscape, and Visual Impact Assessment (Part 1)

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- Appendix D Key Observation Point (KOP) Photo Log
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Revision	Date	Description
0	January 2024	Initial submission.
1	July 2024	Initial submission of SLVIA Appendix F- Preliminary Visual Assessment – Onshore Substations.
2	November 2024	Updated to address Bureau of Ocean Energy Management Round 2 Comments and to incorporate revisions to the Project Design Envelope.
2	January 2025	Resubmitted without revisions.

SARATOGA ASSOCIATES

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

SEASCAPE, LANDSCAPE, AND VISUAL IMPACT ASSESSMENT

Revised: November 14, 2024

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ABBREVIATIONS AND ACRONYMS

ADLS	Aircraft Detection and Lighting System
AIS	Automated Identification System
asl	Above Sea Level
CTV	Crew Transfer Vessels
BOEM	Bureau of Ocean Energy Management
COP	Construction and Operations Plan
EJA	Environmental Justice Area
ESP	Electric Service Platform
FAA	Federal Aviation Administration
ft	Feet (foot)
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
HFOV	Horizontal Field-of-View
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
KOP	Key Observation Point
km	Kilometer(s)
km^2	Square kilometer(s)
LiDAR	Light Detection and Ranging
LCA	Landscape Character Area
m	Meter(s)
m^2	Square Meter(s)
mi	Statute mile
MLLW	Mean Lower Low Water
nm	Nautical Mile(s)
NRHP	National Register of Historic Places
NYSDOT	New York State Department of Transportation
OCA	Ocean Character Area
OCS	Outer Continental Shelf
OECC	Offshore Export Cable Corridor
PATON	Private Aid to Navigation
PDE	Project Design Envelope
POI	Point of Interconnection
RCS	Reactive Compensation Station
SCA	Seascape Character Area
SLIA	Seascape/Landscape Impact Assessment
SLVIA	Seascape/Landscape and Visual Impact Assessment
SWMA	State Wildlife Management Area
USCG	United States Coast Guard
USGS	United States Geologic Survey
VFOV	Vertical Field-of-View
VIA	Visual Impact Assessment
VSA	Visual Study Area
WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility
ZLV	Zone of Likely Visibility

1.0 INTRODUCTION

Vineyard Mid-Atlantic LLC (the "Proponent") proposes to develop, construct, and operate offshore renewable wind energy facilities in Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0544 (the "Lease Area") along with associated offshore and onshore transmission systems. This proposed development is referred to as "Vineyard Mid-Atlantic."

Vineyard Mid-Atlantic includes 118 total wind turbine generator (WTG) and electrical service platform (ESP) positions within the Lease Area. One or two of those positions will be occupied by ESPs and the remaining positions will be occupied by WTGs. Offshore export cables installed within an Offshore Export Cable Corridor (OECC) will transmit power from the renewable wind energy facilities to onshore transmission systems on Long Island, New York.

Onshore export cables will connect up to two landfall site(s) to two new onshore substations in Nassau County and/or Suffolk County, New York.. Since the Proponent has not yet secured site control for the onshore substation sites, the Proponent has identified several "onshore substation site envelopes." These onshore substation site envelopes could also be used for an onshore reactive compensation station (RCS) (if used), however both an RCS and onshore substation site would not be located in the same onshore substation site envelope. A preliminary visual assessment of the onshore substation sites is provided in Appendix F.

To address issues of potential aesthetic impact, the Proponent has retained Saratoga Associates, Landscape Architects, Architects, Engineers, and Planners, P.C. ("Saratoga Associates") to conduct a Seascape, Landscape, and Visual Impact Assessment (SLVIA) of Vineyard Mid-Atlantic. The purpose of this SLVIA is to identify potential visibility of Vineyard Mid-Atlantic's offshore facilities and objectively determine the difference in seascape and landscape quality and the impact on viewer experience with and without Vineyard Mid-Atlantic in place. The information and recommendations included in this report are intended to assist regulatory agencies, interested stakeholders, and the general public in their review of Vineyard Mid-Atlantic, in accordance with applicable regulatory requirements.

The SLVIA generally follows the guidance established in Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf (OCS) of the United States (Sullivan R. G., 2021). This methodology document describes what is considered in the SLVIAs submitted by offshore wind project developers to BOEM and how decisions about expected impacts of offshore wind developments are made. This SLVIA methodology applies to any offshore wind energy development proposed for the OCS and considered by BOEM, as directed by the Energy Policy Act of 2005 and in compliance with the Outer Continental Shelf Lands Act and the National Environmental Policy Act of 1969 (NEPA).

The SLVIA has two parts: seascape and landscape impact assessment (SLIA) and visual impact assessment (VIA). The SLIA analyzes and evaluates impacts on both the physical elements and features that make up a landscape or seascape and the aesthetic, perceptual, and experiential aspects of the landscape or seascape that make it distinctive. The VIA analyzes and evaluates the impacts on people of adding the proposed development to views from selected viewpoints.

2.0 DESCRIPTION OF VINEYARD MID-ATLANTIC

The following sections provide an overview of Vineyard Mid-Atlantic's offshore and onshore facilities with a focus on the aspects of the facilities' design that relate to potential visual impacts. See Section 3 of Vineyard Mid-Atlantic's Construction and Operations Plan (COP) Volume I for a full description of Vineyard Mid-Atlantic.

2.1 Project Location

Vineyard Mid-Atlantic is located on the OCS of the Atlantic Ocean off the coasts of New York and New Jersey in an area known as the New York Bight. At its closest point, the 174 square kilometer (km^2) (43,056 acre) Lease Area is approximately 38 kilometers (km) (24 miles [mi]) south of Fire Island, New York (at Ocean Beach), and 66 km (41 mi) east of the Long Branch, New Jersey.

The Lease Area is one of six New York Bight Lease Areas identified by BOEM, following a public process and environmental review, as suitable for offshore wind energy development. Other New York Bight Lease Areas include Lease Areas OCS-A 0537, OCS-A 0538, OCS-A 0539, OCS-A 0541, and OCS-A 0542. Vineyard Mid-Atlantic is immediately adjacent to Empire Offshore Wind LLC's proposed offshore wind projects in Lease Area OCS-A 0512 ("Empire Wind 1 and Empire Wind 2" [collectively, the "Empire Wind projects"]). The nearest BOEM lease area to Vineyard Mid-Atlantic is OCS -A 0537 ("Bluepoint Wind") approximately 18 km (17 mi) southeast of Lease Area OCS-A 0544). The location of these lease areas is illustrated in Figure 1.

2.2 Offshore Facilities

Vineyard Mid-Atlantic includes 118 total WTG and ESP positions within the Lease Area. One or two of those positions will be occupied by ESPs and the remaining positions will be occupied by WTGs. In accordance with Proponent's lease stipulations, the WTGs and ESP(s) will be oriented in west-northwest to east-southeast rows and north to south columns with 0.68 nautical mile (nm) (1.3 kilometer [km]) spacing between positions. The closest WTG/ESP positions are 38.2 km (23.7 mi) south of Fire Island, New York (at Ocean Beach, and 66.5 km [41.3 mi]) east of Long Branch, New Jersey.

The WTGs will be supported by monopiles and ESP(s) will be supported by monopiles or piled jacket foundations. The base of the foundations may be surrounded by scour protection. Submarine inter-array cables will transmit power from groups of WTGs to the ESP(s). If two ESPs are used, they may be connected with inter-link cables. Two to six offshore export cables will then transmit the electricity collected at the ESP(s) to shore.

Vineyard Mid-Atlantic's WTG/ESP layout includes six positions that are contingent upon the final layout of Empire Wind 2. Empire's proposed layout includes six "off-grid" positions along its boundary with Lease Area OCS-A 0544 that do not follow the west-northwest to east-southeast common line of orientation. Vineyard Mid-Atlantic will not develop these contingent WTG/ESP positions if the final Empire Wind 2 layout includes WTGs at immediately adjacent positions within Lease Area OCS-A 0512.

Between the Lease Area and shore, the offshore export cables will be installed within an Offshore Export Cable Corridor (OECC). Up to six high voltage alternating current (HVAC) cables, two high voltage direct current (HVDC) cable bundles, or a combination of up to four HVAC cables / HVDC cable bundles will be installed within the OECC. The OECC extends from the northern end of the Lease Area, continues west

along the boundary of neighboring Lease Area OCS-A 0512, and then proceeds northwest across the Ambrose to Nantucket and Nantucket to Ambrose Traffic Lanes towards the southern shore of Long Island, New York. As the OECC approaches shore, it splits into three variations to connect to three potential landfall site(s) (of which, up to two will be used): the Rockaway Beach Landfall Site, the Atlantic Beach Landfall Site, and the Jones Beach Landfall Site. The Proponent has also identified a "Western Landfall Sites OECC Variant" that may be used for routing offshore export cables to the Rockaway Beach and Atlantic Beach Landfall Sites.

Vineyard Mid-Atlantic is being developed and permitted using a Project Design Envelope (PDE) based on expected commercial and technological advancements. The PDE outlines a reasonable range of project design parameters (e.g., multiple foundation types) and installation techniques (e.g., use of various cable installation tools). The Proponent has developed the PDE and sited Vineyard Mid-Atlantic's facilities in consultation with multiple stakeholders. For example, the Proponent modified and refined the OECC through numerous consultations with federal and state agencies as well as fishermen and, based on their feedback, consolidated the OECC with Empire Wind 2's proposed submarine export cable route to the extent feasible.

2.2.1 Wind Turbine Generators

Vineyard Mid-Atlantic will include up to 117 WTGs located in the lease area that will generate clean, renewable energy. The maximum dimensions of the WTGs anticipated to be commercially available for Vineyard Mid-Atlantic are provided in Table 1. The WTGs will be supported by monopiles.

Table 1 – PDE of WTG Dimensions

Dimension	Project Design Envelope
Maximum rotor diameter	320 meters (m) (1,050 feet [ft])
Maximum blade tip height above Mean Lower Low Water (MLLW) (1)	355 m (1,165 ft)
Maximum top of nacelle height above MLLW (2)	203.5 m (668 ft)
Maximum hub height above MLLW	195 m (640 ft)
Maximum mid-tower height above MLLW	102 m (335 ft)
Maximum top of foundation platform height above MLLW	35 m (115 ft)
Minimum tip clearance above MLLW	27 m (89 ft)
Maximum nacelle dimensions (length x width x height)	36 m x 17 m x 17 m (118 ft x 56 ft x 56 ft)
Maximum blade chord	10 m (33 ft)
Maximum tower diameter	11 m (36 ft)

Notes:
(1) MLLW is the average height of the lowest tide recorded at a tide station each day during the recording period.
(2) Height includes Federal Aviation Administration (FAA) lights and other appurtenances.

Table 2 identifies the general dimensions of the WTG foundations.

Table 2 – PDE of WTG Foundation Dimensions

Parameter	Monopiles	
	Foundation Dimensions (per Foundation)	
Maximum number of legs	N/A	
Maximum number of piles	1	
Maximum total length (from interface with WTG to deepest point beneath the seafloor)	126 m (413 ft)	
Maximum pile diameter	13 m (43 ft)	
Maximum pile length	Extended monopile: 126 m (413 ft) With transition piece (TP): 96 m (315 ft)	
Maximum height of foundation (including transition piece) above MLLW	35 m (115 ft)	

The largest potential WTG dimension for Vineyard Mid-Atlantic with a monopile foundation is evaluated herein as the maximum potential visual impact scenario.

Figure 2 illustrates the general visual characteristics of the WTG evaluated in this VIA.

2.2.2 Electrical Service Platform(s)

Vineyard Mid-Atlantic will include one or two offshore ESPs, which contain transformers and other electrical gear. The ESP(s) may be located at a WTG/ESP position. The total number of WTGs and ESPs in the Lease Area will not exceed 118. The maximum design envelope for ESP topside dimensions are provided in Table 3.

Table 3 – ESP Topside Dimensions

Parameter	ESP
Number of ESPs	1 or 2
Maximum topside width	85 m (279 ft)
Maximum topside length	170 m (558 ft)
Maximum topside height above foundation	45 m (148 ft)
Maximum topside height above MLLW (1)	70 m (230 ft)

Notes:
(1) Height includes helipad (if present) but may not include antennae and other appurtenances.

Table 4 identifies the general dimensions of the ESP alternative foundation types.

Table 4 – ESP Foundation Dimensions

Parameter	Monopile		Piled Jacket
	Foundation Dimensions (per Foundation)		
Maximum number of legs	N/A		6
Maximum number of piles	1		12
Maximum total length (from interface with topside to deepest point beneath the seafloor)	126 m (413 ft)		161 m (528 ft)
Maximum pile diameter	13 m (43 ft)		4.25 m (14 ft)
Maximum pile length	Extended monopile: 126 m (413 ft) With TP: 96 m (315 ft)		60-90 m (197-295 ft)
Maximum diameter/dimensions of foundation at the waterline (1)	11.5 m (38 ft)[1]		170 m x 85 m (558 ft x 279 ft) On diagonal: 190 m (624 ft)
Maximum height of foundation above MLLW	35 m (115 ft)		35 m (115 ft)

Notes:
(1) The transition piece/extended monopile diameter at the waterline does not include any ancillary structures such as boat landing(s) and external work platforms. Ancillary structures may extend up to 5 m (16 ft) from the outer edge of the transition piece/extended monopile in any direction.

The largest potential ESP dimension with a jacket foundation is evaluated herein as the maximum potential visual impact scenario. Figure 3 illustrates the general visual characteristics of a typical ESP.

2.2.3 Lighting and Marking for WTGs and ESP(s)

In accordance with Bureau of Ocean Energy Management (BOEM) and Federal Aviation Administration (FAA) guidance, the WTGs will be no lighter than pure white (RAL 9010) and no darker than light grey (RAL 7035) in color; the Proponent expects that the WTGs will be off-white/light grey to reduce their visibility against the horizon. The ESP topside(s) are expected to be light grey in color, which would appear muted and indistinct.

All WTGs will include an aviation obstruction lighting system in compliance with FAA and/or BOEM guidance. Based on current guidance, the aviation obstruction lighting system will consist of two synchronized red flashing lights placed on the nacelle of each WTG. If the WTGs' total tip height is 213.36 m (699 ft) or higher, there will be at least three additional low intensity flashing red lights on the tower approximately midway between the top of the nacelle and sea level. If the height of the ESP(s) exceeds 60.96 m (200 ft) above Mean Sea Level or any obstruction standard contained in 14 Code of Federal Regulations (CFR) Part 77, they will similarly include an aviation obstruction lighting system in compliance with FAA and/or BOEM guidelines.

The Proponent will use an Aircraft Detection Lighting System (ADLS) or similar system that automatically activates all aviation obstruction lights when aircraft approach the structures. The use of an ADLS would substantially reduce the amount of time that the aviation obstruction lights are illuminated (see COP Appendix II-I for an analysis of how often the ADLS would likely be activated). When activated, the

aviation obstruction lights will be visible to pilots in all directions and will flash 30 times per minute, if approved by BOEM.

Other lighting (e.g., helicopter hoist status lights on the WTGs, helipad lights on the ESP[s]) may be utilized for safety purposes. Temporary outdoor lighting on the ESP(s) may be necessary if any maintenance occurs at night or during low-light conditions; these lights will not be illuminated if no technicians are present.

Additionally, to aid marine navigation, the WTGs, ESP(s), and their foundations will be equipped with marine navigation lighting, marking, and signaling in accordance with United States Coast Guard (USCG) and BOEM guidance. Each WTG and ESP will be maintained as a Private Aid to Navigation (PATON). Based on USCG's current *ME, NH, MA, RI, CT, NY, NJ-Atlantic Ocean-Offshore Structure PATON Marking Guidance* (USCG, 2020), the Proponent expects the lighting, marking, and signaling scheme of the offshore facilities during the operational period to include the following:

- Unique alphanumeric identifiers will be displayed on the WTGs, ESP(s), and/or their foundations to aid mariners and aviators in determining their location within the Lease Area. For the WTGs, the alphanumeric identifiers will be on the tower, nacelle, and potentially the foundation. The alphanumeric identifiers on the WTG tower will be as close to 3 meters (m) (10 feet [ft]) high as possible and will be visible from all directions. The alphanumeric identifiers on the ESP(s) will be as close to 1 m (3 ft) high as possible and will be visible from all directions.

- The WTG's air draft restriction will be indicated directly on the WTG foundation and/or tower and will be visible in all directions.

- Each foundation will be coated with high visibility yellow paint above sea level.

- Each structure will include yellow flashing lights that are visible in all directions at a distance of 2 to 5 NM (~3.7 to 9.5 km).[1] The intensity of the lights will depend on the location of the structure within the Lease Area.

- Mariner Radio Activated Sound Signals (MRASS) will be located on select foundations.

- Automatic Identification System (AIS) will be used to mark the WTGs and ESP(s) (virtually or using physical transponders).

2.2.4 Offshore Cables

Submarine inter-array cables will transmit power from groups of WTGs to the ESP(s). If two ESPs are used, they may be connected with inter-link cables. Two to six offshore export cables will then transmit the electricity collected at the ESP(s) to shore.

Between the Lease Area and shore, the offshore export cables will be installed within an Offshore Export Cable Corridor (OECC). Up to six high voltage alternating current (HVAC) cables, two high voltage direct current (HVDC) cable bundles, or a combination of up to four HVAC cables/HVDC cable bundles will be

[1] The approximate maximum height of the marine navigation lights above water is equal to the maximum height of the foundation (including the transition piece) above water, which is provided in Table 2.

installed within the OECC. The OECC extends from the northern end of the Lease Area, continues west along the boundary of neighboring Lease Area OCS-A 0512, and then proceeds northwest across the Ambrose to Nantucket and Nantucket to Ambrose Traffic Lanes towards the southern shore of Long Island, New York.

All offshore cables will be buried beneath the seabed and will not be visible from on-shore or on-water vantage points. The location of Vineyard Mid-Atlantic's offshore cables is illustrated in Figure 4.

2.2.5 Offshore Specifications Used for SLVIA

The Proponent utilized the highest capacity WTG proposed for Vineyard Mid-Atlantic (see dimensions in Table 1) and assumed the full build-out of 118 positions (including the six contingent positions) in preparation of this SLVIA. The Proponent also utilized a layout oriented in west-northwest to east-southeast rows and north to south columns with 0.68 NM (1.3 km) spacing between positions.

The nearest possible ESP position would be 38 km (24 mi) from the nearest coastal vantage point. At this distance, the full height of the ESP would fall below the visible horizon as viewed from beach elevation. Therefore, to consider the maximum potential visual impact scenario, this SLVIA assumes a WTG will be installed at all 118 positions.

The location and layout of the offshore components in the Lease Area are illustrated in Figure 1.

2.3 Onshore Facilities

2.3.1 Landfall Sites

As the OECC approaches shore, it splits into three variations to connect to three potential landfall site(s) (of which, up to two will be used): the Rockaway Beach Landfall Site, the Atlantic Beach Landfall Site, and the Jones Beach Landfall Site.

2.3.2 Onshore Cables, Substation Sites, and Reactive Compensation Stations

Onshore export cables will connect up to two of the three potential landfall sites to two new onshore substations in Nassau County and/or Suffolk County, New York. If HVAC cables are used, depending upon numerous technical considerations, an onshore reactive compensation station (RCS) may be located along each onshore export cable route to manage the export cables' reactive power (unusable electricity), increase the transmission system's operational efficiency, reduce conduction losses, and minimize excess heating. Grid interconnection cables will connect the new onshore substations to the existing East Garden City Substation (Uniondale) Point of Interconnection (POI) in Uniondale, New York, the Ruland Road Substation POI in Melville, New York, or the proposed Eastern Queens Substation POI in Queens, New York.

Several potential onshore substation sites in Nassau County and/or Suffolk County, New York are being considered. Since the Proponent has not yet secured site control for the onshore substation sites, the Proponent has identified several "onshore substation site envelopes." The onshore substation sites will be located within the onshore substation site envelopes shown in Figure 5. These onshore substation site envelopes could also be used for an RCS (if used), however both an RCS and onshore substation site would not be located in the same onshore substation site envelope.

The two onshore substations will be located within up to two of the following onshore substation site envelopes shown in Figure 5.

- Onshore Substation Site Envelope A

- Onshore Substation Site Envelope B

- Onshore Substation Site Envelope C

- Onshore Substation Site Envelope D

Additional information on Vineyard Mid-Atlantic's onshore substations is provided in Appendix F.

2.3.3 Onshore Specifications Used for SLVIA

The onshore cables are proposed to be installed entirely underground and will not be visible (except for at-grade manholes). Underground facilities are not further evaluated in this SLVIA.

Because the location and design of the onshore substations has not yet been determined, the analysis assumed the most conservative dimensions for height, width, and length. A preliminary visual assessment of the onshore substation alternatives is provided in Appendix F.

The location of Vineyard Mid-Atlantic's onshore facilities is illustrated in Figure 5.

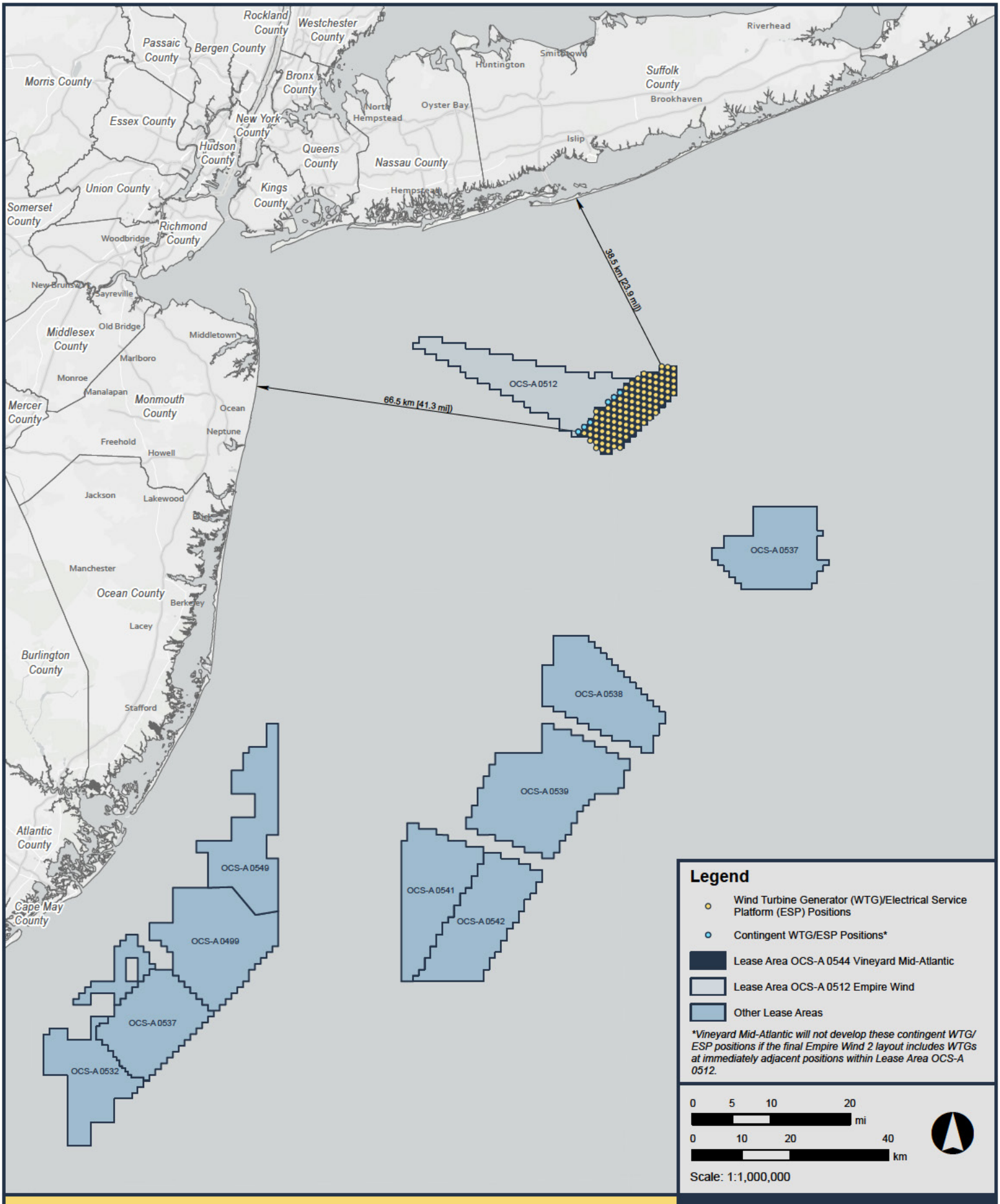
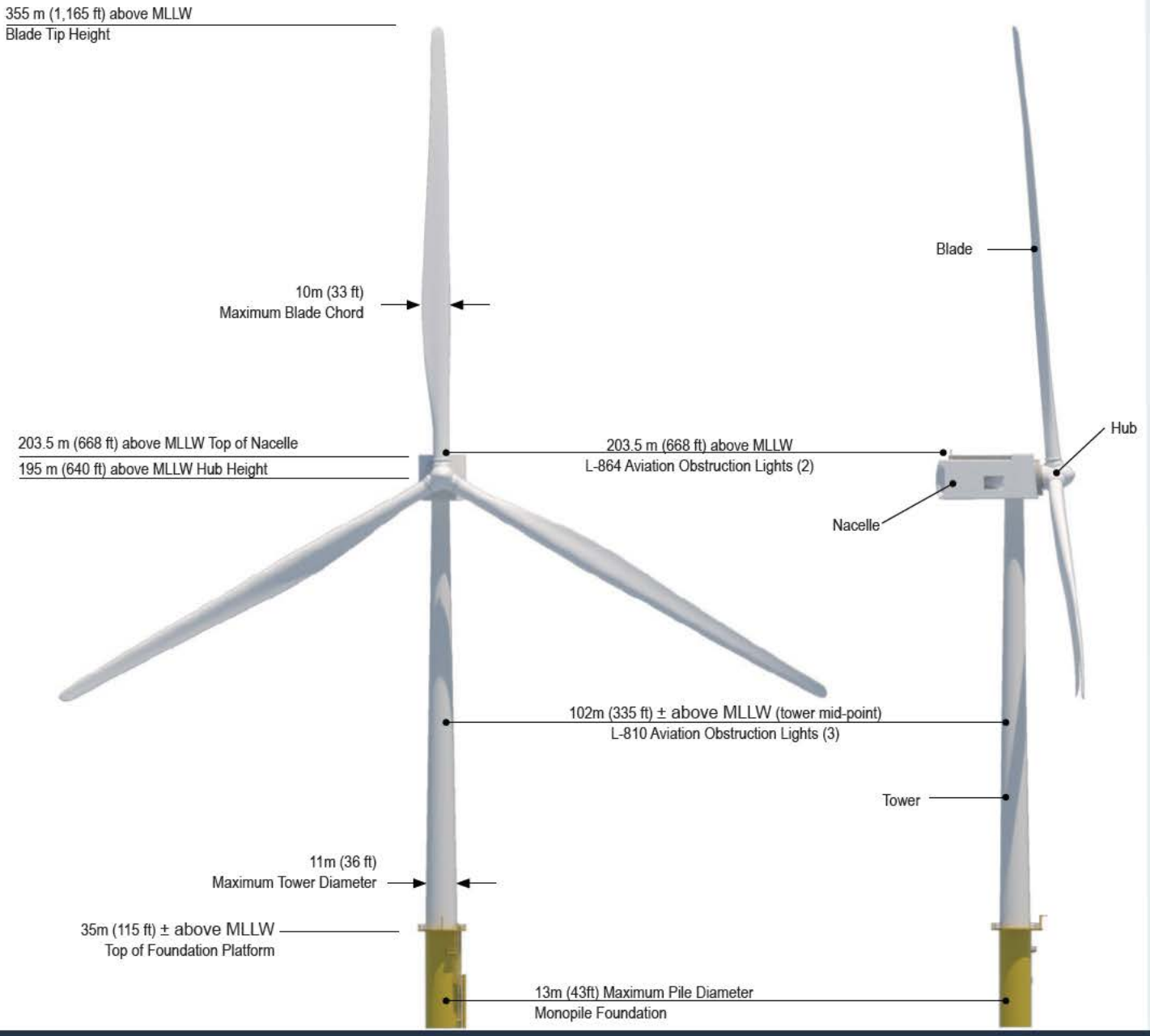


Figure 1

Vineyard Mid-Atlantic Lease Area Location Map

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE



Front Elevation

Side Elevation

WTG Color
In accordance with Federal Aviation Administration (FAA) Advisory Circular 70/7460-1M, the color of the WTGs will be no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey.

RAL 9010 "Pure White"

RAL 7035 "Light Grey

Figure 2
Wind Turbine Generator (WTG) Evaluated

VINEYARD MID-ATLANTIC

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ESP Topside Dimensions

Maximum topside width 85 m (279 ft)
Maximum topside length 170 m (558 ft)
Maximum topside height above foundation (45 m (148 ft)
Maximum topside height above Mean Lower Low Water (MLLW) 70m (230 ft)
- Height includes helipad (if present) but may not include antennae and other appurtenances.

Figure 3
Representative Electrical Service Platform (ESP)

VINEYARD
MID-ATLANTIC

VINEYARD OFFSHORE

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Data Source: U.S. Bureau of Ocean Energy Management (BOEM), National Oceanic and Atmospheric Administration (NOAA)

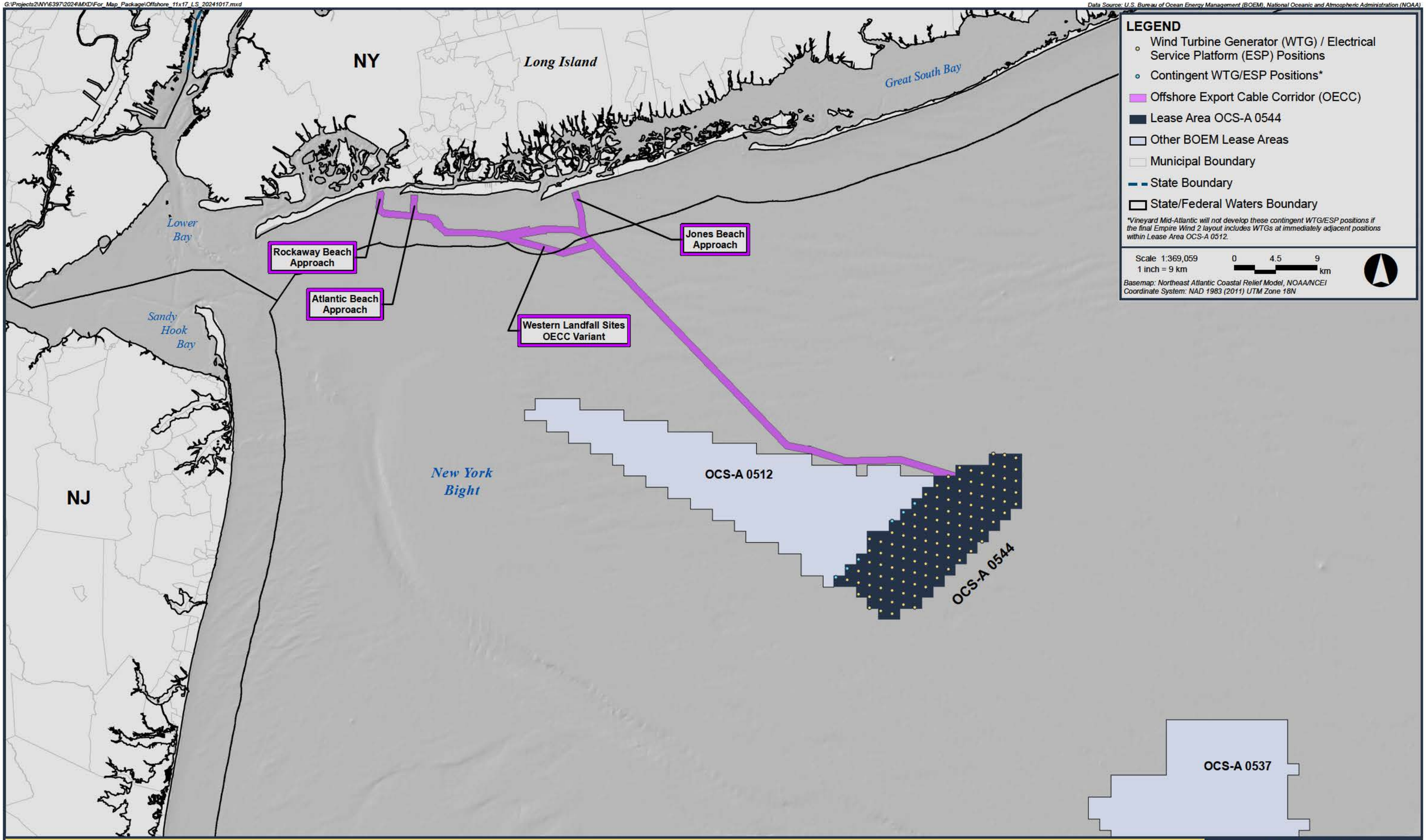


Figure 4
Vineyard Mid-Atlantic Offshore Export Cable Corridor

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

[redacted]

3.0 GEOGRAPHIC SCOPE OF POTENTIAL IMPACTS

3.1 Definition of the Visual Study Area

The visual study area (VSA) is the outer limit of the visual impact analysis. This limit is established as the maximum distance beyond which any view of an offshore component would be considered negligible. For the Vineyard Mid-Atlantic SLVIA, the VSA extends to a radius of 83.7 km (52.0 mi) from the proposed WTG/ESP positions.

The VSA includes areas of the Atlantic Ocean up to the distance at which the WTG blade tip (at apex of rotation) would fall below the horizon[2]. The VSA also includes substantial land areas on Long Island, New York including portions of Suffolk County, Nassau County, Queens County (Borough of Queens, New York City) and Kings County (Borough of Brooklyn, New York City). The VSA also includes substantial land areas in New Jersey including portions of Monmouth County and northern Ocean County. The VSA extends as far east as the Mecox Bay inlet in the Town of Southampton, Suffolk County, New York and as far south as Island Beach State Park, Berkeley Township, Ocean County, New Jersey.

The location and layout of Vineyard Mid-Atlantic and the VSA are illustrated in Figure 6.

3.2 Viewshed Analysis

Viewshed Analysis identifies the maximum geographic area within which some portion of Vineyard Mid-Atlantic's offshore facilities could potentially be visible based on geographic information system (GIS) generated viewshed analysis.

For the purpose of this SLVIA, two viewshed conditions are identified:

- Zone of Theoretical Visibility (ZTV) – The ZTV defines the theoretical worst-case area of potential visual effect considering only the screening effect of existing topography and earth curvature (i.e., "bare earth" condition).
- Zone of Likely Visibility (ZLV) – The ZLV presents the more realistic case area of potential visual effect including the real-world screening elements of existing intervening vegetation and structures (i.e., "land cover" condition).

3.2.1 Viewshed Analysis Methodology

Digital Elevation Models - Topographic, vegetation, and built structure elevations are based on 2010–2018[3] Light Detection and Ranging (LiDAR) surveys obtained from the United States Geological Survey (USGS) data download (USGS, n.d.). Using the LiDAR data, a highly detailed digital terrain model (DTM) was created at a horizontal resolution of <1 meter (3.28 ft) representing bare earth conditions of all sea and land surface areas within the 83.7 km (52.0 mi) radius VSA. Additionally, a digital surface model (DSM) was created at the same resolution representing the more realistic land cover condition incorporating all existing topographic surface features, such as existing buildings and vegetation, that

[2] Assumes observer eye level of 1.8 m (5.9 ft) above sea level and refraction coefficient of 1.13 (see Section 5.2)

[3] All LiDAR data was the most current available from the United States Geologic Survey (USGS) The National Map Download application (USGS, n.d.) at the time of this SLVIA was prepared. The vintage of available LiDAR files varies depending on specific geographic location.

may cause visual screening. Digital Elevation Models were created using Global Mapper Pro (v25.0) software "create elevation grid" tool set.

Viewshed Area Overlays - The viewshed calculation is based on 28 control points representing WTG/ESP positions (including the six contingent WTG/ESP positions) along the shoreward facing perimeter of the Lease Area OCS-A 0544 (i.e., northwestern and southwestern sides). Interior and more distant WTGs were not used in viewshed calculation as they are redundant with the visibility of perimeter WTGs. All viewshed calculations were generated using a horizontal grid cell resolution of ten meters (32.8 ft). Viewshed calculations are based on a 1.8 m (5.9 ft) observer height above existing grade and incorporate a coefficient of refraction of 0.13 (refer to Section 5.2 below). Viewshed overlays were conducted using Global Mapper Pro (v25.0) software "create viewshed" toolset.

Viewshed maps (including ZTV and ZLV overlays) are provided in Figure 6 and Figures A1 through A10 in Appendix A. In these figures incremental visibility is presented at four elevations: the top of foundation platform height, mid-tower height, nacelle top height, and blade tip height. These are defined as follows:

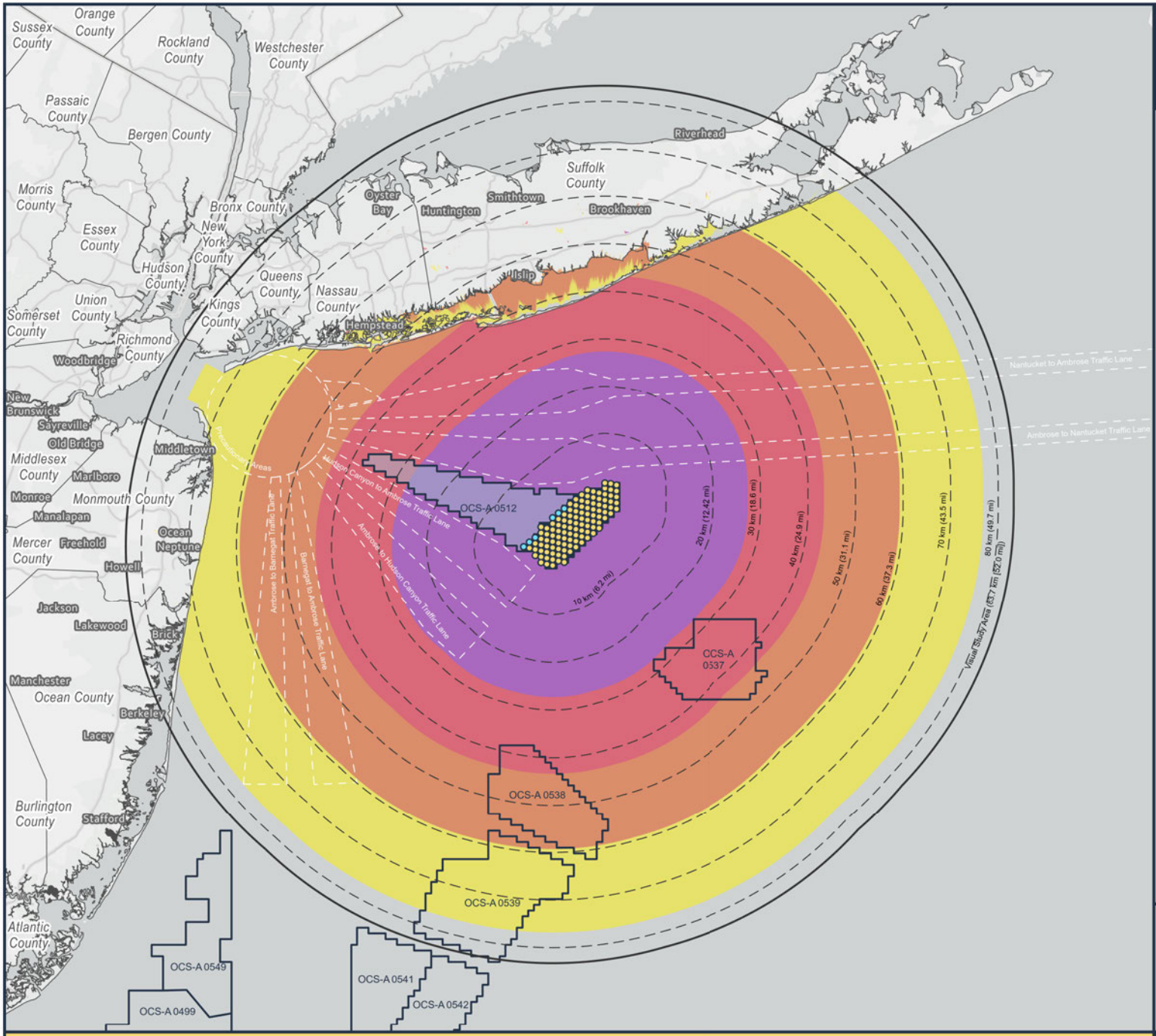
- Area of Top of Foundation Platform (35m [115 ft] above MLLW) Visibility – The geographic area where nearly the entire height of the nearest visible WTG (i.e., the top of the WTG foundation and above) will be seen. In this zone the nacelle mounted aviation obstruction and the mid-tower aviation obstruction lights will be seen within the luminous range of these lights. The foundation mounted marine navigation lights will be visible to offshore mariners within the luminous range of the lights.

- Area of Mid-Tower (102m [335 ft] above MLLW) Visibility – The geographic area where the mid-tower elevation of the nearest WTG (and above) will be seen. In this zone the nacelle mounted FAA aviation obstruction and the mid-tower aviation obstruction lights will be seen within the luminous range of these lights. The marine navigation lights are not visible.

- Area of Nacelle Top (203.5m [668 ft] above MLLW) Visibility – The geographic area where the top of nacelle elevation (and above) of the nearest visible WTG will be seen. In this zone the nacelle mounted aviation obstruction lights will be visible within the luminous range of the lights. The mid-tower aviation obstruction lights and marine navigation lights are not visible.

- Area of Blade Tip Only (355m [1,165 ft] above MLLW) Visibility (– The area where only the rotor blade of the nearest visible WTG will be seen. In this zone the mid-tower and nacelle mounted aviation obstruction lights, and the marine navigation lights are not be visible.

Figure 7 graphically illustrates the degree of visibility for each of these four visibility zones.



Seascape, Landscape and Visual Impact Assessment

Legend

- Wind Turbine Generator (WTG)/Electrical Service Platform (ESP) Positions
- Contingent WTG/ESP Positions*
- Lease Area OCS-A 0544
- Lease Area OCS-A 0512
- Other Lease Areas
- Shipping Lanes
- Distance From Lease Area OCS-A 0544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

**Vineyard Mid-Atlantic will not develop these contingent WTG/ESP positions if the final Empire Wind 2 layout includes WTGs at immediately adjacent positions within Lease Area OCS-A 0512.*

0 5 10 20 mi

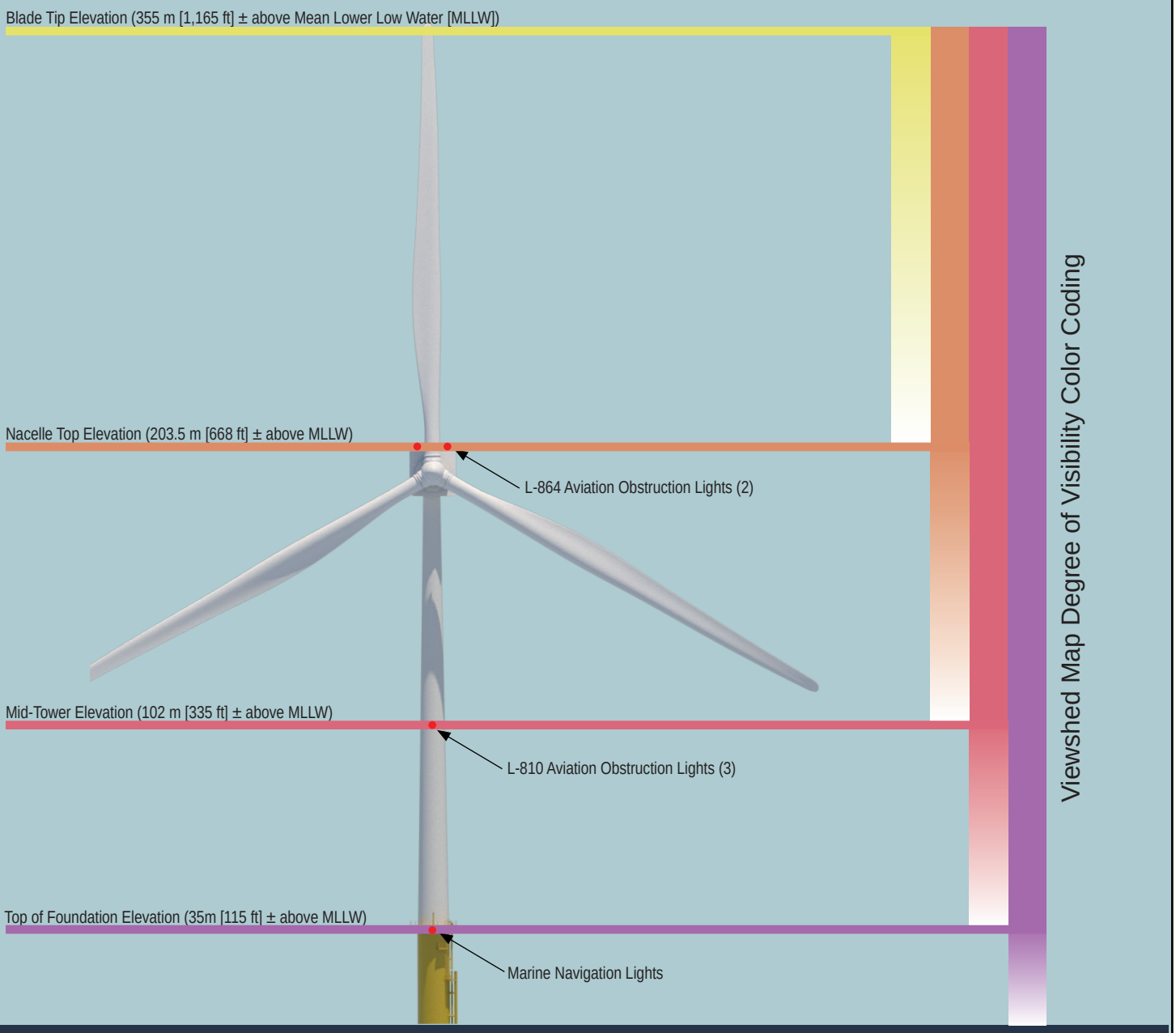
0 10 20 40 km

Scale: 1:1,200,000

Figure 6
Zone of Likely Visibility (ZLV) Map

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE



Front Elevation

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility
- Area of Mid-Tower Visibility
- Area of Nacelle Top Visibility
- Area of Blade Tip Visibility

Note: Each zone represents a range of WTG element visibility. Solid colors represent the portion of the WTG element visible from all areas within the distance zone. The color gradient indicates a decrease in WTG element visibility with increasing viewer distance.

Figure 7
Viewshed WTG Visible Elements Diagram

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

3.2.1.1 Field Verification

Viewshed accuracy was evaluated in the field on May 23 and May 24, 2023. Accuracy was determined using a georeferenced PDF version of the ZLV map uploaded to Avenza Maps®, a mobile map app that allows georeferenced maps to be viewed on a smartphone or tablet. Avenza Maps uses the mobile device's built-in GPS to track the user's real-time position within the context of the uploaded ZLV map. With the georeferenced ZLV map displayed on a mobile device, the visual analyst was able to visually observe whether or not a direct line-of-sight to the ocean or extended visibility across the landscape in the direction of the Lease Area exists within in the identified ZLV.

The visual analyst traveled along local roads and visited numerous sample locations where ZLV analysis indicates likely project visibility. In nearly all visited locations, the visual analyst found an unobstructed line-of-sight exists in places where project visibility is indicated on the ZLV map. Similarly, extended sight lines were consistently found to be screened in areas where no visibility is indicated on the ZLV maps.

Minor discrepancies in the ZLV overlay were noted in a limited number of visited locations where foreground scrub brush appeared to be somewhat taller than presented in the LiDAR-based DSM model. It is common for LiDAR-based DSM modelling to underestimate the height of screening vegetation. Such underestimates result in a conservative overestimate of the affected viewshed area.

In some cases where the visual analyst did not find a direct line-of-sight to the ocean from an area of ZLV indicated visibility, it is probable that the upper portion of one or more WTG's would be visible above intervening landform or vegetation, even though the ocean itself is not directly visible.

Minor discrepancies between the ZLV and field observation are not necessarily indicative of an error in the ZLV calculation. Such discrepancies typically represent areas that are within the margin of error of the source data. Based on field verification, the ZLV appears highly accurate and predicts the geographic extent of WTG visibility to a degree of certainty appropriate for the SLVIA.

3.2.2 Zone of Likely Visibility (ZLV) Analysis

Potential visibility of Vineyard Mid-Atlantic is illustrated in Figures A1 through A10 in Appendix A and summarized in Table 5.

3.2.2.1 Blade Tip Visibility

LiDAR-based ZLV analysis indicates that approximately 2.9% of the landward VSA (i.e., mainland and barrier islands) may be affected by views of some portion of one or more WTGs. Approximately 97.1% of the landward VSA will not be affected by views of Vineyard Mid-Atlantic's offshore components. Considering the screening provided by buildings, structures, vegetation, and topography, potential landward visibility of Vineyard Mid-Atlantic's offshore component is largely limited to the ocean shoreline, barrier islands, saltmarsh islands and the surface of open water bays and estuaries.

Views from mainland Long Island, New York and New Jersey are minimal. Due to screening by dense waterfront development in urbanized areas and mature coastal vegetation only 1.0% of the mainland portion of the VSA may be affected by WTG views. In affected mainland areas, WTG visibility is generally limited to within one or two blocks of the waterfront before views become screened by buildings or vegetation.

ZLV analysis identifies visibility of Vineyard Mid-Atlantic's offshore components from oceanfront beach locations along the south facing coastline of the boroughs of Brooklyn and Queens in New York City, Nassau and Suffolk Counties on Long Island, New York, and the east facing coastline of Monmouth County and northern Ocean County in New Jersey. Views are also found above intervening barrier islands at south facing bayfront locations on Long Island, New York in an area generally extending from Merrick Bay and South Oyster Bay in Nassau County, New York to Great South Bay and Moriches Bay in Suffolk County, New York. No visibility is indicated from bayside locations in Brooklyn or Queens, including the coastal vantage points on the Rockaway Inlet and Jamaica Bay, due to the extended viewing distance of Vineyard Mid-Atlantic and screening by existing vegetation and structures on intervening barrier islands. Similarly, no visibility is indicated from east facing bayside locations in New Jersey, including the costal vantage points along Sandy Hook Bay, Navesink River, Shrewsbury Bay, or Barnegat Bay, due to the extended viewing distance and screening provided by existing vegetation and structures on intervening barrier islands.

Views from vantage points on barrier islands are more common due to large areas of undeveloped land, low terrain, and an absence of tall vegetation. Approximately 38.8% of the land area on barrier islands within the VSA, including Sandy Hook in New Jersey and Jones Beach Island, Fire Island, Westhampton Island as well as numerous smaller islands within interior tidal bays in New York State may be affected by WTG views. WTG views are more prevalent in beachfront locations and on smaller islands within tidal bays leeward of the barrier beaches.

As would be expected with open water conditions where no foreground topography or vegetation exists to screen distant views, 90.3% of the open ocean area and 43.8% of the surface of bays and estuaries leeward of the barrier islands will be affected by views of Vineyard Mid-Atlantic's offshore components.

Along the beachfront, visibility diminishes over distance due to the curvature of the earth (refer to Section 5.2).

- The blade tip will fall over the horizon at approximately 76.9 km (48.0 mi) for standing observer at sea level.
- The nacelle top will fall over the horizon at approximately 59.7 km (37.1 mi).
- The mid-tower elevation will fall over the horizon at approximately 43.8 km (27.2 mi).
- The foundation platform top will fall over the horizon at approximately 27.7 km (17.2 mi).[4]

[4] Distance calculations assume a standing observer with an eye level 5.8 feet above sea level and a refraction coefficient of 1.13 (refer to Section 5.2).

Table 5 – Zone of Likely Visibility (ZLV) Results (Blade Tip Visibility)

	Total Area within VSA		Total ZLV Area		Percent Regional Landscape/Seascape with WTG Visibility
	(hectares)	(acres)	(hectares)	(acres)	
Landward Areas					
Mainland (1)	353,941	874,605	3,600	8,895	1.0%
Barrier Islands (2)	18,353	45,351	7,129	17,615	38.8%
Total Landward Area	**372,294**	**919,956**	10,729	**26,510**	2.9%
Seaward Areas					
Bays/Estuaries (3)	74,807	184,851	32,780	81,000	43.8%
North Shore Sound/Bays (4)	102,095	252,281	0	0	0.0%
Open Ocean (5)	2,126,906	5,255,691	1,920,706	4,746,161	90.3%
Total Seaward Area	**2,303,807**	**5,692,823**	**1,953,486**	**4,827,161**	**84.8%**
Total VSA	2,676,101	6,612,779	1,964,214	4,853,671	73.4%

Notes:
(1) Mainland includes the land mass of Long Island, New York, and coastal New Jersey exclusive of barrier islands.
(2) Barrier Islands include narrow oceanfront islands along coastal Long Island New York and New Jersey that are separated from the mainland by tidal bays, creeks, and lagoons. Also includes smaller islands within tidal bays.
(3) Bays/Estuaries include saltwater bays, harbors, and estuaries separated from the open ocean by barrier islands.
(4) North Shore Sound/Bays include waterbodies on the north shore of Long Island, New York.
(5) Open Ocean is the water surface within the VSA exclusive of saltwater bays, harbors, and estuaries.

3.2.2.2 Navigation and Aviation Obstruction Light Visibility

Viewshed analysis indicates that visibility of the nacelle top aviation obstruction lights is possible from approximately 1.4% of total land area within the VSA. This includes approximately 0.4% of the mainland and 19.2% of the barrier islands.

Nacelle top aviation obstruction lights will become visible above the distant horizon to coastal observers around the western end of the Long Beach Barrier Island before once again falling below the horizon around the Shinnecock Inlet in Suffolk County, New York. Visibility will be greatest where the Lease Area is closest to shore at the west end of Fire Island. The nacelle top aviation obstruction lights will also be seen above the horizon along the New Jersey coastline from about Sandy Hook southward to around Point Pleasant Beach, with visibility greatest where the Lease Area is closest to the New Jersey in the vicinity of Long Branch. Views are also found in above intervening barrier islands from south facing bayfront locations on Long Island, New York in an area generally extending from South Oyster Bay in Nassau County, New York to mastic Beach in Suffolk County, New York.

A smaller area will view the mid-tower aviation obstruction lights. Just 0.1% of the mainland land area and 4.9% of the barrier islands land area would see the mid-tower lights. Affected areas include oceanfront roughly from Atlantic Beach on the Long Beach Barrier Island eastward to the east end of Fire Island. Mid-tower aviation obstruction lights will not appear above the horizon as viewed from coastal vantage points in New Jersey.

The foundation top marine navigation lights will not be visible from any land-based vantage point due to earth curvature.

Table 6 – Navigation and Aviation Obstruction Light Visibility

	Percent of Landscape/Seascape Where Lights are Visible			
	Navigation Lights (Top of Foundation Platform) Visible	Mid-Tower Lights Visible	Nacelle Top Lights Visible	Blade Tip Only Visible (no lights visible)
Landward Areas				
Mainland (1)	0.0%	0.1%	0.6%	0.4%
Barrier Islands (2)	0.0%	4.9%	19.6%	19.2%
Landward Area Total	**0.0%**	**0.3%**	**1.5%**	**1.4%**
Seaward Areas				
Bays/Estuaries (3)	0.0%	0.0%	29.1%	14.7%
North Shore Sound/Bays (4)	0.0%	0.0%	0.0%	0.0%
Open Ocean (5)	19.3%	39.7%	62.9%	27.4%
Seaward Area Total	**18.7%**	**38.4%**	**61.7%**	**27.0%**

Notes:

(1) Mainland includes the land mass of Long Island, New York, and coastal New Jersey exclusive of barrier islands.
(2) Barrier Islands include narrow oceanfront islands along coastal Long Island New York and New Jersey that are separated from the mainland by tidal bays, creeks, and lagoons. Also includes smaller islands within tidal bays.
(3) Bays/Estuaries include saltwater bays, harbors, and estuaries separated from the open ocean by barrier islands.
(4) North Shore Sound/Bays include waterbodies on the north shore of Long Island, New York.
(5) Open Ocean is the water surface within the VSA exclusive of saltwater bays, harbors, and estuaries.

4.0 EXISTING VISUAL SETTING

4.1 Regional Landscape Description

The 83.7 km (52 mi) radius VSA includes large areas of Metropolitan New York City, portions of Long Island and northern New Jersey. These areas include a wide range of dense urban, urban and suburban uses as well as areas of rural and natural landscapes.

Central to the VSA are the highly urbanized New York City boroughs of Brooklyn and Queens. This highly developed area includes both low-rise and high-rise buildings that help shape the skyline, situated amid streets with densely populated residential and commercial units. The seaward portion of these boroughs include well-frequented beaches such as Coney Island and Rockaway Beach, with an array of adjacent commercial establishments. Moving inland, the density of urban development remains high with tightly spaced residential blocks, extensive neighborhood-oriented storefront and commercial business districts.

Adjacent to the densely developed urban areas of Brooklyn and Queens, Nassau County exhibits a transitional landscape where urban meets suburban. In this region, residential and commercial areas exist in a dense configuration. High density multi- and single-family residences are found along the ocean and in bayfront areas. Structures are most commonly low-rise, however high-rise residential towers are found in certain areas such as Long Beach. Inland, there is a balance of high-density residential neighborhoods, commercial zones, and recreational parks reflecting the transition from urban to suburban setting.

Farther from the city's core, Suffolk County in New York and Monmouth County in New Jersey represent areas with moderate to high suburban development. Coastal sections feature residential areas with pockets of commercial activity, while inland regions comprise suburban homes, town centers, and commercial pathways, with a diminishing density moving away from the city's center.

The farther regions of Suffolk County and parts of Monmouth County are characterized by lower density suburban development. The seaside includes a mix of residential properties and open shores. Farther inward, the larger residential lots with well-established landscaping and street trees, reduced commercial districts, parks, and wooded open spaces present a traditional suburban character.

Population density within the VSA exhibits a range from very high-density areas housing more than 39,000 persons per square mile in coastal neighborhoods of Brooklyn and Queens to high density with approximately 4,890 persons per square mile in coastal Nassau County, New York. There is a notable decline in density reaching less than 1,670 persons per square mile in western Suffolk County, New York, and coastal Monmouth and Ocean County, New Jersey. The lower density areas, recording less than 1,000 persons per square mile, are predominantly found in the eastern stretches of the VSA, particularly in the south shore of Suffolk County.

Within the VSA, large areas of coastal land are preserved as ocean and bayfront environmental conservation areas. These natural landscapes stand in contrast to adjacent areas of dense urban and suburban development. The Gateway National Recreation Area, inclusive of the Sandy Hook and Jamaica Bay units, the Fire Island National Seashore, along with numerous state and municipal parks,

serve to protect sensitive waterfront environmental and scenic resources and offer important recreational opportunities for the metropolitan New York region.

The VSA possesses a diverse visual character, accented by its recreational, cultural, and environmental landmarks. This ranges from the densely populated streets of New York City to the more tranquil coastal municipalities at the more distant edge of the VSA. Ocean beaches lining the New York and New Jersey coasts generally face south, southeast and east towards the Lease Area. While some viewpoints exhibit light pollution due to the surrounding dense urban development, more distant portions of the VSA provide more natural views of the ocean, bays, and adjacent natural areas. Ocean horizon views often feature lights from vessels, with their intensity and duration varying based on the vessel's distance and speed (BOEM, 2014).

4.2 Seascape, Landscape, and Ocean Character Areas

Landscape, Seascape, and Ocean Character Areas are discrete settings each with their own identifiable visual qualities. While a regional landscape may possess diverse features and characteristics, a Seascape, Landscape, or Ocean Character Area is a relatively homogeneous, unified landscape (or seascape) of visual character. These areas are established to provide a framework for comparing and prioritizing the differing visual quality and sensitivity of visual resources in the VSA. The following sections provide a general description of the unique Seascape, Landscape, and Ocean Character Areas found within the VSA.

A more detailed analysis of impacts on both the physical elements and features that make up a seascape or landscape and the aesthetic, perceptual, and experiential aspects that make it distinctive is provided in Section 7.0. Seascape, Landscape, and Ocean Character Area maps are provided in Appendix B.

4.2.1 Seascape Character Areas

Seascape Character Areas (SCAs) include discrete areas of coastal landscape and adjoining areas of open water, within which there is shared inter-visibility between land and sea which includes an area of sea (the seaward component), a length of coastline (the coastline component), and an area of land (the landward component) (Sullivan R. G., 2021, p. 63). There are 17 identified SCAs within the Vineyard Mid-Atlantic VSA. These include:

- Nearshore Ocean SCA
- Oceanside Beach SCA
- Oceanside Recreation SCA
- Oceanside Residential/Commercial SCA
- Oceanside Urban SCA
- Seascape Residential SCA
- Seascape Urban SCA
- Bayside Waterbodies SCA
- Bayside Natural Wetland SCA
- Bayside Natural Upland SCA
- Bayside Recreation SCA
- Bayside Residential SCA
- Bayside Urban SCA
- Bayside Commercial Park SCA
- Bayside Industrial SCA
- Bayside Industrial Resource SCA
- Bayside Military Site SCA

The following describes each of these SCAs. Table 7 summarizes the land area and percent of land area coverage for each SCA found within the VSA. It also lists the percentage of land area that falls within the ZLV. Representative photographs of SCAs are provided in Appendix G.

Nearshore Ocean SCA – The Nearshore Ocean SCA is defined as an offshore area extending 5.5 km (3.5 mi away from the coastline in which the ocean relates to the seascape. Within this zone long horizontal waves typically roll towards the coast, with regular whitecaps and breaking waves occurring, except in the calm of weather. Colors and textures vary consistently, and change constantly, throughout this stretch of water. This area is where viewers can see the range of color and motion of the ocean; behind this stretch of ocean, the open ocean is generally reduced to varying degrees of darkening blues until eventually reaching the dark horizontal horizon (Argonne National Laboratory, 2023).

A wide variety of human activities, including water sports, recreational boating (sail and power craft), recreational fishing, and ferry services are concentrated within the Nearshore Ocean SCA.

- Total SCA Area: 125,384hectares (309,824 acres)
- Total SCA Area in ZLV: 114,988hectares (284,135 acres)
- Percent of SCA within the ZLV: 91.7%

Oceanside Beach SCA – The Ocean Beach SCA maintains features, such as dunes and vegetation, in a way that makes the beach appear to be natural or have a minimal human impact, where human development is either not present, mostly obscured, or is built in a way that enhances rustic and/or natural features. Activities are passive and active, from swimming, surfing, and beachcombing, to relaxation and viewing nature. The emphasis of the view is the uninterrupted, wide horizon of the beach and ocean. (Argonne National Laboratory, 2023)

Nearly the entire oceanfront across the VSA consists of contiguous stretches of publicly accessible sand beaches. In New York, nearly 92 miles of publicly accessible beach extends from Coney Island in Brooklyn eastward to Southampton in Suffolk County. In New Jersey nearly 46 miles of beachfront extends from Island Beach State Park at the southern edge of the VSA to the northern tip of Sandy Hook. Although this wide sand ribbon runs adjacent to a variety of seascape character areas ranging from densely developed urban areas in Brooklyn and Queens in New York City, to the popular seaside summer resort communities of the Jersey Shore, to remote natural areas of Sandy Hook, Fire Island and eastern Long Island, the ocean beach maintains a distinct and consistent visual character throughout.

The Oceanside Beach SCA consists of miles wide white sand beach and vegetated sand dunes stabilized by native vegetation such as grasses, scrub brush, and low trees. Breaking surf is a continuous and unique visual condition.

Viewer activity is almost exclusively recreational in nature. Beaches are a significant attraction for coastal communities. During the summer season, certain stretches of the beach setting are at capacity. At other times of the year, beaches can be nearly deserted and appear in a seemingly pristine natural condition. As a daytime destination, particularly during the summer season, visitors bring brightly colored umbrellas, coolers, folding chairs, towels, and recreational watercraft. Seaward views from the beach encompass wide vistas of the open ocean which are almost always unobstructed and considered highly scenic.

The landward views from the Oceanside Beach SCA reflect the general character of the adjacent SCA ranging from natural to urban. Seaward views provide a visual transition from the man-made or natural features of the adjacent SCA to the vast open ocean.

Large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor in the Ambrose Anchorage or transiting near shore shipping lanes are regularly visible from segments of this SCA in Brooklyn and Queens in New York City, Nassau County and western Suffolk County in New York and Northern Monmouth County in New Jersey.

- Total SCA Area: 2,438 hectares (6,024 acres)
- Total SCA Area in ZLV: 1,569 hectares (3,877 acres)
- Percent of SCA within the ZLV: 64.4%

Oceanside Recreation SCA – This SCA includes developed recreational park land with a view of the beach and/or ocean from any vantage point. These include parks with significant sports and recreational resources such as tennis courts, baseball diamonds, or walking trails in non-natural landscapes; water or beach-focused resources such as boat slips, public marinas, or piers; as well as public and private golf courses. These recreational activities may not necessarily depend on the beach and/or ocean but are situated in a way which heightens and focuses the experience on the beach and/or ocean. (Argonne National Laboratory, 2023)

- Total SCA Area: 1,801 hectares (4,450 acres)
- Total SCA Area in ZLV: 1,124 hectares (2,778 acres)
- Percent of SCA within the ZLV: 62.4%

Oceanside Residential/Commercial SCA – This area is comprised of developed land, almost entirely of residential units, with a view of the beach and/or ocean from any vantage point. Architectural styles vary throughout the study area, but seaside residential units may reflect cottage, Victorian, and modern styles with an emphasis on decks, balconies, and windows that encourage views of the surrounding seascape. Access to the beach and ocean are often delineated through fenced walkways or boardwalks, often at the end of streets that abut the dunes. In these instances, the access points guide individuals up the dunes to the beach and ocean. In other instances, main street style commercial areas such cafes, gift shops, hotels, and other small scale local businesses may exist intermixed with residential units. In these instances, the businesses are often small, lining, or perpendicular to the boardwalk, and maintain architectural vernacular that connects them to the seascape. Vegetation can include dune grasses and shrubs along the more natural beach and dune edge, and conventional landscaping elements within the properties themselves. (Argonne National Laboratory, 2023)

Direct ocean views are primarily available at the seaward edge of the SCA, while views inland are often obstructed by closely spaced buildings. Beach access is generally available along or off public streets or along seaside boardwalks or oceanfront pedestrian paths.

The proximity to the ocean is highly valued and contributes to a perceived high quality of life. Seasonal rentals add a unique vibrancy during the summer months, particularly in blocks closest to the ocean. During the summer months, local boardwalks and surrounding neighborhoods are vibrant and crowded. In contrast, the off-season sees a reduction in activity, with many boardwalk attractions and vacation rental neighborhoods shutting down, resulting in a quieter environment.

- Total SCA Area: 3,779 hectares (9,338 acres)
- Total SCA Area in ZLV: 1,226 hectares (3,030 acres)
- Percent of SCA within the ZLV: 32.5%

Oceanside Urban SCA - Seaside development comprised of dense residential, commercial, and public lands, seaside urban zones still emphasize the view of the beach and/or ocean. Certain elements, regularly occur, such as boardwalks or other paths along the beach edge, provide additional means for recreation, including food, drink, and other entertainment. Architectural forms vary, from short, brightly colored and densely packed commercial and entertainment spaces to larger blocky, multistoried spaces such as casinos, hotels, and apartment complexes. Strong horizontality along the beach edge provides a continuous experience along the beach. (Argonne National Laboratory, 2023)

High-rise residential buildings line the oceanfront in certain areas offering panoramic views of the seascape from upper story units. Heavy traffic and on-street parking is typical. Natural patterns such as public greenspaces, street trees and site landscaping are limited. In many areas, the paved urban environment with densely spaced structures, vehicular traffic congestion, competing signage, street lighting and other typical characteristics of the city landscape detract from the scenic quality of the seascape. Heavily trafficked boulevards frequently serve as physical barriers to beach access and subtly delineate between the seaside and landward character areas.

Oceanfront residential units are likely in high demand due to ocean views. Inland residential units within several blocks of the seaside are similarly valued due to proximity to the ocean. Beach access is generally available along or off public streets or along seaside boardwalks or oceanfront pedestrian paths.

- Total SCA Area: 1,003 hectares (2,479 acres)
- Total SCA Area in ZLV: 350 hectares (864 acres)
- Percent of SCA within the ZLV: 34.9%

Seascape Residential SCA – Developed, largely residential land with small main street style commercial areas that is directly tied to the seascape character area but does not maintain direct views of the ocean, dunes, beaches, or other marine infrastructure. These homes do not directly connect to any seascape or ocean feature but are intrinsically connected. For example, a barrier island may be large enough that the interior residential streets maintain cohesive cultural and/or architectural cues to seaside elements but are too far from beach access points or are disconnected. (Argonne National Laboratory, 2023)

The Seascape Residential SCA incorporates a diverse range of housing options, encompassing apartments, as well as both multi and single-family homes. The presence of commercial and retail spaces within this area is limited. Greenspace ranges dependent on housing density. Proximity to the ocean is highly valued and contributes to a perceived high quality of life.

- Total SCA Area: 1,973 hectares (4,876 acres)
- Total SCA Area in ZLV: 21 hectares (51 acres)
- Percent of SCA within the ZLV: 1.0%

Seascape Urban SCA – Densely developed, highly commercial and mixed-use land that is directly tied to the seaside character area but does not maintain direct views of the ocean, dunes, beaches, or other marine infrastructure, though likely serves the commercial needs of this area. These areas do not directly connect to any seascape or ocean feature but are intrinsically connected. For example, a commercial strip several blocks away from a boardwalk may be architecturally reminiscent of a resort town, provide resort-related services, but is separated by both large roads and a significant distance from the beach itself. (Argonne National Laboratory, 2023)

The Seascape Urban SCA is characterized by significantly developed urban residential, commercial, and institutional land uses. Streets are marked by closely spaced residential, retail, commercial, institutional and transportation uses. Heavy traffic and on-street parking is typical. Natural patterns such as public greenspaces, street trees and site landscaping are limited. In many areas, the paved urban environment with densely spaced structures, significant traffic, competing signage, street lighting and other typical characteristics of the city landscape detract from the scenic quality of the seascape.

- Total SCA Area: 356 hectares (880 acres)
- Total SCA Area in ZLV: 0 hectares (1 acres)
- Percent of SCA within the ZLV: 0.1%

Bayside Waterbodies SCA – A partially enclosed saltwater body with direct access to the ocean and the associated docks, marinas, and other related infrastructure within these areas. These areas may have full, partial, or no views of the ocean and extend to the edge of river deltas and other waterbodies. (Argonne National Laboratory, 2023)

Open water with a generally flat horizon (depending on sea state, weather, and atmospheric conditions) dominates the view and is the focal element in all directions. In general, the waters of the saltwater bays and estuaries appear dark bluish-gray typical of northeastern US oceanic water (as compared to the light greenish blue colors common to southeastern waters of the US). Cloud cover, wind, sun reflectance, and surface glare affect the color of the water and often create patterns of color variation over the water's surface. The visible texture of the water is affected by the action of waves, which can include flat water, rolling swells, and/or choppy white cap conditions. Together, these factors contribute to an amalgam of shimmering colors and patterns of light that are of aesthetic interest and may command the attention of observers.

The existing landform of seaward barrier islands forms the visible horizon. Barrier islands are typically very low to the horizon. In nearshore areas, human-made features such as varying degrees of coastal development are visible. In some locations, the New York City skyline may be discernible in the distance. Background features include low-lying landforms and vegetation, ranging from salt marsh plants to inland woodlands. Man-made structures such as bridges and causeways are also common, as are various types of marine traffic, including recreational, commercial, and barge vessels.

Public access to these water features is limited to watercraft, making activities like power boating, sailing, and paddling the primary forms of recreation, all of which are water dependent.

- Total SCA Area: 177,854 hectares (439,478 acres)
- Total SCA Area in ZLV: 33,311 hectares (82,310 acres)
- Percent of SCA within the ZLV: 18.7%

Bayside Natural Wetland SCA – This area includes various types of wetlands adjacent to bay waterbodies. Direct views of the bay and other bayside waterbodies are present. Though adjacent to human development, the wetlands are undeveloped and largely inaccessible to humans.

- Total SCA Area: 13,113 hectares (32,401 acres)
- Total SCA Area in ZLV: 5,022 hectares (12,410 acres)
- Percent of SCA within the ZLV: 38.3%

Bayside Natural Upland SCA – These include upland habitats of natural or natural-appearing areas such as forested areas, shrub/scrubland, and large dunes, while maintaining a view of or providing direct connectivity to the bay and other bayside waterbodies. These areas also may include islands within the bay. (Argonne National Laboratory, 2023)

- Total SCA Area: 4,032 hectares (9,963 acres)
- Total SCA Area in ZLV: 218 hectares (539 acres)
- Percent of SCA within the ZLV: 5.4%

Bayside Recreation SCA – Developed recreational park land with a view of bay or other bayside waterbodies from any vantage point. These include parks with significant sports and recreational resources such as tennis courts, baseball diamonds, or walking trails in non-natural landscapes; water or beach-focused resources such as boat slips, public marinas, or piers; as well as public and private golf courses. These recreational activities may not necessarily depend on the bay but are situated in a way which heightens and focuses the experience on the bay. (Argonne National Laboratory, 2023)

The landward component is mostly developed with amenities that cater to the visitors, such as parking lots, restrooms, concessions, picnic areas, playgrounds, pavilions, sports fields, and other man-made features. The seaward component of this area is characterized by calm and sheltered waters, often with marinas, piers, docks, and boat ramps. The SCA may include a variety of recreational activities such as swimming, fishing, boating, hiking, biking, picnicking, and nature appreciation. The main visual qualities of this area are the contrast between natural and built elements, the diversity of recreational opportunities, and the scenic views of the bay and the ocean.

- Total SCA Area: 5,064 hectares (12,5013acres)
- Total SCA Area in ZLV: 472 hectares (1,167 acres)
- Percent of SCA within the ZLV: 9.3%

Bayside Residential SCA - Developed land, comprised mostly of residential units of low to high density, have a view of partially or fully enclosed saltwater bodies from any vantage point, including marinas, docks, piers, etc., or are located directly on the shoreline itself. These homes have direct access to the waterfront often with piers, marinas, and commercial cores servicing the local residents, etc., or are

generally designed in a way to provide significant views of the bays, inlets, marshes, rivers, or other areas on the interior side of the landform. The shoreline can be hard and highly developed, such as houses built directly on piers or adjacent to hard-edged shorelines. The shorelines also may be soft, naturalized, and having a gradual slope. (Argonne National Laboratory, 2023)

The Bayside Residential SCA features a diverse array of housing types, including multistory apartments and single-family houses situated on spacious lots. Architectural styles are diverse, often incorporating elements that complement the coastal setting. Commercial and retail land uses are limited in this SCA. Direct waterfront views are primarily available at the seaward edge of this SCA, while inland views are often obstructed by closely spaced buildings. The area's proximity to the bay contributes to its perceived high quality of life. The shoreline is generally linear, and the topography is level. Recreational activities are focused on water-based activities accessible from the bay. Commercial and recreational marine traffic is commonly visible from shoreline vantage points.

Unlike their oceanside counterparts, waterfront residences along the bay and its dredged canals often have private docks. Direct public access to the beachfront is often constrained by private property. The area's proximity to the water enhances its perceived quality of life. The shoreline is generally linear, and the topography is either flat or gently sloping.

- Total SCA Area: 24,0923 hectares (59,532 acres)
- Total SCA Area in ZLV: 730 hectares (1,803 acres)
- Percent of SCA within the ZLV: 3.0%

Bayside Urban SCA – Densely developed areas of land comprised of multi-level commercial and residential development, parking, and access roads with direct views of inland waterbodies. Infrastructure associated with these areas often includes marinas, docks, and piers directly along the shoreline itself. These areas are multiuse, with commercial and public lands occupying a significant portion of the landscape. These can be restaurants, commercial districts, institutional buildings, or public/private parks with significant infrastructure for waterfront access, such as large marinas or piers of significant size. (Argonne National Laboratory, 2023)

In many areas, the paved urban environment with densely spaced structures, vehicular traffic congestion, competing signage, street lighting, and other typical characteristics of the city landscape, detract from the scenic quality of the seascape.

The seaward component of this SCA includes a blend of recreational spaces, commercial piers, and waterfront promenades, like its Oceanside Urban SCA counterpart. However, the waterfront here is typically calmer and more sheltered, reflecting the characteristics of a bay rather than an open ocean. Commercial and recreational marine traffic is commonly visible from shoreline vantage points.

Bayside residential units are likely in high demand due to ocean views. Inland residential units within several blocks of the seaside are similarly valued due to proximity to the ocean.

- Total SCA Area: 3,551 hectares (8,775 acres)
- Total SCA Area in ZLV: 54 hectares (134 acres)
- Percent of SCA within the ZLV: 1.5%

Bayside Commercial Park SCA – These areas reflect business districts and commercial areas composed of office complexes, big box stores, strip malls, and parking lots. Few residential spaces exist within these landscapes. Buildings are nondescript, often single-story buildings, but may contain office complexes several stories tall. Major roads and highways may have such office parks and strip malls along them, but these character areas are specifically delineated when the density of such development is significant. While non-ocean waterbodies may be visible from the premises, little to no infrastructure or general design of the space and the buildings themselves emphasize the view of the waterbodies. (Argonne National Laboratory, 2023)

- Total SCA Area: 150 hectares (371 acres)
- Total SCA Area in ZLV: 5 hectares (12 acres)
- Percent of SCA within the ZLV: 3.1%

Bayside Industrial SCA – Bayside industrial areas are adjacent to the bay or other bayside waterbody that are industrial in nature, with features such as smokestacks, large blocky buildings, docks, large freight ships, bare earth, concrete, waste pilings, metal silos, warehouses, cranes, vehicles, and industrial materials. The scale of the industrial infrastructure is typically large, with angular, geometric cranes lining the waterfront. Freighters and other large coastal ships move within this environment, adding an additional visual weight and blocky pattern to this area. While they are sometimes connected to residential and urban areas, they typically lack public access and do not particularly provide views of the ocean and horizon. (Argonne National Laboratory, 2023)

- Total SCA Area: 1,025 hectares (2,532 acres)
- Total SCA Area in ZLV: 26 hectares (65 acres)
- Percent of SCA within the ZLV: 2.5%

Bayside Industrial Resource SCA – The bayside industrial resource area consists of industrial zones such as wastewater treatment plants, landfills, and quarries. These resource industrial areas are generally smaller in scale than other industrial facilities, less dependent on large facilities for manufacturing, and are frequently visually obscured by greenery. These facilities are often more secluded and obscured behind forested areas. The industrial elements within this category are smaller in scale and generally consist of low-lying, horizontal flat features, such as retention ponds and mining pits, that may not be visible from public right of ways. (Argonne National Laboratory, 2023)

- Total SCA Area: 73 hectares (180 acres)
- Total SCA Area in ZLV: 34 hectares (85 acres)
- Percent of SCA within the ZLV: 47.2%

Bayside Military Site SCA – These sites within the bayside seascape may have docks, piers, or other waterfront resources. When not obscured by greenery such as dense trees, military sites generally consist of light industrial and office buildings, gravel roads, chain-link fence, and railways. Buildings are

generally small, square, and nondescript in the traditional industrial style of the early 20th century (Argonne National Laboratory, 2023).

- Total SCA Area: 149 hectares (368 acres)
- Total SCA Area in ZLV: 10 hectares (26 acres)
- Percent of SCA within the ZLV: 7.0%

Table 7 summarizes the land area and percent of land coverage for each SCA area, as well as the percent viewshed ZLV coverage for each SCA area.

4.2.2 Landscape Character Areas

Landscape Character Areas (LCAs) are unique and discrete geographic areas of a particular landscape type, but do not include seacoast.

There are seven identified LCAs within the Vineyard Mid-Atlantic VSA. These include:

- Inland Natural Area LCA
- Inland Agriculture LCA
- Inland Rural LCA
- Inland Recreation LCA
- Inland Suburban/Exurban Residential LCA
- Inland Urban LCA
- Inland Commercial Park LCA
- Inland Industrial LCA
- Inland Industrial Resource LCA
- Inland Military Site LCA

Table 7 summarizes the land area and percent of land area coverage for each LCA found within the VSA. It also lists the percentage of land area that falls within the ZLV. Representative photographs of LCAs are provided in Appendix G.

Inland Natural Area LCA – These are greenspaces that are natural or natural appearing. Inland, this typically is comprised of forests, savannahs, and grasslands. Pine barrens are a representative habitat of such natural area. These spaces lack significant development, or at least appear to lack development, using smaller trails and paths enclosed in these natural spaces, rather than wide trails with high visibility. Parks geospatial layers from relevant states, counties, and cities are the basis for this character area, with small neighborhood parks being removed due to insufficient scale to be considered a character area. Aerial imagery was used to identify parks that were mostly comprised of recreational amenities and non-natural landscapes; these were removed and instead considered as part of the Recreational Area character area. If trees and other natural features extended beyond the parks border in aerial imagery, the natural area was extended to reflect the continuation of habitat. (Argonne National Laboratory, 2023)

- Total LCA Area: 48,712 hectares (120,368 acres)
- Total LCA Area in ZLV: 46 hectares (114 acres)
- Percent of SCA within the ZLV: 0.1%

Inland Agriculture LCA – This character area consists of managed fields for agricultural purposes, and the adjacent housing and related agricultural structures such as barns, silos, and other elements of the farmstead. Fields are typically large, rectangular, and consist of pasture, row crops, or large raised beds and/or greenhouse structures for a variety of crops and agricultural products. The terrain is generally

flat to gently rolling. Fields are often bordered by woodlots or hedgerows, which limit long-distance views. (Argonne National Laboratory, 2023)

- Total LCA Area: 11,527 hectares (28,483 acres)
- Total LCA Area in ZLV: 6 hectares (16 acres)
- Percent of SCA within the ZLV: 0.1%

Inland Rural LCA -- Inland rural areas are agricultural lands and areas of low population density. Architecturally there may be similar vernacular elements related to agricultural areas, but significant architectural and structural elements persist between Inland Rural and the Inland Suburban/Exurban Residential character types. (Argonne National Laboratory, 2023)

- Total LCA Area: 1,990 hectares (4,916 acres)
- Total LCA Area in ZLV: 40 hectares (99 acres)
- Percent of SCA within the ZLV: 2.0%

Inland Recreation LCA – These areas are developed recreational park lands with no view of the beach and/or ocean and have no connection to seaside character. These include parks with significant sports and recreational resources such as tennis courts, baseball diamonds, walking trails in non-natural landscapes, as well as public and private golf courses. (Argonne National Laboratory, 2023)

- Total LCA Area: 8,299 hectares (20,506 acres)
- Total LCA Area in ZLV: 26 hectares (66 acres)
- Percent of SCA within the ZLV: 0.3%

Inland Suburban/Exurban Residential LCA – Inland residential areas reflect developed land, mostly residential units, that do not have a view of the beach and/or ocean from any vantage point. There is no apparent connection to seaside character. These vary in architectural styles and densities, but most importantly do not bear architectural or cultural elements associated with seaside communities. There is significant variation in architectural and structural styles of Inland Residential. These range from conventional suburban design at various densities, to exurban stylings. (Argonne National Laboratory, 2023)

While there may be multistory apartment buildings and multifamily homes present in this character are, single-family homes, with varying lot sizes, are dominant.

- Total LCA Area: 177,113 hectares (437,646 acres)
- Total LCA Area in ZLV: 224 hectares (555 acres)
- Percent of SCA within the ZLV: 0.1%

Inland Urban LCA - Inland urban areas are developed land without a view of the beach and/or ocean from any vantage point. There is no apparent connection to seaside character. Dense commercial areas, dense residential areas with apartment buildings, and other areas with significant development are considered in this urban landscape (Argonne National Laboratory, 2023).

The Inland Urban SCA is characterized by significantly developed urban residential, commercial, and institutional land uses. Streets are marked by closely spaced residential, retail, commercial, institutional and transportation uses. Heavy traffic and on-street parking is typical. Natural patterns such as public

greenspaces, street trees and site landscaping are limited. In many areas, the paved urban environment with densely spaced structures, significant traffic, competing signage, street lighting and other typical characteristics of the city landscape detract from the scenic quality of the seascape.

- Total LCA Area: 44,415 hectares (109,749 acres)
- Total LCA Area in ZLV: 170 hectares (421 acres)
- Percent of SCA within the ZLV: 0.4%

Inland Commercial Park LCA – These areas reflect business districts and commercial areas composed of office complexes, big box stores, strip malls, and parking lots. Relatively few residential spaces exist within these landscapes. Buildings are nondescript, often single-story buildings, but may contain office complexes several stories tall. Major roads and highways may have such office parks and strip malls along them, but these character areas are specifically delineated when the density of such development is significant. These typically occur near highway ramps and have no proximity or view of the ocean.

- Total LCA Area: 8,743 hectares (21,604 acres)
- Total LCA Area in ZLV: 30 hectares (73 acres)
- Percent of SCA within the ZLV: 0.3%

Inland Industrial LCA – These are significant areas of developed land, with features such as smokestacks and large blocky buildings. While they are connected to residential and urban areas, these large areas typically lack public access. Bare earth, concrete, waste pilings, metal silos, warehouses, vehicles, and industrial materials are typical in this environment. The Inland Industrial LCA includes airports with runways, terminals, control towers, parking lots and support facilities. Wide open spaces of runways and parking lots create long lines of sight. John F. Kennedy International Airport is a significant land use within the coastal portion of the VSA. (Argonne National Laboratory, 2023)

- Total LCA Area: 6,387 hectares (15,782 acres)
- Total LCA Area in ZLV: 134 hectares (331 acres)
- Percent of SCA within the ZLV: 2.1%

Inland Industrial Resource LCA - The Inland Industrial resource area consists of industrial zones related to natural resources, such as wastewater treatment plants and quarries. These resource industrial areas are generally smaller in scale than other industrial facilities and are frequently visually obscured by greenery, often hidden away from public view. The industrial elements within this category are smaller in scale and generally consist of low lying, horizontal flat features, such as retention ponds and mining pits, that may not even be visible from public right of ways. (Argonne National Laboratory, 2023)

- Total LCA Area: 1,538 hectares (3,801 acres)
- Total LCA Area in ZLV: 87 hectares (215 acres)
- Percent of SCA within the ZLV: 5.7%

Inland Military Site LCA – When not obscured by greenery such as dense trees, military sites generally consist of light industrial and office buildings, gravel roads, chain-link fence, and railways. Buildings are generally small, square, and nondescript in the traditional industrial style of the early 20th century.

- Total LCA Area: 3,323 hectares (8,212 acres)

- Total LCA Area in ZLV: 1 hectare (3 acres)
- Percent of SCA within the ZLV: 0.2%

4.2.3 Ocean Character Areas (OCA)

The Ocean Character Area (OCA) primarily includes open waters of the Atlantic Ocean that are 3.0 nm (3.45 miles) beyond the Atlantic shoreline and unbounded by landforms. Human-made features, such as buoys, lighthouses, ships, boats, and other marine navigational and safety infrastructure can occur within the open ocean setting. The open ocean can range based on atmospheric conditions and tidal patterns but remains generally flat and vast (Argonne National Laboratory, 2023).

This OCA is characterized by broad expanses of open water that form the dominant foreground element in all directions. From all vantage points, Vineyard Mid-Atlantic will be viewed over open water. In general, the waters of the Atlantic Ocean appear dark bluish-gray typical of northeastern US oceanic water (as compared to the light greenish blue colors common to southeastern waters of the US). Cloud cover, wind, sun reflectance, and surface glare affect the color of the water and often create patterns of color variation over the water's surface. The visible texture of the water is affected by the action of waves, which can include flat water, rolling swells, and/or choppy white cap conditions. Together, these factors contribute to an amalgam of shimmering colors and patterns of light that are of aesthetic interest and may command the attention of observers.

The waters off New York and New Jersey are a heavily transited commercial shipping route. In 2022, the Port of New York and New Jersey was the largest container port on the East Coast of the United States. The Ambrose Channel is the shipping channel in and out of the Port of New York and New Jersey. The Ambrose Channel is considered to be part of Lower New York Bay and is located several miles off the coasts of Sandy Hook, New Jersey, and Breezy Point, New York. In all, there were 9,493,664 twenty-foot equivalent units (TEU) imported and exported from the Port of New York and New Jersey. An anchorage ground in an area referred to by mariners as the Ambrose anchorage, is an offshore area that is used by ships awaiting inshore anchorages or berths (Port Authority of NY NJ, 2023). The area is in the approaches to New York Harbor approximately 3 nm south of Long Beach, New York, and just north of the Nantucket to Ambrose Traffic Lane. Large ocean-going container ships, tankers, cargo ships, bulk carriers, passenger ships and other vessel types are regularly visible inbound or outbound from New York Harbor or anchored near shore awaiting authorization to proceed into the harbor.

- OCA Area: 2,001,572 hectares (4,945,884 acres)
- Total OCA Area in ZLV: 1,936,699 hectares (4,785,584 acres)
- Percent of OCA within the ZLV: 96.8%

4.2.4 Summary of Character Areas

Table 7summarizes the total land area and percent of character area coverage for each SCA, LCA, and OCA area found within the VSA. It also lists the percentage of each character area that falls within the ZLV of Vineyard Mid-Atlantic.

Table 7 – Character Area/Zone of Likely Visibility Summary

CHARACTER AREAS (CA)	Total Character Area (CA)			ZLV Area Blade Tip			ZLV Area Nacelle Top			ZLV Area Mid-Tower			ZLV Area Foundation Top			ZVI Total		
	hectares	(acres)	% all CAs	hectares	(acres)	% CA in ZLV	hectares	(acres)	% CA in ZLV	hectares	(acres)	% CA in ZLV	hectares	(acres)	% CA in ZLV	hectares	(acres)	% all CAs in ZLV
Seascape Character Areas (SCA)																		
Nearshore Ocean	125,384	309,824	18.5%	58,966	145,704	47.0%	28,690	70,893	22.9%	27,332	67,537	21.8%	0	1	0.0%	114,988	284,135	91.7%
Oceanside Beach	2,438	6,024	0.4%	511	1,262	21.0%	592	1,464	24.3%	466	1,151	19.1%	0	0	0.0%	1,569	3,877	64.4%
Oceanside Recreation	1,801	4,450	0.3%	227	560	12.6%	673	1,663	37.4%	225	555	12.5%	0	0	0.0%	1,124	2,778	62.4%
Oceanside Residential/Commercial	3,779	9,338	0.6%	880	2,175	23.3%	140	346	3.7%	206	509	5.5%	0	0	0.0%	1,226	3,030	32.5%
Oceanside Urban	1,003	2,479	0.1%	214	528	21.3%	136	336	13.5%	0	0	0.0%	0	0	0.0%	350	864	34.9%
Seascape Residential	1,973	4,876	0.3%	15	37	0.7%	6	14	0.3%	0	0	0.0%	0	0	0.0%	21	51	1.0%
Seascape Urban	356	880	0.1%	0	1	0.1%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	1	0.1%
Bayside Waterbodies	177,854	439,478	26.2%	15,983	39,494	9.0%	17,326	42,812	9.7%	1	4	0.0%	0	1	0.0%	33,311	82,310	18.7%
Bayside Natural Wetland	13,113	32,401	1.9%	3,644	9,004	27.8%	1,319	3,259	10.1%	59	146	0.5%	0	0	0.0%	5,022	12,410	38.3%
Bayside Natural Upland	4,032	9,963	0.6%	147	362	3.6%	66	164	1.6%	5	13	0.1%	0	0	0.0%	218	539	5.4%
Bayside Recreation	5,064	12,513	0.7%	192	474	3.8%	280	692	5.5%	1	2	0.0%	0	0	0.0%	472	1,167	9.3%
Bayside Residential	24,092	59,532	3.6%	368	910	1.5%	361	891	1.5%	1	1	0.0%	0	0	0.0%	730	1,803	3.0%
Bayside Urban	3,551	8,775	0.5%	36	89	1.0%	18	45	0.5%	0	0	0.0%	0	0	0.0%	54	134	1.5%
Bayside Commercial Park	150	371	0.0%	2	5	1.3%	3	7	1.8%	0	0	0.0%	0	0	0.0%	5	12	3.1%
Bayside Industrial	1,025	2,532	0.2%	7	17	0.7%	19	47	1.9%	0	0	0.0%	0	0	0.0%	26	65	2.5%
Bayside Industrial Resource	73	180	0.0%	4	10	5.5%	15	38	21.0%	15	37	20.7%	0	0	0.0%	34	85	47.2%
Bayside Military Site	149	368	0.0%	10	26	7.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	10	26	7.0%
Total SCA	365,837	903,984	54.0%	81,205	200,657	22.2%	49,644	122,670	13.6%	28,311	69,956	7.7%	1	2	0.0%	159,161	393,286	43.5%
Landscape Character Areas (LCA)																		
Inland Natural Area	48,712	120,368	7.2%	33	81	0.1%	12	30	0.0%	2	4	0.0%	0	0	0.0%	46	114	0.1%
Inland Agriculture	11,527	28,483	1.7%	6	15	0.1%	0	1	0.0%	0	0	0.0%	0	0	0.0%	6	16	0.1%
Inland Rural	1,990	4,916	0.3%	30	75	1.5%	9	23	0.5%	0	1	0.0%	0	0	0.0%	40	99	2.0%
Inland Recreation	8,299	20,506	1.2%	16	39	0.2%	7	18	0.1%	3	8	0.0%	0	0	0.0%	26	65	0.3%
Inland Suburban/Exurban	177,113	437,646	26.1%	132	327	0.1%	53	132	0.0%	37	91	0.0%	2	5	0.0%	224	555	0.1%
Inland Urban	44,415	109,749	6.6%	98	243	0.2%	23	57	0.1%	48	120	0.1%	0	1	0.0%	170	421	0.4%
Inland Commercial Park	8,743	21,604	1.3%	24	59	0.3%	4	10	0.0%	2	4	0.0%	0	0	0.0%	30	73	0.3%
Inland Industrial	6,387	15,782	0.9%	112	278	1.8%	6	14	0.1%	16	39	0.2%	0	0	0.0%	134	331	2.1%
Inland Industrial Resource	1,538	3,801	0.2%	23	57	1.5%	13	31	0.8%	34	85	2.2%	17	41	1.1%	87	215	5.7%
Inland Military Site	3,323	8,212	0.5%	1	3	0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	1	3	0.0%
Total LCA	312,047	771,068	46.0%	476	1,175	0.2%	128	317	0.0%	142	351	0.0%	19	48	0.0%	765	1,891	0.2%
Total SCA and LCA	677,884	1,675,052	100.0%	81,681	201,833	12.0%	49,772	122,987	7.3%	28,453	70,307	4.2%	20	50	0.0%	159,926	395,177	23.6%
Ocean Character Areas (OCA)																		
Open Ocean	2,001,572	4,945,884	100.0%	523,156	1,292,719	26.1%	462,949	1,143,946	23.1%	406,796	1,005,193	20.3%	411,071	1,015,756	20.5%	1,803,971	4,457,613	90.1%

4.3 Viewer Groups

Viewers engaged in different activities while in the same setting are likely to perceive their surroundings differently. The description of viewer groups is provided to assist in understanding the sensitivity and probable reaction of potential observers to visual change resulting from a proposed project.

Year-Round Residents – Year-Round Residents include those who live, work, and travel for their daily business within the VSA. Residents typically refers to year-round residents who are employed or raising their family on or near the New York and New Jersey coastline.

Year-round residents generally view the landscape from their yards, homes, local roads, and places of employment. Residents are concentrated in and around the various village and shoreline residential areas but can be found 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 and may be tempered by the aesthetic character/setting of their neighborhood or workplace. Those living in more densely settled areas with views focused on their neighborhood street or downtown centers may be less sensitive to landscape changes than those with a view of undeveloped land or the ocean. Residents living on the coast with views toward the water may have an increased level of sensitivity to changes in the seascape. It is generally assumed, however, that all residents are familiar with the surrounding landscape and may be sensitive to changes in their views.

Seasonal Residents and Vacationers—One of the coastal area's greatest assets is the view of the Atlantic Ocean, saltwater bays, and the shoreline landscape. Coastal New York and New Jersey have long been renowned tourist destinations offering a broad spectrum of passive and active recreational pursuits focused on their scenic and coastal setting. While some visit the seaside for a few days or a week in the summer, others may spend the entire summer season in the area. Seasonal residents and vacationers typically visit New York's Fire Island/Eastern Long Island and the Jersey Shore for relaxation and enjoyment of the natural, cultural, and social resources of the area. They are commonly involved in outdoor recreational activities at beaches, parks, and conservation areas or visiting Village/Town Center areas. Typical activities include sunbathing, beach combing, swimming, walking, bicycling, recreational boating, fishing, and other passive recreation.

Visitors also enjoy various seaside entertainment establishments in urbanized coastal communities including (but not limited to) Coney Island, Rockaway Beach and Long Beach in New York, and Seaside Heights, Point Pleasant Beach, Asbury Park, Long Branch and Seabright in New Jersey. Common seaside entertainment venues include family-oriented boardwalk arcades and amusement parks, as well as waterfront restaurants and night clubs.

While the sensitivity of these viewers will vary, seasonal residents and vacationers will be highly sensitive to built elements on the landscape since quality views of the ocean are likely a primary reason for their visit and an integral part of their recreational experience. Some visitors may find their experience would be worsened, primarily due to the visual disruption of the seascape. Other visitors may prefer areas providing views of WTGs and may visit the area primarily for the purpose of seeing WTGs. The potential impact of Vineyard Mid-Atlantic on recreation and tourism is further discussed in Section 5.3 of COP Volume II.

Greater numbers of tourists, vacationers, and recreational users will be present in the coastal area during the summer and on sunny days, when the weather is often clear and warm as compared to overcast, rainy, or cold days. In addition, more recreational users will be present in the coastal area on weekends and holidays than on weekdays.

Scenery/Heritage-Oriented Visitors– Scenery/Heritage-Oriented Visitors may be a subset of Seasonal Residents and Vacationers or may also include single day visitors to the coastal area. This user group typically visits natural or scenic areas for the express purpose of enjoying the aesthetic quality of the landscape. This user group may also include heritage tourists interested in exploring valued assets such as historic buildings and cultural traditions.

Recreational activities enjoyed by this viewer group may include biking/hiking, camping, hunting, fishing, birdwatching, nature/landscape photography, star gazing, general appreciation of historic architecture and the cultural landscape, and other passive outdoor recreational activities. Scenery/Heritage-Oriented Visitors are likely highly sensitive to built elements within seascape views since open views of the ocean are likely a primary reason for their visit and an integral part of their recreational experience.

Recreation-Oriented Visitors – Recreation-Oriented Visitors may also be a subset of Seasonal Residents and Vacationers, or may be single day visitors to the coastal area. This user group typically visits the area to enjoy more active outdoor recreational pursuits such as biking, jogging, vigorous hiking, surfing, golf, tennis, beach/field sports, or other active outdoor recreational activities. Recreation-Oriented Visitors may be highly sensitive to built elements on the landscape since quality views of the ocean may be an integral part of their recreational experience. Others may be less sensitive as the visual quality of their surroundings may be secondary to enjoyment of the recreational activity itself.

Recreational Mariners – Recreational mariners include seasonal residents, vacationers, and day use visitors who commonly enjoy on-water leisure pursuits in private vessels and for-charter vessels, including sport fishing, sailing, and sight-seeing.

Recreational boating is typically concentrated within several miles of the coastline. However, recreational mariners may venture many miles offshore along the OCS, including on water vantage points near or within the Lease Area. Recreational mariners may be particularly sensitive to man-made structures within the seascape since views are commonly limited to open ocean and horizon when venturing far offshore, and distant coastal land masses when closer to shore. Recreational mariners may have prolonged visual exposure to the seascape and coastal environment.

While the unique character of open ocean views is an important part of the recreational experience for most recreational mariners, viewers may also be cognizant of waterfront development visible from near shore vantage points. While the sensitivity of recreational mariners will vary, to most viewers, the unique visual character of the open ocean, bays, harbors, and inlets is an important and integral part of the recreational experience.

Through Travelers—Through Travelers include non-local viewers with views of the ocean. Through Travelers are typically moving, have a relatively narrow field of view oriented along the axis of the roadway, and are destination oriented. Through travelers include driver and passenger automobile users. Drivers will generally be focused on the road and traffic conditions but do have the opportunity to

observe roadside scenery. Passengers in moving vehicles will have greater opportunities for prolonged off-road views than will drivers, and therefore may be more aware of the quality of surrounding scenery. Field observation found few roads with significant or extended views of the ocean.

4.3.1 Public Reaction

Regardless of the viewer group, public reaction to Vineyard Mid-Atlantic is likely to be variable. Not all viewers see WTGs as having an adverse visual impact. A number of research studies examining the visual impacts of offshore and onshore wind energy developments indicate that wind power enjoys strong support among members of the public and, unlike most large-scale energy facilities, WTGs are, in some cases, viewed as a positive visual impact by significant portions of the public (BOEM, 2007).

While strong support for wind power development generally exists, local concerns relating to the aesthetics of planned wind facilities are not uncommon. The perceptions of visual impacts associated with wind energy development vary among potential viewers and may be positive or negative, can change over time, and, in some cases, possibly trend toward more positive perceptions after the installation of wind energy facilities (BOEM, 2007).

Warren et al. (2005) assessed pre- and post-development attitudes toward visual impacts associated with two onshore wind facilities in Ireland. Their survey found, for one location, that more than 90% of survey respondents supported the concept of wind power, but 66% of respondents were initially opposed to a local proposed wind facility. Contrary to expectations, individuals living closest to the onshore wind facility, who had originally opposed it on aesthetic grounds, actually increased their acceptance of the visual impacts after construction, with 62% regarding the visual impact as positive. Similar results were observed for a second onshore wind facility. The results in both cases suggest that familiarity with the wind facilities decreased aesthetic objections. Stated reasons for changing perceptions of visual impacts varied among respondents—some felt the WTGs were attractive while others felt that the actual impacts were less than had been anticipated (BOEM, 2007).

4.4 Circumstances of View

View duration affects perceived visual impacts. Impacts that are viewed for a long period of time, such as from a place of residence or employment, are generally judged to be more severe than those viewed briefly (BOEM, 2007). Sites of short-term exposure include locations where a stationary observer is only visiting, such as beaches or other coastal recreation areas. The duration of visual impact remains at the discretion of the individual observer; however, short-term impacts diminish with repeated observations by the same observer (i.e., people become accustomed to common views).

Moving Views—Moving views are those experienced in passing, such as from moving land-based or water-based vehicles and craft, where the time available for a viewer to cognitively experience a particular view is limited. Typically, such views apply to motorists proceeding at a high rate of speed along a defined path through highly complex stimuli.

Traveling at a slower speed over open water, recreational boaters may have greater opportunities to cognitively experience their surroundings. For sailboats and very slow-moving motor craft, visual recognition may be similar to that described for stationary viewers. For reasons of safety, including

avoidance of other vessels and surface flotsam, a boater may nevertheless still tend to focus more on the direction of travel rather than other directions.

4.5 Laws, Ordinances, and Regulations

Open ocean, seascape, landscape, and visual resource protection and management laws, ordinances, and regulations that may be applicable are identified in BOEM's Programmatic Final Environmental Impact Statement for the New York Bight and are included here as Table 8 (BOEM, 2024, pp. H10-H23).

Table 8 – Laws, Ordinances, and Regulations

Jurisdiction	Authority	Objectives
Federal		
	Code of Federal Regulations (CFR) Title 30 of the CFR Part 585, Subpart F, Plans and Information Requirements	This title provides guidance on survey requirements, project-specific information, and information to meet the requirements of the Outer Continental Shelf Lands Act, NEPA, and other applicable laws and regulations. It also specifies that to comply with NEPA and other relevant laws, the COP must include a detailed description of visual resources and various social and economic resources that could be affected by the proposed project, that would be addressed in an SLVIA.
BOEM	Outer Continental Shelf Lands Act (OCSLA), Title 43, Chapter 29, Subchapter I, Section 1301 (1953)	The primary purpose of the OCSLA is to facilitate the federal government's leasing of its offshore mineral resources and energy resources. As set forth in the Energy Policy Act of 2005, OCSLA was amended to authorize the Department of the Interior (DOI) to issue submerged land leases for alternate uses and alternative energy development on the OCS. Through this amendment and subsequent delegation by the Secretary of the Interior, BOEM has the authority to issue these leases and regulate activities that occur within them, including the authorization of a COP.
BOEM	Submerged Lands Act (SLA) of 1953	The SLA grants coastal states title to natural resources located within their coastal submerged lands out to 3 miles (4.8 kilometers) from their coastline.
BOEM	National Environmental Policy Act (NEPA)	NEPA was signed into law in 1970 and set forth a national environmental policy in the United States meant to ensure federal agencies consider the significant environmental consequences of their proposed actions and inform the public about their decision making. NEPA established the Council on Environmental Quality (CEQ) to advise agencies on the NEPA process and to oversee and coordinate the development of federal environmental policy. The CEQ issued revised NEPA regulations (40 CFR 1500-1508) in 2021. The regulations include procedures to be used by federal agencies for the NEPA review process.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
BOEM	Clean Air Act (CAA) of 1970	The CAA authorized the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The states were directed to develop State Implementation Plans (SIPs), which consist of emission reduction strategies, with the goal of achieving the NAAQS by the legislated date. BOEM has jurisdiction over OCS air emissions in the Gulf of Mexico west of 87.5 degrees west longitude (off the coasts of Texas, Louisiana, Mississippi, and Alabama). BOEM also has jurisdiction over OCS air emissions within the Chukchi and Beaufort Seas in Alaska according to the Consolidated Appropriations Act of 2012. In all other OCS areas, the USEPA has jurisdiction, as mandated by Section 328 of the CAA.
BOEM	Coastal Zone Management Act (CZMA) (1972)	The U.S. Congress recognized the growth in the coastal zone by passing the CZMA, which is administered by the National Oceanic and Atmospheric Administration (NOAA). The goal is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." Authorized by the CZMA in 1972, the Coastal Zone Management Program (CZMP) was established as a voluntary partnership between the federal government and U.S. coastal and Great Lakes states and territories (BOEM 2009).
BOEM	National Historic Preservation Act 1966	This act establishes a preservation program and a system of protections, which encourage both the identification and protection of historic resources. As part of this program, historic districts and individual properties are either listed or eligible for listing on the National Register of Historic Places (NRHP) or National Historic Landmarks (NHL).
BOEM	Inflation Reduction Act of 2022	This act offers funding, programs, and incentives to accelerate the transition to a clean energy economy and will likely drive significant deployment of new clean electricity resources. The act's incentives reduce renewable energy costs for organizations, businesses, nonprofits, educational institutions, and state, local, and tribal organizations. Taking advantage of Inflation Reduction Act incentives, such as tax credits, is key to lowering greenhouse gas emission footprints and accelerating the clean energy transition.
BOEM	Information Guidelines for a Renewable Energy Construction and Operations Plan (COP). Version 4.0. (BOEM 2020)	BOEM's guidelines indicate that the visual resource assessment should apply appropriate viewshed mapping, photographic photo simulations, and field inventory techniques to determine the visibility of the proposed project at scenic viewpoints.
BOEM	Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf of the United States (2021)	This OCS Study provides the methodology for assessing the seascape, landscape, and visual impacts of offshore wind within a particular study area. Developers are to use this guidance in preparation as part of the COP for their lease development. This assessment is to be reviewed by BOEM.
State of New York		
New York State Department of State (NYSDOS)	New York State Coastal Management Program and Final Environmental Impact Statement (NYSDOC 2017)	Policy 24: Prevent impairment of scenic resources of statewide significance. Policy 25: Protect, restore, or enhance natural and man-made resources which are not identified as being of statewide significance, but which contribute to the overall scenic quality of the coastal area.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
New York State Department of Environmental Conservation (NYSDEC)	NYSDEC Policy DEP-00-2: Assessing and Mitigating Visual and Aesthetic Impacts	The purpose of this policy is to guide the evaluation of visual impacts for proposed projects as they relate to scenic and aesthetic resources of statewide significance.
South Shore Estuary Reserve	Long Island South Shore Estuary Reserve Comprehensive Management Plan (CMP) 2022	Originally implemented in 2001, The Long Island South Shore Estuary Reserve CMP is the result of The Long Island South Shore Estuary Reserve Act passed in 1993 creating the Long Island South Shore Estuary Reserve (Reserve). The act also implemented the Long Island South Shore Estuary Reserve Act Council (Council) whose task was to design a CMP to protect the reserve and its inhabitants. This CMP emphasizes the importance of the Long Island South Shore Estuary Ecosystem and outlines actions necessary to preserve, protect, and enhance the natural, recreational, economic, aesthetic, and educational resources that the reserve provides. The CMP discusses various components, such as: • Action 2.3.8: Reduce negative environmental consequences of duck sludge and other legacy pollutants through removal and/or restoration. The restoration of former duck farms represents an important opportunity to…improve aesthetic • provide County residents with the opportunity to access these waterways for recreational and educational purposes. • Action 4.3.4: Increase end-of-street parks and parking access to the shoreline. Implement projects that create parks at the end of streets and in vacant lots, provide public parking access, and provide benefits such as improved aesthetics and public access. Parks that utilize green infrastructure best management practices can also contribute to water quality improvement.
New York City Planning (NYCP)	New York City Waterfront Revitalization Program (WRP) (2016)	The WRP establishes New York City's policies for waterfront planning, preservation, and development projects to ensure consistency over the long term. The goal of the WRP is to maximize the benefits derived from economic development, environmental conservation, and public use of the waterfront, while minimizing any potential conflicts among these objectives (NYCP 2016). The WRP includes policies that are intended to protect and enhance scenic resources: • Policy 9: Protect scenic resources that contribute to the visual quality of the New York City coastal area. • Policy 9.1: Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront. • Policy 9.2: Protect and enhance scenic values associated with natural resources.
New York City Department of City Planning	New York City Comprehensive Waterfront Plan (2021)	This plan, updated every 10 years, puts forth new strategies for an equitable, resilient and healthy waterfront in the face of climate change. Goal 1: Expand public access to the waterfront with an emphasis on equity by bridging access gaps in historically underserved areas and supporting growing waterfront communities. An important part of this goal is visual access. Clear, unobstructed sightlines down to the waterfront expands connectivity. Visual corridors typically overlap with streets and other upland connections to guide people safely to the water. Where physical access to the water cannot be achieved immediately, visual connectivity can provide communities with an opportunity to see and engage with their waterfronts and form a meaningful connection.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
Suffolk County, New York		
Suffolk County	Suffolk County Comprehensive Master Plan 2035 (Suffolk County Department of Economic Development and Planning 2023)	The vision of the 2035 Plan is captured by three themes: Revitalize, Rebuild, and Reclaim, i.e, revitalize the economy; rebuild the downtowns and infrastructure; and reclaim the quality of the groundwater, surface water and terrestrial resources. The Master Plan discusses the importance of the rural water setting of Suffolk County that attracts visitors who enjoy bathing beaches, fishing, boating, and other water sports as well as hiking, bicycling, adventure tourism, and other outdoor recreation or simply viewing the scenery and historic hamlets.
Babylon, Town of	2020-2024 Consolidated Plan & 2020 Annual Action Plan (2020)	No specific objectives are included within the plan for protecting or improving scenic views, nor beach/waterfront views.
Brookhaven, Town of	Local Waterfront Revitalization Program (Anticipated Completion Date of August 2023) (Town of Brookhaven 2023)	The Local Waterfront Revitalization Program will provide strategies and identify projects that improve public access, establish connections between downtown and the waterfront, modify local codes and ordinances to remove barriers to sustainable development, and incorporate sea level rise projections and resiliency measures into community planning.
Islip, Town of	None identified	The Town of Islip is in the process of creating a Comprehensive Plan.
Southampton, Town of	Town of Southampton Coastal Resources & Water Protection Plan (2016)	The plan describes the community's scenic resources as follows: "Southampton's unique scenic quality and sense of place is derived from the interplay of rural farmland, areas of undeveloped open space, water frontage (bay, ocean) and the hamlet centers. This rural character graces the Town with significant natural and historic resources. It is this quality that maintains the Town's vitality as a resort, second home and visitor attraction, as well as an attractive place to live and work." The Plan presents the different visual resources found within the town, including natural environments, built environments, historic vistas, and recognized areas of high scenic quality.
Nassau County, NY		
Nassau County	Nassau County Master Plan (2010)	The Nassau County Master Plan's goals are centered around a framework that helps shape the county's jobs, places, and infrastructure. Economic development is to be enhanced by strengthening downtowns, revitalizing underutilized commercial properties, and redeveloping brownfields to preserve the quality of life for residents by protecting environmental, scenic, and historic resources. Within the Master Plan, sections are dedicated to the importance of historic and cultural assets, along with the sustainable land use development and waterfront and coastal zones. The plan addresses the county's variety of historic, cultural, and scenic resources in addition to the environmental resources Nassau County has to offer.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
Long Beach City	Comprehensive Plan 2022–2023 (draft)	The 2023 Comprehensive Plan outlines the city's values, visions, and goals for the next 15 years. One of the city's goals is to enhance the physical attributes of all commercial districts and areas. This includes improving aesthetics in streetscapes and commercial areas. Increasing public access to the waterfront is an important aspect to the Comprehensive Plan, along with the ability for beaches and dunes for the southern waterfront to provide resiliency, environmental, social, and economic benefits. However, no specific objectives are included in the plan for protecting or improving scenic views, or beach/waterfront views.
Hempstead, Town of	Energy and Sustainability Master Plan (Town of Hempstead 2012)	The implementation of a "green grounds" policy would promote greener and more cost-effective maintenance and operations strategies. This is important as the demand for high quality public-use landscapes has increased. The "green grounds" policy would not compromise the visual landscape quality. There is no town master plan or specifics discussed in the plan referenced about the preservation of scenic views.
Oyster Bay, Town of	Town of Oyster Bay: Open Space Preservation Plan (South Shore Estuary Reserve Workplan Implementation) (2010)	Scenic value is identified in the Open Space Preservation Plan as an important factor in identifying open space and resource protection.
State of New Jersey		
New Jersey Coastal Management Program	Section 309 Assessment and Strategy (2021-2025)	Section 309 Enhancement Objective: Attain increased opportunities for public access, considering current and future public access needs, to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.
New Jersey Department of Environmental Protection	Green Acres Program (2023)	The mission of this program is "to achieve, in partnership with others, a system of interconnected open spaces, the protection of which will preserve and enhance New Jersey's natural environment and its historic, scenic, and recreational resources for public use and enjoyment."
State Historic Preservation Office	New Jersey State Register of Historic Places	The geographic analysis area contains additional historic resources that the state has determined are worthy of preservation, but which have either not been determined eligible for inclusion or have not been evaluated for listing in the NRHP.
Monmouth County, New Jersey		
Monmouth County	The Monmouth County Master Plan (2016); 2018 Master Plan Reexamination (2018)	This plan's objectives are to help guide efforts and actions that contribute to a strong, stable, and sustainable prosperity through redevelopment, revitalization, and rediscovery. Relevant objectives of the plan include: • Protect, conserve, and enhance the county's significant, diverse, natural, and scenic resources utilizing sound ecological protection and restoration measures. • Support investment in the preservation of cultural, historic, and scenic resources located in priority growth areas and locations. • Support retention, preservation, restoration, and improvement of our cultural, historic, and scenic resources that define a community's distinct character. The Reexamination Plan does not mention any changes to the goals pertaining to scenic resources.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
Asbury Park City	Master Plan & Master Plan Reexamination Report (2017)	The Master Plan provides improvement to the lakes in the city that would enhance the public's enjoyment through aesthetic and environmentally healthy improvements of the water and surrounding areas. However, no specific provisions are included for protecting or enhancing the outward views from within the community, or beach/ocean views.
Avon-by-the-Sea Borough	Municipal Public Access Plan (2017)	This plan identifies the boardwalk as an important public access point that provides visual and physical access to the oceanfront. There are five locations along Shark River that are limited to visual access only due to safety concerns.
Belmar Borough	Master Plan Reexamination Report & Update (2016)	One of the four goals of this Master Plan is Preservation and Enhancement of Critical State Resources – Ensure that strategies for growth include preservation of the State's critical natural, agricultural, scenic, recreation, and historic resources, recognizing the roles they play in sustaining and improving the quality of life for New Jersey residents and attracting economic growth.
Bradley Beach Borough	Master Plan Reexamination Report (2018); Recreation, Open Space, and Conservation Element of the Bradley Beach Borough Master Plan; Municipal Public Access Plan (2019)	The Master Plan Reexamination Report addresses land development issues and provides recommendations where necessary. The Recreation, Open Space, and Conservation Plan objective is to provide an inventory of the Borough's existing recreation, open space, and observation facilities and establish goals and objectives to guide enhancement, preservation, and development of these facilities. The Municipal Public Access Plan includes the enhancement of public access to tidal waters and shorelines for recreation, navigation, commerce, and fishing. Recreation activities in this Borough include swimming, sunbathing, fishing, surfing, sport diving, bird watching, walking, and boating along the tidal shores. No specific objectives are included within the three plans for protecting or improving scenic views, or beach/waterfront views.
Deal Borough	Municipal Public Access Plan (2017)	This plan not only identifies physical beach access areas in the Borough, but visual access of the beach and ocean for those who choose not to physically access the beaches. Three points of visual access are identified.
Highlands Borough	2016 Master Plan Reexamination Report and Master Plan Amendments (2016)	This plan recognizes the importance of aesthetics in terms of new building and landscape design, streetscapes, and neighborhoods. The land use plan elements include open space preservation and living shorelines. No specific objectives are included within the plan for protecting or improving scenic views, or beach/waterfront views.
Loch Arbour Village	Municipal Public Access Plan (2017)	The Village is responsible for providing public access to the tidal waters. No specific objectives are included within the Access Plan for protecting or improving scenic views, or beach/waterfront views.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
Long Branch City	2020 Master Plan Reexamination (2020) Municipal Public Access Plan (2017)	Some goals in the Master Plan include promoting aesthetically pleasing development that recognizes the character of the traditional New Jersey shore towns, preserving the city's natural resources and historically and architecturally significant districts and structures. In the Municipal Public Access Plan, the city supports the reconstruction of the historic Long Branch Pier as a multi-purpose facility. This pier will be open for public use and includes a fishing area, a garden, a children's play area, visual access, and proximity to beach and boardwalk access points. There are 27 public access locations identified as having visual access. Between these two plans, no specific objectives are included for protecting or improving scenic views, or beach/waterfront views.
Manasquan Borough	Master Plan Re-examination (2017)	This plan encourages the development of both active and passive recreation for residents and visitors while maintaining the sensitivity to environmental and cultural resources. No specific objectives are included within the plan for protecting or improving scenic views, or beach/waterfront views.
Middletown Township	Master Plan Reexamination Report & Amended Housing Master Plan Element and Open Space, Recreation and Conservation Master Plan Element	This report discusses the approach to site design that promotes preservation of significant resources, including scenic corridors, historic roadways, architecturally and historically significant structures, and open space. No specific objectives are included within the plan for protecting or improving scenic views, or beach/waterfront views.
Monmouth Beach Borough	Municipal Public Access Plan (2017); Master Plan Reexamination Report and Plan Amendment (2017)	The plan identifies 13 publicly accessible areas that are for visual purposes only of the water. The plan is consistent with Goal #2 of the Monmouth County Comprehensive Master Plan, including to protect, conserve, and enhance the county's significant, diverse, natural, and scenic resources utilizing sound ecological protection and restoration measures. One of the report goals is to promote aesthetically pleasing human scale development that recognizes the character of traditional New Jersey shore towns. No specific objectives are included within the plan or the report for protecting or improving scenic views, or beach/waterfront views.
Neptune Township	The Township of Neptune Comprehensive Master Plan (2011)	The Master Plan provides a framework for development and preservation of the township throughout its scenic, historic, and natural areas. The plan provides goals and recommendations for future development while preserving natural and historic resources. This includes promoting aesthetics in terms of commercial and industrial areas, future utility installations, and the visual quality of scenic corridors. The Fletcher Lake and Wesley Lake corridors will be evaluated for potential designation as scenic corridors and to consider adopting appropriate design standards and guidelines for development along designated corridors. However, no specific objectives are included for protecting or improving beach/waterfront views.
Sea Bright Borough	2017 Sea Bright Borough Master Plan (2017)	This plan notes the importance in conserving the beach and river waterfronts for the value of providing both scenic vistas and recreational opportunities. A policy of the Borough includes promoting visual environment through creative development techniques and good civic design and arrangement.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
Sea Girt Borough	Master Plan Reexamination Report (2018)	The Master Plan states the Coastal Area Facilities Review Act policies, including the reclamation of environmentally damaged sites and mitigation of future negative impacts, particularly for waterfronts, beaches, scenic vistas, and habitats. The plan discusses the need for a historic preservation plan. No specific objectives are included for protecting or improving scenic views, or beach/waterfront views.
Spring Lake Borough	Master Plan (2010)	Some of the goals presented in the Master Plan include maintaining historic resources and the natural beauty of the Borough, enhancing conservation, recreational, and open spaces. No specific objectives are included for protecting or improving scenic views, or beach/waterfront views.
Ocean County, NJ		
Ocean County	Conservation Plan Element, Environmental Resources and Recreation Inventory (2009); 2011 Comprehensive Master Plan (2011); Open Space, Parks & Recreation Plan (2020)	The Conservation Plan Element's overall goal is to preserve and maintain the ecological, historic, visual, recreational, and scenic resources of the city. However, there are no objectives for protecting or improving scenic views, or beach/waterfront views. The Comprehensive Master Plan and the Open Space, Parks, and Recreation Plan include no objectives for protecting or improving scenic views, or beach/waterfront views.
Bay Head Borough	Municipal Public Access Plan (2020); Master Plan Reexamination Report and Update (2021)	There are 22 public access points identified as having visual access to the water in the Municipal Public Access Plan. There are no specific objectives in the plan for protecting or improving scenic views, or beach/waterfront views.
Berkeley Township	Berkeley Township Comprehensive Master Plan (1997) General Reexamination of the Master Plan (2019) Environmental Resources Inventory (2012)	The Township Master Plan, the Reexamination Report, and the Township Environmental Resources Inventory include no specific objectives for protecting or improving scenic views, or beach/waterfront views.
Brick Township	Master Plan Reexamination Report (2018) Master Plan: Part 2 – Land Use Element	In the Land Use Element of the Master Plan, there is recognition of the special attraction and scenic value placed on the residential uses of a barrier island location and the over-water views it provides. However, no specific provisions for protecting or enhancing the outward views from within the community, or beach/ocean views are included. The Master Plan Reexamination Report includes no specific objectives for protecting or improving scenic views, or beach/waterfront views.
Lavallette Borough	Master Plan Reexamination (2006); Master Plan for the New Millennium (1999)	The Reexamination of the Master Plan encourages the preservation and maintenance of Lavallette's historic sites. The original Master Plan encourages the importance of aesthetic streetscapes, commercial land uses, and historical and cultural qualities. However, neither plan includes specific objectives for protecting or improving scenic views, or beach/waterfront views.
Mantoloking Borough	2017 Master Plan Re-Examination Report (2017)	The Master Plan does not include specific objectives for protecting or improving scenic views, or beach/waterfront views.
Ocean Township	Ocean Township Master Plan (1990);2019 Master Plan Reexamination Report (2019)	The Ocean Township Master Plan includes a conservation goal to identify scenic areas within the Township and provide for their preservation. The Reexamination Report includes no specific objectives for protecting or improving scenic views, or beach/waterfront views.

Table 8 – Laws, Ordinances, and Regulations		
Jurisdiction	**Authority**	**Objectives**
Point Pleasant Beach Borough	2021 Reexamination & Master Plan Amendment	One plan objective is to strive to foster an aesthetically pleasing downtown commercial district for the ease and safety of pedestrians. This includes protecting and enhancing the historic maritime character of the Borough by maintaining appropriate scales of development intensity of use, and architectural style. However, it does not include specific objectives for protecting or improving scenic views, or beach/waterfront views.
Seaside Heights Borough	Master Plan Reexamination Report (2022); Vision Plan (2009)	The Vision Plan recognized the need for increased access to the bay front. However, neither plan includes objectives for protecting or improving scenic views, or beach/waterfront views.
Seaside Park Borough	2008 Seaside Park Master Plan (2008)	Although a goal of the Master Plan is to encourage desirable visual design of new and upgraded businesses, it does not include specific provisions for protecting or enhancing the outward views from within the community, or beach/ocean views. Standards for preservation of historic structures are included.
Toms River Township	Natural Resources Inventory (2016) Township of Toms River Master Plan (2017)	No specific objectives are included within the Natural Resources Inventory or the Master Plan for protecting or improving scenic views, or beach/waterfront views.

5.0 OTHER FACTORS AFFECTING VISIBILITY OF VINEYARD MID-ATLANTIC

In the case of long-distance views, theoretical visibility typically exceeds actual visibility. In seascapes, atmospheric conditions reduce the practical viewing limit, sometimes significantly. The presence of waves will obscure objects very low on the horizon. The limits of human visual acuity reduce the ability of an observer to discern objects at great distances, suggesting that some WTG components (e.g., blades) would not be discernible. The color, reflectivity, and other visual characteristics of the object, and its contrast with the visual background under varying lighting conditions, also affect its visibility (BOEM, 2007).

5.1 Point of Visual Extinction

The nearest WTG/ESP position is approximately 38.2 km (23.7 miles) from Fire Island, New York (at Ocean Beach) and 66 km (41 mi) east of Long Branch, New Jersey. Viewing distances increase as viewers move up or down the coast.

As an observer moves farther and farther from an object, the smaller the object appears. Beyond a certain distance, depending upon the size and degree of contrast between the object and its surroundings, the object may not be a point of interest for most people. At this hypothetical distance it can be argued that the object has little impact on the composition of the landscape of which it is a tiny part. Eventually, at even greater distances, the naked eye is incapable of seeing the object at all (NYSDEC, 2000).

Offshore Wind Turbine Visibility and Visual Impact Threshold Distances (Sullivan, 2013), concludes that small- to moderately-sized facilities were visible to the unaided eye at distances greater than 41.8 km (26 mi), with WTG blade movement visible up to 38.6 km (24 mi). At night, aviation obstruction lighting was visible at distances greater than 38.6 km (24 mi). The observed wind facilities were judged to be a major focus of visual attention at distances of up to 16 km (10 mi), were noticeable to casual observers at distances of almost 28.9 km (18 mi) and were visible with extended or concentrated viewing at distances beyond 30 km (25 mi). While Vineyard Mid-Atlantic is larger in scale than the projects evaluated by Sullivan, these findings provide additional perspective concerning the effect of distance on human visibility of offshore wind energy facilities and further support the conclusion that the 83.7 km (52 mi) VSA used in this visual analysis is highly conservative.

5.2 Curvature of the Earth

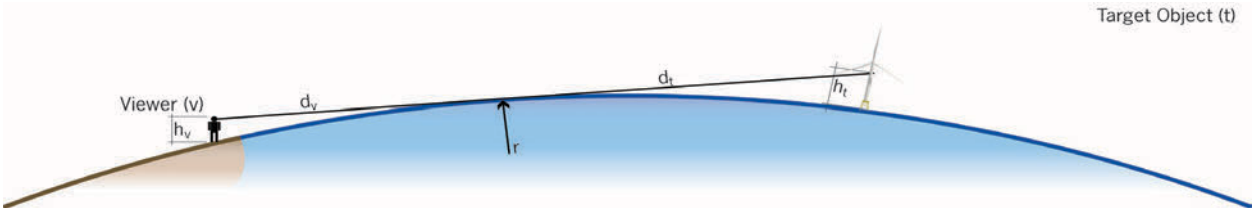
Due to the curvature of the earth's surface, objects viewed on the horizon are not seen in their entirety because they begin to fall below the visible horizon. Therefore, as the distance from the viewing location to the object continues to increase, less of the object will be visible. The impact the earth's curvature has on views of objects on the horizon may be lessened by the refraction of light in the earth's atmosphere, which, at long distances, curves our line of sight downwards. As described below, the phenomenon of light refraction is based on a number of environmental factors that can affect the extent of distant visibility.

From all vantage points, Vineyard Mid-Atlantic WTGs will be viewed over open water, as atmospheric conditions permit, at great distance (at or greater than 38 km [24 mi] from any coastal vantage point). At such an extended distance, the curvature of the earth will affect the visibility of the offshore facilities

in Lease Area OCS-A 0544. The degree of screening caused by earth's curvature depends on the elevation of the viewer above sea level (denoted as "hv" in the diagram below) and the distance of the viewer from the proposed object.

The degree of visibility above the visible horizon for any object can be geometrically calculated using the Pythagorean Theorem ($a^2+b^2=c^2$). The distance that the target object will become visible above the horizon from a known vantage point is the sum of the distance between from the viewer location to the visible horizon and the distance from the target object to the visible horizon.

Figure 8 – Geometric Horizon Diagram



The distance to the geometric horizon from any point is calculated as follows:

From the Pythagorean theorem:	Where:
$r^2+d^2=(r+h)^2$,	d=distance to horizon;
Simplifying;	h=elevation (above sea level [asl]) of viewer (eye level)
d = square root of (h^2+2hr)	or target object; and
	r=radius of the earth (3,963 miles = 20,924,640 ft)

The sightline distance between viewer (v) and target object (t) = dv+dt

Atmospheric Refraction—The distance to the optical horizon is slightly greater than the simple geometric calculation because the atmosphere bends light around the earth (atmospheric refraction) allowing a viewer to see farther. The exact amount of bending depends on several variables, including elevation and the composition of the atmosphere (which varies with location, weather, etc.).

BOEM's SLVIA guidelines state, "[a]ll viewshed analysis conducted for BOEM-approved SLVIAs incorporate earth curvature and atmospheric refraction. Given the atmospheric refraction effects on visibility vary over time and at different locations, the GIS software's default value for atmospheric refraction or a stated and generally accepted value for refraction can be used" (Sullivan R. G., 2021, p. 69).

All calculations used in this SLVIA include a coefficient of refraction of 0.13 to account for atmospheric refraction. This coefficient of refraction is based on two sources: the default refractivity coefficient in ArcGIS Spatial Analyst software is 0.13 (ESRI, n.d.) and WaBis Advanced Earth Curvature Calculator, which classifies a refraction coefficient between 0.12 and 0.17 as "standard" (WaBis, n.d.). It is notable that BOEM previously referenced a less conservative refraction coefficient of 0.088 as a reasonable standard for visual impact assessment (URS Group, Inc. and Truscape, 2015).

Due to distance (at or greater than 43.2 km [26.9 mi] from any coastal vantage point), any ESP located within the Lease Area would fall well below the visible horizon as viewed from any coastal vantage point.

Similarly, due to this extended distance, there is no land-based vantage point that will view an entire WTG; some portion of the WTG structure will always fall below the visible horizon. Because atmospheric conditions reduce visibility, sometimes significantly, and the presence of waves obscure objects very low on the horizon, maximum theoretical viewing distances typically exceed what is experienced in reality. Furthermore, limits to human visual acuity reduce the ability to discern objects at great distances, suggesting that a WTG may not be discernible at the maximum distances, although they theoretically would be visible (BOEM, 2007).

5.2.1 WTG Noticeable Features Horizon Fall-off Distances

As discussed in Section 3.2.1, noticeable components of the WTG will fall over the visible horizon at a specific distance based on viewer elevation (above MLLW) and the refraction coefficient. Table 9 identifies the distance at which key components of the proposed evaluated WTG will fall over the visible horizon assuming a viewer elevation of 1.8 m (5.8 ft) above MLLW and a refraction coefficient of 0.13.

Table 9 – WTG Noticeable Features Horizon Fall-off Distances

Visible Component	Elevation above MLLW	Horizon Fall off Distance
Blade Tip (apex of rotation)	355 m (1,165 ft)	77.2 km (48.0 mi)
Nacelle Top (aviation obstruction lights)	203.5 m (668 ft)	59.7 km (37.1 mi)
Mid-Tower (aviation obstruction lights)	102 m (335 ft)	43.8 km (27.2 mi)
Top of Foundation (marine navigation lights)	35 m (115 ft)	27.8 km (17.3 mi)

Viewshed maps defining the geographic area of WTG noticeable feature fall-off distances for the four elevations defined in Table 9 are provided in Figure 6 and Figures A1 through A10 in Appendix A. Figure 7 graphically illustrates the degree of visibility for each of these four visibility zones.

5.3 Meteorological Visibility

Visibility can be reduced by fog, rain, snow, particulate matter, smog, or any combination of thereof as part of normal atmospheric conditions.

Visibility measurements from meteorological stations measure the “the greatest distance at which an observer can just see a black object viewed against the horizon sky" and are typically recorded in intervals ranging from ¼ to 10 statute miles. Visibility data from John F. Kennedy (JFK) International Airport for the 8.5-year period from 2010-2018 was measured and recorded on a 1-minute basis, averaged across hours, and then binned to the following categories: less than ¼ mile, ¼ mile, ½ mile, ¾ mile, 1 mile, 1¼ miles, 1½ miles, 1¾ miles, 2 miles, 2½ miles, 3 miles, 3½ miles, 4 miles, 5 miles, 7 miles, and 10 miles or greater for the hourly reports. It is important to note one key limitation of the airport data, which is the fact that airports do not report visibility greater than 10 statute miles. As shown in Table 10, analysis of the hourly data indicates the majority of the hours yielded a visibility of 10 miles or greater.

Table 10 – Frequency of Reported and Truncated Visibility Ranges

	Less than 10 miles (percent) (1)					10 miles or greater (percent) (1)				
	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
New York	20%	19%	12%	12%	16%	80%	81%	88%	88%	84%

Note:
(1) Seasons are based on meteorological seasons: fall (September, October, November), winter (December, January, February), spring (March, April, May), and summer (June, July, and August).

Table 11 provides a breakdown of the airport-reported visibility during daytime and nighttime hours.

Table 11 – Frequency of Reported Visibility Ranges from JFK Airport (Not Equivalent to Visibility of Vineyard Mid-Atlantic from the Shoreline)

Percentage of Time Airport Visibility is 10 Statute Miles or Greater (1)						
Location	Time	Winter	Spring	Summer	Fall	Annual
JFK Airport	Day (2)	80%	81%	87%	88%	84%
	Night (3)	0%	0%	0%	0%	0%
	Total (4)	44%	56%	67%	52%	55%

Notes:
(1) Seasons are based on meteorological seasons: fall (September, October, November), winter (December, January, February), spring (March, April, May), and summer (June, July, and August).
(2) The daylight period was conservatively based on the 2022 astronomical daylight and twilight calendar for a point (40.24 N, 73.07 W) near the centroid of Lease Area OCS-A 0544. Astronomical daylight calendar for 2022 was obtained from the U.S. Navy - Astronomical Applications Department (2023): https://aa.usno.navy.mil/data/RS_OneYear.
(3) Unlit objects will not be visible at >10 miles at night. The use of ADLS reduces expected nighttime lighting to approximately 1.25 hours/year, which is <0.1% of annual nighttime hours and is rounded to 0% in this table.
(4) Seasonal results adjusted to reflect daylight hours.

Given that Vineyard Mid-Atlantic is 38 km (24 mi) from shore, this analysis of airport data (where values are simply reported as 10 statute miles or greater) does not equate to actual visibility of the wind turbines or associated structures. While meteorology will impact the ability of an observer to see the wind turbines or associated structures, factors such as turbine color, scale, movement, distance, and observer geometry are also other critical considerations. For example, at 38 km (24 mi) or greater from shore, there is no land-based vantage point that will view an entire WTG. Some portion of each of the structures will always fall below the visible horizon, and the presence of waves further reduces the portion of structures visible.

Importantly, the Proponent's proposed actions will substantially mitigate the visibility of the offshore facilities:

- The Proponent will use an ADLS or similar system that automatically activates all aviation obstruction lights when aircraft approach the Lease Area. The use of ADLS will reduce nighttime lighting and thus, minimize nighttime visibility of Vineyard Mid-Atlantic's offshore facilities. Such a lighting system will only be activated a tiny fraction of the time (estimated at approximately 1 hours 10 minutes/year). Accordingly, nighttime lighting will be almost eliminated, and in the absence of lighting, Vineyard Mid-Atlantic will not be visible from shore at night.

- In accordance with BOEM and FAA guidance, the WTGs will be no lighter than pure white (RAL 9010) and no darker than light grey (RAL 7035) in color; the Proponent expects that the WTGs will be off-white/light grey to reduce their visibility against the horizon. The ESP topsides are expected to be light grey in color. The off-white/light grey color will reduce contrast with the sea and sky and thus minimize daytime visibility of the offshore facilities. The conservative threshold for visibility is "the greatest distance at which an observer can just see a black object viewed against the horizon sky." The WTGs will not be black; instead, the neutral off-white/light grey color will be highly compatible with the hue, saturation, and brightness of the background sky. This lack of contrast between the structures and the background means that the percentage of the time the structures might be visible is greatly reduced.

  However, the color of the WTGs will not be constant. Depending on sun angle, the backdrop sky color may have various intensities of white to gray and sky blue to pale blue to dark blue-gray. Partly cloudy to overcast conditions will also influence the color make-up of the horizon's backdrop. The sunrise and sunset have varying degrees of light blue to dark blue and light and dark purples intermixed with oranges, yellows, and reds. Partly cloudy skies may increase the remarkable color effects during the sunset and sunrise periods of the day. The visual interplay and contrasting elements in form, line, color, and texture may vary with the ever-changing character of the backdrop. Front-lit WTGs may have strong color contrast against a darker gray sky, giving definition to the WTG's vertical form and line contrast to the ocean's horizontal character and the line where the sea meets sky, or visually dissipates against a whiter backdrop created by high levels of evaporative atmospheric moisture during clear sunny days. Partly cloudy skies may create varying degrees of sunlight reflecting off the white wind turbines, placing some WTGs in the shadow and making them appear a darker gray and less conspicuous while highlighting others with a bright white color contrast. The level of noticeability would be directly proportional to the degree of visual contrast and scale of change between the WTGs and the corresponding backdrop. (BOEM, 2024, pp. H5-H6)

Additionally, different factors affect visibility, including air quality, sea spray and salts over the ocean's surface, and the angle of the sun. The presence of sea spray and salts affects visibility but is not likely captured by the measurements of visibility in Tables 9 and 10. Therefore, calculated visibilities should be considered conservative since they do not account for these light-reducing factors.

6.0 VISUALLY SENSITIVE RESOURCE IDENTIFICATION AND DESCRIPTION

Visually Sensitive Resources (VSRs) are formally designated public places that are visited by the public in part for the observation and enjoyment of their natural or cultural visual qualities. VSRs include units of the National Park Service, State Parks, public beaches, conservation areas, historic areas and sites, scenic overlooks, accessible waterbodies, community parks, and other areas identified by national, state, or local governments and organizations as having visual or cultural significance.

The inventory of visually sensitive resources within the study area was collected from a variety of national and state databases as well as sources for each of the coastal communities within the VSA. The locations of the visually sensitive resources are provided in Figures C-1 through C-16 in Appendix C.

6.1 Summary of Visually Sensitive Resources

A summary of high value visually sensitive resources where visibility of Vineyard Mid-Atlantic's offshore components is likely based on ZLV analysis is provided below.

6.1.1 National Recreation Area/National Seashore

Gateway National Recreation Area - The Gateway National Recreation Area was created by an act of Congress on October 27, 1972 to preserve the cultural, natural and scenic resources, and to provide outdoor recreational opportunities in the metropolitan New York City urban area. The Gateway National Recreation Area spans 109 km^2 (2,700 acres) from Sandy Hook in New Jersey to Breezy Point in New York City. Gateway's three units (Sandy Hook, Staten Island and Jamaica Bay) offer green spaces, beaches, wildlife, and outdoor recreation, all alongside historic structures and cultural landscapes (National Park Service, n.d.).

- The Sandy Hook Unit is located in Monmouth County, New Jersey. This barrier peninsula includes two park sites; Fort Hancock, which served as part of the harbor's coastal defense system from 1895 until 1974, and Sandy Hook which contains seven beaches, as well as salt marshes and a maritime holly forest. (National Park Service, n.d.) The nearest WTG/ESP position is approximately 69.8 km (43.4 mi) from the Sandy Hook Unit (at South Beach).

- The Staten Island Unit is located on the southeastern shore of Staten Island facing Lower New York Bay. It includes Hoffman and Swinburne Islands, both off limits to visitation and managed primarily for the benefit of avian species. The unit also includes; 1) Fort Wadsworth, the site of early fortifications at the Narrows of New York Bay, 2) Miller Field, a historic former airfield with picnic areas, open areas and sports fields, and 3) Great Kills Park marina, beach and nature trails. (National Park Service, n.d.) The Staten Island Unit is outside of the 83.7 (52 mi) VSA and is not further evaluated in this SLVIA.

- The Jamaica Bay Unit, in Brooklyn and Queens, includes much of the shoreline and water south of the Shore Parkway beginning at Plum Beach and ending at John F. Kennedy International Airport, along with several dozen islands in Jamaica Bay, a tidal estuary. The Jamaica Bay Unit also includes most of the western part of the Rockaway Peninsula, which separates Jamaica Bay from the Atlantic Ocean. Among the sites in this unit are; 1) Jamaica Bay Wildlife Refuge, 2) Shirley Chisholm State Park, with bike paths, kayaking, fishing, and walking trails, 3) Floyd Bennett Field, a decommissioned airfield with a historic district listed on the National Register of

Historic Places, 4) Canarsie Pier, a recreational pier with picnic and fishing opportunities, 5) Fort Tilden, with ocean beaches, a successional maritime forest, coastal dune system, 6) Breezy Point Tip, with oceanfront beach, bay shoreline, dunes, marshes and coastal grasslands, and 7) Jacob Riis Park ocean beach with a boardwalk (National Park Service, n.d.). The nearest WTG/ESP position is approximately 69.2 km (43.0 mi) from the Jamaica Bay Unit (at Jacob Riis Park).

Fire Island National Seashore - The Fire Island National Seashore protects a 42 km (26mi) long section of Fire Island, an approximately 48 km (30 mi) long and 0.80 km (0.5 mi) wide barrier island separated from Long Island by the Great South Bay. Fire Island is one of the central barrier islands off the southern coast of Long Island that divides the lagoons south of Long Island, New York from the Atlantic Ocean.

There are 17 private communities within the boundaries of Fire Island National Seashore including Saltaire, Fire Island Pines, and Ocean Beach. Only two bridges lead to Fire Island and the national seashore and there are no public roads within the seashore itself. The Robert Moses Causeway leads to Robert Moses State Park on the western end of Fire Island while the William Floyd Parkway leads to the eastern end of the island. The seashore can also be accessed by private boat or by ferry from the communities of Patchogue, Sayville, and Bay Shore on Long Island.

The Otis Pike Fire Island High Dune Wilderness, also known as Fire Island Wilderness, is found at the eastern end of Fire Island. This 11 km (7 mi) long, 5.6 km^2 (1,380 acre) wilderness includes pine forests, grassy wetlands, and dunes that serve as habitat for white-tailed deer, herons and migratory waterfowl. The wilderness area does not technically include the beaches that face the Atlantic Ocean. Hiking, back-country camping, and fishing access are available within the wilderness (National Park Service, n.d.).

The nearest WTG/ESP position is approximately 38.8 km (24.1 mi) from the west end of Fire Island National Seashore near the east end of Robert Moses State Park and Fire Island Lighthouse Visitor Center.

6.1.2 Historic Sites and National Historic Landmarks

Authorized by the National Historic Preservation Act of 1966 (NHPA), the National Register of Historic Places (NRHP) is maintained by the National Park Service (NPS) as part of a national program to coordinate efforts to identify, evaluate, and protect historic and archeological resources.

There are 129 historic districts and individual properties listed or eligible for listing on the S/NRHP within the Zone of Likely Visibility (ZLV). These properties include historic districts, homes, lighthouses, churches, and government buildings.

Six National Historic Landmarks fall within the ZLV. These include Rudolph Oyster House (approximately 45.4 km [28.2mi] from the nearest WTG/ESP position), the Priscilla, Sloop and the Modesty, Sloop (both located approximately 45.4 km [28.2mi] from the nearest WTG/ESP position) in New York, and Fort Hancock and Sandy Hook Proving Ground Historic District (approximately 74.0 km [46.0mi] from the nearest WTG/ESP position), the Sandy Hook Lighthouse (approximately 73.4 km [45.6 mi] from the nearest WTG/ESP position) and Navesink Light Station (approximately 70.5 km [43.8mi] from the nearest WTG/ESP position) in New Jersey.

A Historic Resources Visual Effects Analysis (HRVEA) prepared for Vineyard Mid-Atlantic contains additional details on S/NRHP and NHL properties and districts within the VSA (see Appendix II-K of the COP).

6.1.3 National Wildlife Refuges

The National Wildlife Refuge (NWR) System, managed by the US Fish and Wildlife Service (USFWS), is a system of public lands and waters set aside to conserve the nation's fish, wildlife, and plants (USFWS, n.d.).

Based on ZLV analysis, a small area of potential visibility of Vineyard Mid-Atlantic's offshore components is found within two NWRs. The Wertheim NWR is located along the north shore of Bellport Bay in Suffolk County, New York approximately 49.1 km (30.5 mi) from the nearest WTG position. The Seatuck NWR is located along the north shore of Great South Bay in Suffolk County, New York approximately 49.1 km (30.5 mi) from the nearest WTG/ESP position.

6.1.4 State Wildlife Management Areas

State Wildlife Management Areas (SWMA) are state-owned lands that are managed to provide wildlife habitat and accommodate wildlife-related recreation (hunting, bird watching, etc.) (NYSDEC, n.d.).

Based on ZL analysis a small area of potential visibility of Vineyard Mid-Atlantic's offshore components is found within one SWMA. The Otis Pike Preserve SWMA, located in the Long Island Pine Barrens in Suffolk County, New York, approximately 62.4 km (38.8 mi) from the nearest WTG. Although ZLV analysis indicates a small area of potential WTG visibility in a post agricultural old field portion of the property actual visibility from this resource is minimal due to distance and the presence of dense successional scrub vegetation.

6.1.5 State Parks

Six State Parks within the VSA will have visibility of Vineyard Mid-Atlantic's offshore components: Jones Beach, Gilgo, Captree, Robert Moses, and Heckscher State Parks in New York, and Island Beach State Park in New Jersey.

Jones Beach State Park - Jones Beach State Park is located in southern Nassau County on Jones Beach Island, one of the central barrier islands off the southern coast of Long Island. The 2,400-acre park features 6.5 miles of white-sand beach on the Atlantic Ocean. Approximately 6 million visitors enjoy the park each year. Park activities include ocean swimming, hiking/biking and nature appreciation. The park features playgrounds, splash pads, miniature golf, shuffleboard, basketball, and an Adventure Park. The 15,000-seat Norwell Heath at Jones Beach Theater hosts outdoor concerts during the summer months (New York State Office of Parks Recreation and Historic Preservation, 2023). Jones Beach State Park is approximately 47.3 km (29.4 mi) north of the nearest WTG/ESP position.

Gilgo State Park - Gilgo State Park is a 4.95 km^2 (1,223 acre) undeveloped state park in Suffolk County, NY. The park is located at the east end of Jones Beach Island, a barrier island off the southern shore of Long Island. Gilgo State Park is an undeveloped park, featuring waterfront access to the Atlantic Ocean to the south, and Great South Bay to the north. The park also serves as a wildlife reserve (New York

State Office of Parks Recreation and Histroric Preservation, 2023). Gilgo State Park in Suffolk County is approximately 44.1 km (27.4 mi) north of the nearest WTG/ESP position.

Captree State Park - Captree State Park is a 1.4 km^2 (340 acre) state park located in Suffolk County, NY. The park is located south of Captree Island on the easternmost end of Jones Beach Island, and overlooks the Fire Island Inlet and the westernmost section of Fire Island. Captree State Park is home to "The Captree Fleet" of independently-owned charter boats that are available for fishing, scuba diving, sightseeing and excursion tours. The park also offers a marina and boat launch, picnic tables, a restaurant, a playground and recreation programs. Two piers are available for fishing and crabbing, and a put-in for kayaks is available for launching smaller watercraft (New York State Office of Parks Recreation and Historic Preservation, 2023). Captree State Park is 40.7 km (25.3 mi) north of the nearest WTG position.

Robert Moses State Park - Robert Moses State Park is a 3.54 km^2 (875-acre) state park in southern Suffolk County, New York. The park lies on the western end of Fire Island, one of the central barrier islands off the southern coast of Long Island, and is known for its 8.0 km (5 mi) stretch of beaches on the Atlantic Ocean. Popular activities include ocean swimming, surfing and fishing. The park also contains concession stands, volleyball courts, picnic areas, and a playground. On the west end of the park is an 18-hole pitch and putt golf course. Approximately 3.8 million visitors enjoy the park each year (New York State Office of Parks Recreation and Historic Preservation, 2023). Robert Moses State Park is approximately 38.8 km (24.1 mi) north of the nearest WTG/ESP position.

Heckscher State Park - Heckscher State Parkis a 6.71 km^2 (1,657 acre) state park on the shore of Great South Bay in Suffolk County, NY. Heckscher offers a beach, picnic tables with pavilions, a playground, playing fields and a disc golf course, recreation programs, hiking and biking, fishing, cross-country skiing, a boat launch, and a food concession.[5] ZLV analysis indicates that from Heckscher State Park the WTG foundations will fall below the visible horizon. Portions of the WTG tower nacelle and rotor blades will be visible above the horizon.

Island Beach State Park - Island Beach State Park is located just south of Seaside Park on the Barnegat Peninsula in Ocean County, New Jersey. The 7.7 km^2 (1,900 acre) park is the largest reserve of undeveloped barrier island in New Jersey. The park contains approximately ten miles of sandy beach, an extensive shoreline along Barnegat Bay, dense maritime forests, rolling sand dunes, and tidal marshes (New Jersey State Park Service, n.d.). Island Beach State Park is at the southernmost part of the VSA, approximately 82.4 km (51.2) miles west of nearest WTG/ESP position.

6.1.6 Highways Designated or Eligible as Scenic

New York State Scenic Byways are transportation corridors that are of particular statewide interest representative of a region's scenic, recreational, cultural, natural, historic or archaeological significance (New York State Department of Transportation, 2023). One designated corridor, the Long Island Parkway Scenic Byway is located within the ZLV approximately 45.7 km (28.4 mi) at its closest point from the nearest Vineyard Mid-Atlantic WTG/ESP position. The state-designated scenic byway includes Ocean Parkway between Jones Beach and Robert Moses State Parks, as well a part of the Meadowbrook and

[5] https://en.wikipedia.org/wiki/Heckscher_State_Park

Wantagh Parkways. ZLV analysis indicates that intermittent views of portions of the WTG tower nacelle and rotor blades will occur though intervening dunes and scrub vegetation.

6.1.7 Public Beaches

Nearly the entire oceanfront throughout the VSA consists of unbroken stretches of publicly accessible sand beaches. In New York nearly 148 km (92 mi) of publicly accessible beach extends from Coney Island in Brooklyn eastward to Southampton in Suffolk County. In New Jersey nearly 74 km (46 mi) of beachfront extends from Island Beach State Park at the southern edge of the VSA to the northern tip of Sandy Hook. In both New Jersey and New York, the only breaks in beach frontage are relatively narrow ocean inlets to interior bays and gaps between individual barrier islands.

Public access points to the beach are plentiful throughout the VSA including formal access points in local, state, and federal parks and informal walk-in access points found along public roadways. Access is often limited in areas where private oceanfront property prevents through traffic, however pedestrian rights- of-way between are often available to facilitate beach access.

The nearest WTG/ESP position to the ocean beach is 38.09 km (23.67 mi) on Fire Island at Ocean Beach.

6.1.8 Community Parks

Numerous community parks along the oceanfront and bayfront will be affected by views of Vineyard Mid-Atlantic's offshore components. In many areas ocean beaches form a nearly unbroken string of publicly owned oceanfront parkland consisting of local, state, and federal resources. Community parkland ranges from simple beach access with few amenities to larger multi-use oceanfront recreation areas offering dedicated parking, concessions, playgrounds, picnic areas and other traditional community park amenities.

In New York City and Nassau County, New York, oceanfront community parks include Rockaway Park and Boardwalk, Silver Point County Park, East Atlantic Town Beach, Long Beach Park, Lido Beach Town Park, Lido Beach District Park, Lido Beach Town Park, Nickerson Beach Park, Town Park at Malibu, Town Park at Point Lookout and Tobay Beach Park.

In Suffolk County, New York oceanfront community parks include Gilgo Beach Town Park, Cedar Beach Town Park, Smith Point County Park, Cupsogue Beach County Park, Atlantic Beach County Park, Pikes Beach, Dolphin Beach, Hot Dog Beach, Tiana Beach, Shinnecock County Park, Road F Beach, Dune Beach, Road D Beach, Southampton Beach, Halsey Neck Beach, Coopers Beach, Cryder Beach, Gin Beach, Little Plains Beach, Flying Point Beach, and W. Scott Cameron Beach.

In Ocean County, New Jersey, community oceanfront parks include Brighton Avenue Beach, Lavallette Beach, and Brick Beach. In Monmouth County New Jersey oceanfront community parks include Manasquan Beach, Seaside Beach, Sea Girt Beach, Pier Beach, Belmar Beach, Avon Beach, Bradley Beach, South End Beach, Ocean Grove Pier, Asbury Park Beach, Loch Arbor Beach, Cottage Place Beach, Long Branch Beach, Great Lawn Beach, Seven President's Oceanfront Park, Sea Bright Beach, and Anchorage Beach.

6.1.9 Oceanfront Boardwalks

Many urban seaside communities maintain a pedestrian boardwalk paralleling the beach. In New York, the Coney Island Boardwalk includes the iconic amusement parks, playgrounds, Aquarium, Ice Skating Rink, and minor league ballpark. The Rockaway Beach Boardwalk in Queens and the Long Beach Boardwalk in the City of Long Beach, Nassau County provide opportunities for oceanfront walking and biking along an urban promenade.

In New Jersey the Seaside Heights Boardwalk is a popular family summer tourist destination with an amusement park, arcades, shops, restaurants, and night clubs. Jenkins Boardwalk in Point Pleasant Beach offers an amusement park, aquarium, arcades, sweet shops, restaurants, and nightlife. The Asbury Park Boardwalk offers food and renowned music scene along the historic beachfront promenade.

6.1.10 Environmental Justice Areas

Implemented in 1994, *Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to identify and address any potential disproportionately high and adverse health or environmental effects of federal actions (such as projects requiring federal permits) on population groups of potential concern, including minority populations, low-income populations, and Native American tribes. While this order addresses actions undertaken by federal agencies, states have also identified criteria to define Environmental Justice areas (EJAs) at the state level to mitigate the potential for disproportionately high and adverse human health or environmental impacts on minority, low-income, and/or tribal populations from state actions.

EJAs based on federal and state EJ criteria are identified in Figure 9.

Table 12 summarizes the total land area and percent of character area coverage for each Environmental Justice Area found within the VSA. It also lists the percentage of each Environmental Justice Area that falls within the ZLV of Vineyard Mid-Atlantic.

The following summarizes the degree of WTG element visibility and location of affected Environmental Justice areas.

Native American Tribal Areas (refer to Table 12):

- Blade tip visible (0 hectares [1 acre]) (0.1%) - found at the Shinnecock Indian Territory in Southampton, NY.
- Nacelle Top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
- Mid-tower visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
- Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.

State Disadvantaged Communities Area (refer to Table 12): Please note that the majority of these acres are bay (open water) and summer home communities.

- Blade tip visible (751 hectares [1,856 acres]) (2.7%) - found at Guy Lombardo Marina in Freeport, NY and Rockaway Beach Boardwalk in Far Rockaway, NY.

- Nacelle Top visible (695 hectares [1,716 acres]) (2.5%) - found at Fireplace Neck Tidal Wetlands Area in Brookhaven, NY.
- Mid-tower visible (28 hectares [68 acres] (0.1%) – found in Hauppauge, NY.
- Foundation top visible (17 hectares [42 acres]) (0.1%) – found at Town of Brookhaven Landfill in Brookhaven, NY.

State Environmental Justice Area (refer to Table 12): Please note that the majority of these acres are bay (open water) and summer home communities.

- Blade tip visible (6,056 hectares [14,964 acres]) (5.4 %) - found in Moriches Bay in NY and Shirley, NY.
- Nacelle Top visible (10,951 hectares [27,059 acres]) (9.7%) - found in Patchogue Bay and Bellport Bay in NY.
- Mid-tower visible (2,255 hectares [5,571 acres]) (2.0%) – found on the south shore of Fire Island, encompassing Cherry Grove, Water Island and Davis Park, NY.
- Foundation top visible (17 hectares [42 acres]) (0.1%) – found at found at Town of Brookhaven Landfill in Brookhaven, NY.

Federal Environmental Justice Area (refer to Table 12): Please note that the majority of these acres are bay (open water) and summer home communities.

- Blade tip visible (1,966 hectares [4,858 acres]) (2.5 %) - found in Point Pleasant Beach, NJ and Baldwin Harbor Park, NY.
- Nacelle Top visible (4,410 hectares [10,897 acres]) (5.7%) - found in Nicoll Bay, NY and Floral Park, NY.
- Mid-tower visible (1,035 hectares [2,558 acres]) (1.3%) – found on the south shore of Fire Island in Cherry Grove, NY.
- Foundation top visible (18 hectares [45 acres]) (0.1%) – found at found at Town of Brookhaven Landfill in Brookhaven, NY.

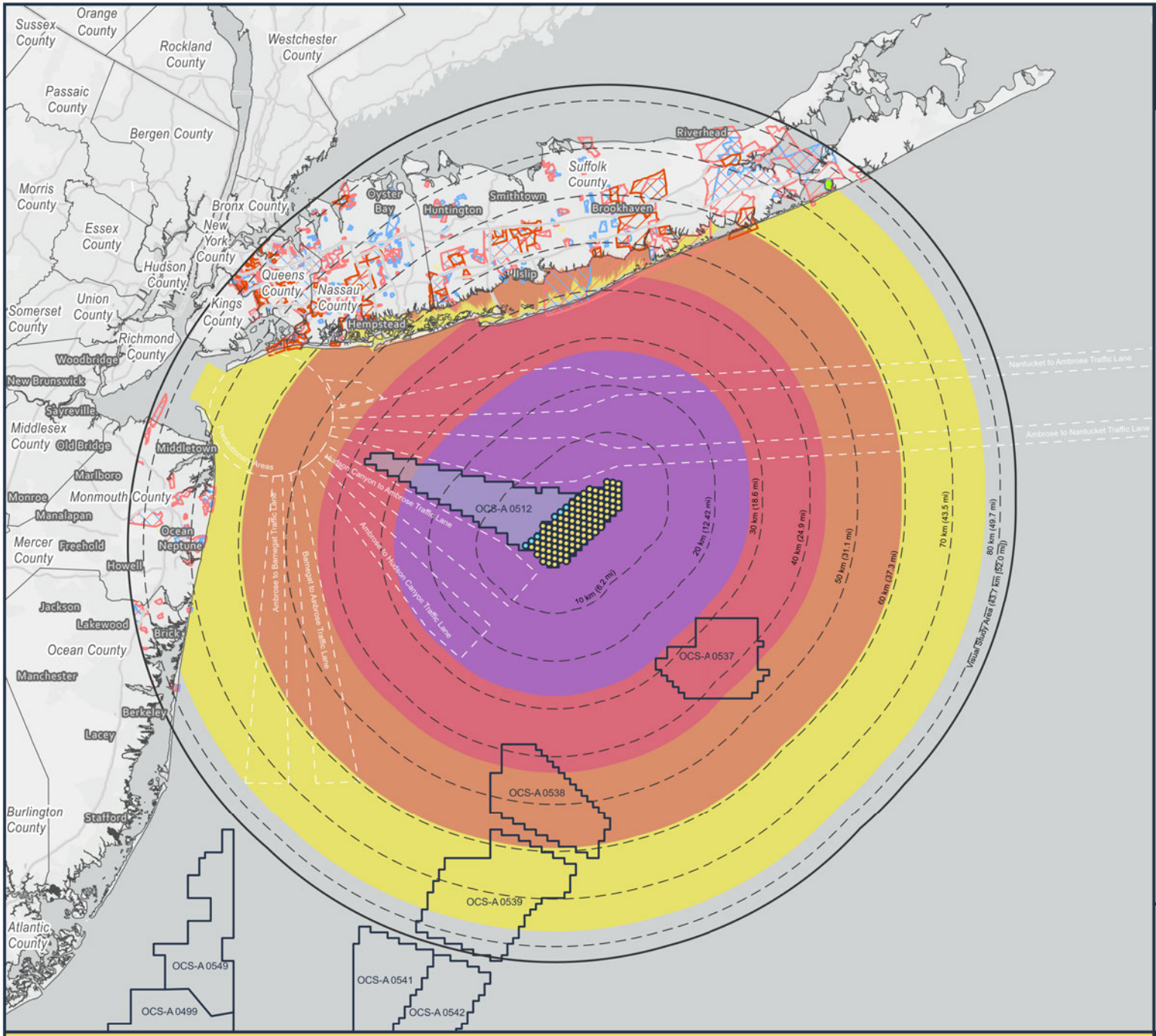
Table 12 – Environmental Justice Area/Zone of Likely Visibility Summary

	Total Environmental Justice Area (EJA)		ZLV Area Blade Tip			ZLV Area Nacelle Top			ZLV Area Mid-Tower			ZLV Area Foundation Top			ZLV Total (1)		
Environmental Justice Area (EJA) (1)	hectares	acres	hectares	acres	% EJA in ZLV	hectares	acres	% EJA in ZLV	hectares	acres	% EJA in ZLV	hectares	acres	% EJA in ZLV	hectares	acres	% all EJAs in ZLV
Native American Tribal Area	394	973	0	1	0.1%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	1	0.1%
State Disadvantaged Community	27,360	67,606	751	1,856	2.7%	695	1,716	2.5%	28	68	0.1%	17	42	0.1%	1,490	3,683	5.4%
State Environmental Justice Area	112,418	277,784	6,056	14,964	5.4%	10,951	27,059	9.7%	2,255	5,571	2.0%	17	42	0.1%	19,278	47,637	17.1%
Federal Environmental Justice Area	77,692	191,977	1,966	4,858	2 5%	4,410	10,897	5.7%	1,035	2,558	1.3%	18	45	0.1%	7,429	18,357	9.6%

(1) The majority of the ZLV falling within an EJA is the water surface of bays, that are included within the EJA boundary, as well as summer home communities.

6.1.11 Other Visually Sensitive Resources

Although not formally inventoried, it should be noted that the ZLV also includes other public resources that could be considered regionally or locally significant or sensitive due to the type or intensity of land use they receive. These include private campgrounds, golf courses, local nature preserves, tourist attractions, fish and game clubs, schools, churches, cemeteries, areas of concentrated human settlement, and heavily traveled roads. Ocean bays and sounds within the ZLV could also be considered sensitive visual resources. These areas provide recreational opportunities, such as boating, fishing, kayaking, cruising, swimming, and wildlife viewing, and historic villages along these bays offer waterfront dining, shopping, and other tourist attractions and accommodations.



Seascape, Landscape and Visual Impact Assessment

Legend

- Wind Turbine Generator (WTG)/Electrical Service Platform (ESP) Positions
- Contingent WTG/ESP Positions*
- Lease Area OCS-A 0544
- Lease Area OCS-A 0512
- Other Lease Areas
- Distance From Lease Area OCS-A 0544
- Shipping Lanes
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

Environmental Justice Areas

- Native American Tribal Area
- State Disadvantaged Communities
- State Environmental Justice Area
- Federal Environmental Justice Area

**Vineyard Mid-Atlantic will not develop these contingent WTG/ESP positions if the final Empire Wind 2 layout includes WTGs at immediately adjacent positions within Lease Area OCS-A 0512.*

0 5 10 20 mi

0 10 20 40 km

Scale: 1:1,200,000

Figure 9
Environmental Justice Map

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

6.2 Key Observation Points

Although the possibility of views of Vineyard Mid-Atlantic exists throughout the oceanfront area, 20 key observation points (KOPs) were selected from which more detailed analyses were conducted.

KOPs were selected based on the following criteria:

- Locations which provide clear, unobstructed views toward the Lease Area site (as determined through ZLV analysis and field verification);
- Visually sensitive places representative of a larger group of candidate KOPs of the same type or in the same geographic area;
- Vantage points representative typical views from different Seascape/Landscape Character Areas;
- Views of the Lease Area commonly available to representative viewer/user groups;
- Geographic distribution across the VSA illustrating a range of distances to the Lease Area; and
- Locations identified in consultation with BOEM and identified in prior studies.

The number and location of KOPs were selected in consultation with BOEM at a virtual meeting on May 17, 2023.

Locations of the selected KOPs, including photo logs and supplemental information, are shown in Figures D-1 through D-20 in Appendix D. Information describing each of the 20 evaluated KOPs is summarized in Table 13.

Table 13 - Key Observation Points (KOPs)

KOP#	Name	Municipality	Seaside Character Area (SCA)	Resource Type	Use Type	Relevant Viewer Groups	Dist. to nearest WTG/ESP	View Orien-tation	HFOV (1)	Elevation (Ft asl)
NEW YORK										
01	Jacob Riis Park – Gateway National Recreation Area	Queens	Oceanside Recreation	National Recreation Area Municipal Park/Ocean Beach	Recreation Relaxation	Recreation-oriented Visitors Scenery/Heritage-oriented Visitors	69.3 km (43.0 mi)	SSE	16°	4.9 m (16 ft)
02	Ocean Beach Park/Long Beach Boardwalk	Long Beach	Oceanside Urban	Public Boardwalk Ocean Beach	Recreation Relaxation	Recreation-oriented Visitors Seasonal Residents and Vacationers	56.3 km (35.0 mi)	S	21°	6.4 m (21 ft)
03	Oceanside Park	Hempstead	Bayside Recreation	Public Park Play Fields	Recreation Relaxation	Recreation-oriented Visitors	57.5 km (35.7 mi)	SE	21°	4.3 m (14 ft)
04	Norman J. Levy Park & Preserve	Hempstead	Bayside Natural Upland	County Park, Scenic Overlook Conservation Area	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	56.2 km (35.1 mi)	S	22°	35.7 m (117 ft)
05	Jones Beach State Park (Field 6)	Wantagh	Oceanside Recreation	State Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	48.8 km (30.3 mi)	SSE	25°	5.2 m (17 ft)
06	Gilgo Town Beach	Babylon	Oceanside Residential/Commercial	Municipal Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	45.4 km (28.2 mi)	SSE	27°	7.6 m (25 ft)
07	Robert Moses State Park (Field 2)	Islip	Oceanside Recreation	State Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	40.2 km (25.0 mi)	S	30°	4.9 m (16 ft)
08	Saltaire Beach – Fire Island National Seashore	Islip	Oceanside Residential/Commercial	National Seashore Ocean Beach	Vacation Residential	Seasonal Residents and Vacationers	38.8 km (24.1 mi)	SSE	30°	4.0 m (13 ft)
09	Heckscher State Park	Islip	Bayside Recreation	State Park Bay Beach	Recreation Relaxation	Recreation-oriented Visitors	44.2 km (27.5 mi)	S	24°	3.0 m (10 ft)
10	Shorefront Park	Patchogue	Bayside Recreation	National Seashore Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	47.4 km (29.4 mi)	S	19°	3.0 m (10 ft)
11	Otis J. Pike Fire Island Dune Wilderness – Fire Island National Seashore	Brookhaven	Oceanside Beach	National Seashore Ocean Beach	Recreation Scenic Tourism	Recreation-oriented Visitors Scenery/Heritage-oriented Visitors	47.1 km (29.3 mi)	SSE	17°	3.7 m (12 ft)
12	Cupsogue Beach County Park	Westhampton Beach	Oceanside Beach	Municipal Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	54.7 km (34.0 mi)	SSE	13°	7.3 m (24 ft)
13	Tiana Town Beach	Southampton	Oceanside Beach	Municipal Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	68.1 km (42.3 mi)	SSE	9°	8.2 m (27 ft)

Table 13 - Key Observation Points (KOPs)

KOP#	Name	Municipality	Seaside Character Area (SCA)	Resource Type	Use Type	Relevant Viewer Groups	Dist. to nearest WTG/ESP	View Orien-tation	HFOV (1)	Elevation (Ft asl)
NEW JERSEY										
14	Sandy Hook (North Beach) – Gateway National Recreation Area	Middletown	Oceanside Beach	National Recreation Area Ocean Beach	Recreation Relaxation Scenic/Cultural Tourism	Recreation-oriented Visitors Scenery/Heritage-oriented Visitors	73.9 km (45.6 mi)	ENE	14°	7.9 m (26 ft)
15	Sandy Hook (South Beach) – Gateway National Recreation Area	Middletown	Oceanside Beach	National Recreation Area Ocean Beach	Recreation Relaxation Scenic/Cultural Tourism	Recreation-oriented Visitors Scenery/Heritage-oriented Visitors	69.4 km (43.1 mi)	E	14°	7.3 m (24 ft)
16	Twin Lights State Historic Site	Highlands	Bayside Recreation	State Historic Site Scenic Overlook	Scenic/Cultural Tourism	Scenery/Heritage-oriented Visitors	69.9 km (43.3 mi)	E	14°	63.7 m (209 ft)
17	Seven Presidents Oceanfront Park	Long Branch	Oceanside Recreation	Municipal Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	66.7 km (41.5 mi)	E	14°	5.2 m (17 ft)
18	Asbury Park Boardwalk	Asbury Park	Oceanside Urban	Public Boardwalk/Arcade Ocean Beach	Recreation Relaxation Cultural Tourism	Scenery-oriented Visitors Recreation-oriented Visitors Seasonal Residents and Vacationers	67.6 km (42.0 mi)	ESE	12°	5.8 m (19 ft)
19	Point Pleasant Beach Boardwalk	Point Pleasant Beach	Oceanside Residential/Commercial	Public Boardwalk Ocean Beach	Recreation Relaxation Residential	Scenery-oriented Visitors Seasonal Residents and Vacationers	71.5 km (44.4 mi)	ESE	10°	6.1 m (20 ft)
20	Seaside Heights Boardwalk	Seaside Heights	Oceanside Urban	Public Boardwalk/Arcade Ocean Beach	Recreation Cultural Tourism	Scenery-oriented Visitors Seasonal Residents and Vacationers	66.7 km (41.5 mi)	ESE	14°	5.2 m (17 ft)

Note:
(1) Horizontal field-of-view (HFOV)

6.3 Baseline Photography

On November 11, 2022, and May 23 and 24, 2023 a visual analyst visited each the 20 KOPs listed in Table 13 to document the existing view in the direction of the Lease Area. All photographs were taken at a high megapixel resolution in uncompressed "RAW" format using a tripod mounted digital SLR camera. A 50 mm (full frame) "normal" lens was used to most closely approximate human perception of spatial relationships and scale in the landscape.

At each location, single frame photographs were taken in the direction of the Lease Area.

The location selected for each photograph was judged by the visual analyst to be the most unobstructed and representative line-of-sight to the Lease Area from the subject KOP. Effort was made to take photographs under generally clear weather conditions to maximize visual contrast. Due to daily, and often hourly variation in weather conditions, several photographs were taken under partly cloudy sky conditions. These conditions accurately represent variations in weather conditions that commonly occur on the New York and New Jersey coastlines.

The precise coordinates of each photo location were recorded in the field using a handheld Global Positioning System (GPS) unit. The direction to the center of the Lease Area was determined in the field using the handheld GPS. Where practicable, survey flags were placed along the identified bearing marking the center of the Lease Area so that the camera could be accurately aimed to center the Lease Area within the photo field-of-view.

6.4 Photographic Simulations

To show anticipated visual changes associated with Vineyard Mid-Atlantic, high resolution computer enhanced image processing was used to create realistic daytime photographic simulations of the completed offshore facilities from 11 KOPs: 8 in New York and 3 in New Jersey.

The KOPs selected for photo simulation represent a variety of viewing distances, viewer elevations, Seascape and Landscape Character Areas, and viewer types as well as overall geographic distribution and general intensity of use.

The 11 KOPs selected for photo simulation are listed in Table 14. Locations of the simulated views are depicted in Figures D1 through D20 in Appendix D. Photo Simulations are provided in Appendix E.

Table 14 – KOPs Selected for Photo Simulation

KOP#	Name	Municipality	Seaside Character Area (SCA)	Resource Type	Use Type	Relevant Viewer Groups	Dist. to nearest WTG/ESP	View Orien-tation	HFOV (1)	Elevation (Ft asl)
NEW YORK										
01	Jacob Riis Park – Gateway National Recreation Area	Queens	Oceanside Recreation	National Recreation Area Municipal Park/Ocean Beach	Recreation Relaxation	Recreation-oriented Visitors Scenery/Heritage-oriented Visitors	69.3 km (43.0 mi)	SSE	16°	4.9 m (16 ft)
02	Ocean Beach Park/Long Beach Boardwalk	Long Beach	Oceanside Urban	Public Boardwalk Ocean Beach	Recreation Relaxation	Recreation-oriented Visitors Seasonal Residents and Vacationers	56.3 km (35.0 mi)	S	21°	6.4 m (21 ft)
04	Norman J. Levy Park & Preserve	Hempstead	Bayside Natural Upland	County Park, Scenic Overlook Conservation Area	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	56.2 km (35.1 mi)	S	22°	35.7 m (117 ft)
05	Jones Beach State Park (Field 6)	Wantagh	Oceanside Recreation	State Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	48.8 km (30.3 mi)	SSE	25°	5.2 m (17 ft)
06	Gilgo Town Beach	Babylon	Oceanside Residential/Commercial	Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	45.4 km (28.2 mi)	SSE	27°	7.6 m (25 ft)
08	Saltaire Beach – Fire Island National Seashore	Islip	Oceanside Residential/Commercial	National Seashore Ocean Beach	Vacation Residential	Seasonal Residents and Vacationers	38.8 km (24.1 mi)	SSE	30°	4.0 m (13 ft)
09	Heckscher State Park	Islip	Bayside Recreation	State Park Bay Beach	Recreation Relaxation	Recreation-oriented Visitors	44.2 km (27.5 mi)	S	24°	3.0 m (10 ft)
12	Cupsogue Beach County Park	Westhampton Beach	Oceanside Beach	Municipal Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	54.7 km (34.0 mi)	SSE	13°	7.3 m (24 ft)
NEW JERSEY										
15	Sandy Hook (South Beach) – Gateway National Recreation Area	Middletown	Oceanside Beach	National Recreation Area Ocean Beach	Recreation Relaxation Scenic/Cultural Tourism	Recreation-oriented Visitors Scenery/Heritage-oriented Visitors	69.4 km (43.1 mi)	E	14°	7.3 m (24 ft)
17	Seven Presidents Oceanfront Park	Long Branch	Oceanside Recreation	Municipal Park Ocean Beach	Recreation Relaxation	Scenery-oriented Visitors Recreation-oriented Visitors	66.7 km (41.5 mi)	E	14°	5.2 m (17 ft)
18	Asbury Park Boardwalk	Asbury Park	Oceanside Urban	Public Boardwalk/Arcade Ocean Beach	Recreation Relaxation Cultural Tourism	Scenery-oriented Visitors Recreation-oriented Visitors Seasonal Residents and Vacationers	67.6 km (42.0 mi)	ESE	12°	5.8 m (19 ft)

Note:
Horizontal field-of-view (HFOV)

Photo simulations were developed by superimposing a rendering of a to-scale 3-D computer model of Vineyard Mid-Atlantic WTGs into a base photograph taken from each corresponding location. The 3-D computer model used for the simulations is based on the Vineyard Mid-Atlantic maximum impact scenario described in Section 2.0 above. The model was developed using Autodesk Civil 3D® and 3D Studio Max Design® software (3-D Studio Max).

Simulated perspectives (camera views) were then matched to the corresponding base photograph for each simulated view by replicating the precise coordinates of the field camera position (as recorded by GPS) and the focal length of the camera lens used (e.g., 50 mm). Precisely matching these parameters assures scale accuracy between the base photograph and the subsequent simulated view. The camera's target position is set to match the bearing of the corresponding existing condition photograph. With the existing conditions photograph displayed as a "viewport background," and the viewport properties set to match the photograph pixel dimensions, minor camera adjustments were made (horizontal and vertical positioning) to align the horizon in the background photograph with the corresponding features of the 3-D model.

Once the camera alignment was established, the to-scale 3-D model of Vineyard Mid-Atlantic was merged into the model space. Because the exact WTG model has not been determined at the time of this VIA, a hypothetical model was prepared for Vineyard Mid-Atlantic, using the maximum PDE WTG size (See Section 2.2.1). The 3-D model of the WTGs is intended to accurately convey the current design intent. To the extent practicable, and to the extent necessary to reveal impacts, design details of the proposed WTGs were built into the 3-D model and incorporated into the photo simulation. Consequently, the scale, alignment, elevations, and location of the visible elements of the proposed facilities are true to the conceptual design.

As described in Section 2.2.3, the WTGs will be no lighter than pure white (RAL 9010) and no darker than light grey (RAL 7035) in color. Although the Proponent expects that the WTGs will be off-white/light grey to reduce their visibility against the horizon, the exact color of the WTGs within this range (between RAL 9010 and RAL 7035) is unknown at this time. Therefore, the visual simulations assume that the WTGs are pure white (RAL 9010), which represents a worst-case scenario, although the difference between WTGs colored RAL 9010 and RAL 7035 is likely indiscernible from coastal vantage points given the WTGs' distance from shore.

Because of the extreme distances at which the Vineyard Mid-Atlantic WTGs will be viewed, the development of photo simulations must account for earth's curvature and atmospheric refraction. To address this issue, a spherical surface equal to 0.13 times the radius of the earth was created in 3-D Studio Max. All WTG model units were "snapped" to this surface for each specific camera view. For each simulated view, WTG elevations were spot checked by comparing the "snapped" elevation with the predicted degree of earth curvature screening as calculated using WaBis Advanced Earth Curvature Calculator (WaBis, n.d.) with elevation and distance variables set for the specific KOP.

With the model in place, a daylight system was then created based on the date and time of the photograph; inputs such as time zone and location were also applied to the daylight system. To accurately depict "reflected light," the spherical earth surface model element was assigned a gray-blue color allowing upward light refraction to affect the rendering model elements.

The rendered view was then imported into the baseline photo in Adobe Photoshop software for overlay. In addition, minor adjustments were made to the WTG color and contrast to match the lighting conditions of the baseline photograph so that the final rendering appears as realistic as possible. Photo Simulations are provided in Appendix E.

6.4.1 Viewing Photo Simulations

Arm's Length Rule—The single frame photo simulations included in Appendices D and E have been formatted to be printed on an 11 x 17-inch page format. At this image size, the page should be held at approximately arm's length[6] so that the scene appears at the correct scale. Viewing the image closer would make the scene appear too large and viewing the image from a greater distance would make the scene appear too small compared to what an observer would actually see in the field. A scale bar is provided on each page to ensure the photographic image is printed at the correct size.

For viewing photo simulations at other page sizes, the viewing distance/page width ratio is approximately 1.5/1. For example, if the simulation were viewed on a 42-inch-wide poster size enlargement, the correct viewing distance would be approximately 63 inches (5.25 ft).

To appear at the correct scale when viewing on a computer monitor, use the zoom function of the display software (e.g., Adobe Acrobat Reader DC) to adjust the size of the image so that the scale bar provided on each page measures correctly. The screen image should then be viewed at a distance of approximately 22".[7]

Monitor Calibration—Uncalibrated computer monitors vary in brightness, contrast, and color. Photo simulations were finalized using a color calibrated monitor. When viewing these simulations, digital monitor calibration is recommended to assure images appear with the intended brightness, contrast, and color clarity.

Field Viewing—The photo simulations present an accurate depiction of the appearance of the proposed WTGs suitable to provide a general understanding of how much of Vineyard Mid-Atlantic may be visible, as well as the character of its visibility. However, these images are a two-dimensional representation of a 3-D landscape, and the human eye is capable of recognizing a greater level of detail than can be illustrated in a two-dimensional image. Decision makers and interested parties may benefit from viewing the photo simulations in the field from any or all of the simulated resources. In this manner, observers can directly compare the level of detail visible in the base photograph with actual field observed conditions.

6 Viewing distance is calculated based a 39.6-degree field-of-view for the 50 mm camera lens used, and the 15.5-inches-wide image presented in Appendix D. "Arm's length" is assumed to be approximately 22 inches from the eye. Arm lengths vary for individual viewers.

7 The VIA (see Section 8.0) is based, in part, on review of the photo simulations provided in Appendix E. For this evaluation, the visual analyst viewed the photo simulations in an uncompressed format (e.g., at the simulated image's highest resolution) on a 27.5" wide computer monitor at a viewing distance of approximately 40".

7.0 SEASCAPE/LANDSCAPE IMPACT ASSESSMENT (SLIA)

7.1 SLIA Methodology

This section explains the methodology used to evaluate seascape and landscape impacts and the factors that are considered in the evaluation. This methodology is based on "Section 6.4 Evaluation of Impacts" in BOEM's SLVIA guidelines (Sullivan R. G., 2021, pp. 29-34).

The SLIA consists of two separate but interrelated components: sensitivity and magnitude of the effect. The sensitivity factor has two components: susceptibility and value. The magnitude factor has three components: the size and scale of the change to existing conditions caused by the project, the geographic extent of the area subject to the project's effects, and the effect's duration and reversibility. Each factor and its components are rated on an ordinal scale with three levels, which in some cases use different terms for semantic reasons but are considered equal in importance; in other words, a rating of "high" is considered equivalent in importance to a rating of "large" or "good." Similarly, a rating of "low" is considered equivalent to a rating of "small" or "poor" (Sullivan R. G., 2021, p. 29).

Although the factors of sensitivity and magnitude are evaluated on an ordinal scale, assessing the qualities of each character area and arriving at an ordinal rating are a matter of professional judgment (Sullivan R. G., 2021, p. 29). The following descriptions, tables, and matrices provide general definitions to assist the professional visual analyst in determining the degree of impact on individual Seascape, Landscape, and Ocean Character Areas.

7.1.1 Sensitivity of Seascape/Landscape Receptors

The evaluation of seascape/landscape sensitivity is derived from an understanding of the susceptibility of the Character Area to change and the recognized values attached to the scenic resources within the Character Area. A rating (ranging from low to high) was assigned to both a Character Area's susceptibility to change and scenic resource value to form a resource sensitivity rating. Highly scenic Character Areas with a low capacity to absorb change and high scenic value are considered most sensitive to visual change. Likewise, Character Areas with a high capacity to absorb change and low user sensitivity are considered least sensitive to visual change.

Susceptibility to Change – The susceptibility of a seascape/landscape to change is its ability to accommodate the impacts of the proposed project without substantial change to the basic existing characteristics of the seascape/landscape. This applies to the overall character of a particular seascape/landscape area, or an individual element and/or feature, or a particular aesthetic, experiential, and perceptual aspect that contributes to the character of the area (Sullivan R. G., 2021, p. 30). A Character Area's susceptibility to change is a measure of how much visual change a landscape can absorb before the key characteristics of the landscape are altered. Indicators are based on existing development patterns, shoreline complexity, topographic features, expanse of ocean view, landscape distinctiveness, natural patterns, quality of the built environment, and primary use. A Character Area that is more common or highly developed tends to have more capacity for visual change and is rated as low. Likewise, a Character Area that has unique, distinctive, or high-quality features may be more impacted through visual change and is rated as high. Table 15 provides guidance on the assessment of a Character Area's susceptibility to change (Cape Cod Commission, 2012, p. 17).

Table 15 - Character Area Susceptibility to Change

	LOW	LOW-MEDIUM	MEDIUM	MEDIUM-HIGH	HIGH
Coastline Shape and Aspect	Highly complex coastline or landform (e.g., highly distinctive coastline form, rocky coastline and/or clearly defined bays/inlets, tidal ponds, steep hills, visible mountains.	Complex coastline or landform (e.g., distinctive coastline form with notable bays/inlets, tidal ponds, and/or somewhat rocky coastline, prominent dunes).	Moderately complex coastline or landform (e.g., somewhat distinctive undulating coastline form, and/or medium sized dunes, moderate hills)	Simple coastline or landform. (e.g., gently curving coastline, and/or, low lying dunes, small hills)	Very simple or straight coastline or landform (e g., long straight coastline, and/or coastal marshland or fields, no distinct dunes).
View	Little or no view of ocean or bays.	Limited view of ocean or bays (vista < 90°).	Moderate view of ocean or bays (vista 90°-180°).	Extensive view of open ocean or bays (vista approx. 180°).	Panoramic/expansive view of the ocean or bays, greater than (vista >180°).
Landscape Distinctiveness	The landscape or seascape is very common and has no distinctive elements. The landform is flat and featureless. Little to no variation in the vegetation color, form, and textures; Water is not present. Adjacent scenery does not contribute to the setting's scenic quality.	The landscape or seascape is very common and has few distinctive elements. The landform is flat or slightly rolling and featureless. Little variation in the vegetation color, form, and textures; Water is not a component or not noticeable. Adjacent scenery contributes little to the setting's scenic quality.	The landscape or seascape include sandy beaches to somewhat uniform sand dunes. Salt marshes, and/ or rugged bedrock bluffs are not common. Little variation in vegetation form, color, and textures (dune vegetation, bay area wetland vegetation, upland woods, etc.). Presence of water is a part of the character area or is adjacent and contributes somewhat to the scenic quality of the character area.	Variations in the landform transition from sandy beaches to undulating sand dunes to salt marshes, and/ or rugged bedrock bluffs. Vegetation varies in form, color, and textures (dune vegetation, bay area wetland vegetation, upland woods, etc.). Presence of water as nearshore ocean or bay area waterbodies that are a part of the character area or is adjacent and contributes to the scenic quality of the character area.	Variations in the landform transition from sandy beaches to distinctive undulating sand dunes to salt marshes, and/ or rugged bedrock bluffs. Unusual or distinctive vegetation varies in form, color, and textures (dune vegetation, bay area wetland vegetation, upland woods, etc.). Presence of water as nearshore ocean or bay area waterbodies that are a part of the character area or is dominant and contributes greatly to the scenic quality of the character area.
Dominant Natural Patterns	Few or absence of natural areas. Heavily developed areas. Manmade structures very dominant..	Small natural or vegetated areas. Man-made structures dominant.	Remote, natural areas of regional significance. Manmade structures and features limited and scattered.	Remote, natural areas. Manmade structures and features limited and scattered.	Very remote, isolated natural area of national/statewide significance. Man made structures or features inconspicuous or absent.
Dominant Development Patterns	Heavily developed or industrialized/commercialized development pattern. Large-scale infrastructure or structures common and dominant.	Developed areas, including multi-family high-rise housing, intermixed with large scale commercial development (shopping malls, commercial strips, big box retail, shipping centers). Large-scale infrastructure or structures may be common and more dominant.	Suburban or mostly developed areas, with a mix of residential and low-rise commercial areas. The enclaves of development have no cohesive architectural character. Minimal streetscape character and amenities (street trees, sidewalks, etc.). Large-scale infrastructure or structures may be visible but not dominant.	Clustered development surrounded by rural, scattered development. Large-scale infrastructure or structures limited and scattered. Or suburban and urban mostly developed areas, with a mix of residential and low-rise commercial areas (mixed-use neighborhood retail) centers with residential on the edges, or interspersed, or on 2nd / upper levels above the retail storefronts. The enclaves of development have a cohesive architectural character often with an old town or modern sense of place. Mature landscapes with tree canopy cover.	Intact natural areas with minimal or no man-made development. Or well preserved nationally or state designated historic properties or historic like properties, tightly knot villages, or cultural landscapes. Large-scale infrastructure or structures inconspicuous or absent.

Notes: 1) The definitions of LOW to HIGH offer general guidance in assigning a Susceptibility to Change Value. The determination of this value should collectively consider all indicator categories. The visual analyst may place more or less emphasis on these ordinal values based on observed field conditions and professional judgement.
2) These definitions apply to the overall character of a particular seascape/landscape area, or an individual element and/or feature, or a particular aesthetic, experiential, and perceptual aspect that contributes to the character of the area.

Scenic Resource Value – Seascapes, landscapes, and their features/elements and aspects have values associated with them by society, and these values are identified as part of the seascape and landscape assessments. In general, areas of seascape/landscape are likely to be highly valued when their character is judged to be distinctive and where scenic quality, wildness or tranquility, and natural or cultural heritage features make a particular contribution to the seascape or landscape (Sullivan R. G., 2021, p. 30).

The scenic resource value of a Character Area is based on its recognition as a high quality or unique visual landscape. At the high end of the scenic resource value spectrum are specially designated areas with potential scenic resource value, such as national, state, or local parks, seashores, and monuments; historic and scenic trails and byways; historic and scenic sites; Native American tribal sites or cultural landscapes; and wildlife refuges. These sites are likely to receive heavy visitation or recreational use and have high value attached to the site. At the low end of the spectrum are areas without any formal scenic designation. These sites may have low visitation or may not offer recreation amenities to the public.

Other factors that could contribute to seascape/landscape value include:

- Seascape/landscape quality or condition. The extent of character expression in individual areas, intactness of character, or physical condition of individual elements;
- Scenic quality. Aesthetic appeal (primarily visual);
- Rarity. The presence of rare seascape/landscape elements or features or a rare seascape/landscape type;
- Representativeness. Whether an area contains characters, features or elements that are considered to be particularly good examples of their type;
- Conservation interest. Nonvisual values such as important wildlife habitat, unusual geology, historic importance, and the like;
- Recreation value. Use of an area for recreational purposes that depend on seascape/landscape qualities, such as landscape photography or birdwatching;
- Perceptual values. Landscape value for perceptual qualities, such as solitude, tranquility, or wildness; and
- Associations. Areas associated with important people or historical events that positively affect the perception of beauty in the seascape/landscape (Sullivan R. G., 2021, p. 26).

Table 16 provides guidance on the assessment of a Character Area's scenic resource value.

Table 16 – Character Area Scenic Resource Value

LOW	LOW-MEDIUM	MEDIUM	MEDIUM-HIGH	HIGH
The Character Area does not include sites with formal recognition or designation as a scenic resource. Little or no public amenity or recreational value.	The Character Area includes public sites that may be identified in guidebooks but have no formal designation as a scenic resource.	The Character Area includes sites with local or regional recognition/ ownership. May include local parks, central downtowns, community resources, or local historic sites.	The Character Area includes sites with state recognition/ownership. May include State Parks and Recreation Areas, Wildlife Management Areas, Land Trust properties, or sites eligible for or listed on the NRHP or SRHP.	The Character Area includes sites with state or national recognition for their scenic and/or recreational value. May include State Parks and recreation areas, National Parks, National Seashores, or sites eligible for or listed on the NRHP that derive significance from their landscape setting.
The seascape/landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest. The area is highly populated, bustling with activity with clear perceptual distractions (e.g., crowds, traffic, etc.).	The seascape/landscape is common and moderately attractive. Some valued natural or architectural features, recreational uses and places of conservation interest are found. Although human activities may be prevalent, opportunities exist for passive enjoyment of the landscape away from perceptual distractions.	The seascape/landscape is highly intact and valued for its aesthetic quality, contains rare natural or architectural features, has strong conservation interest, recreation uses, and cultural associations. The area has very low population and is recognized for unique solitude, tranquility, or wildness.		
Note: The definitions of LOW to HIGH offer general guidance in assigning a Scenic Resource Value. The visual analyst may place more or less emphasis on these ordinal values based on professional judgement.				

Character Area Sensitivity Rating - The sensitivity of each Character Area is determined by combining the Character Area's susceptibility to change with the scenic value of the resources in the Character Area. Table 17 is used to determine the overall sensitivity of the Character Area.

Table 17 - Character Area Sensitivity Matrix

CHARATER AREA SCENIC RESOURCE VALUE RATING (refer to Table 16)	CHARACTER AREA SUSCEPTIBILITY RATING (refer to Table 15)				
	HIGH	MEDIUM-HIGH	MEDIUM	LOW-MEDIUM	LOW
HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM
MEDIUM-HIGH	HIGH	MEDIUM-HIGH	MEDIUM-HIGH	MEDIUM	LOW-MEDIUM
MEDIUM	HIGH	MEDIUM	MEDIUM	LOW-MEDIUM	LOW
LOW-MEDIUM	MEDIUM	MEDIUM	LOW-MEDIUM	LOW-MEDIUM	LOW
LOW	MEDIUM	LOW-MEDIUM	LOW	LOW	LOW
Note: This sensitivity matrix is based on Table 6.4-1 in BOEM's SLVIA guidelines (Sullivan R. G., 2021, p. 32).					

7.1.2 Magnitude of Visual Impacts

The magnitude of an impact on a seascape or landscape depends on the size or scale of the change associated with the proposed project, the geographic extent of the change, and the duration and reversibility of the change (Sullivan R. G., 2021, p. 30).

Size or Scale of Change - This evaluation considers the anticipated degree of visual change from the project on the Character Area. The rating (small to large) is based upon measurable or observable physical factors that contribute to project visibility from the Character Area. Factors include distance to the nearest WTG, vertical field-of-view (VFOW), HFOV covered by the project, viewer elevation, and landscape contrast caused by the project. This evaluation is based on a general assessment of all KOP visualizations provided from within each Character Area, with the understanding that the size and scale of change caused by the project will vary based on where one is located within the Character Area and may change based on conditions related to lighting, weather, and atmospheric effects. Table 18 provides guidance on the assessment of the size/scale of visual change within a Character Area.

Viewshed maps found in Appendix A offer guidance concerning the measurable degree of noticeable WTG element visibility (i.e., blade tip, nacelle top, mid-tower, top of foundation). This degree of WTG element visibility is further described in Figure 7.

Table 18 - Character Area Size/Scale of Visual Change

	SMALL	SMALL-MEDIUM	MEDIUM	MEDIUM-LARGE	LARGE
Distance to nearest visible WTG	Intermittently noticed features in the onshore to offshore view between 63.9 km and 72.0 km (39.7 and 44.7 mi) distance (e.g., one blade only visible above the horizon).	Low on the horizon, but persistent features in the onshore to offshore view between 55.7 and 63.9 km (34.6 and 39.7 mi) distance. (e.g., two blades visible above horizon)	Clearly visible features in the onshore to offshore view between 40 8 and 55.7 km (25.4 and 34.6 mi) distance. (e.g., nacelle top aviation obstruction lights visible above horizon)	Strongly pervasive features in the onshore to offshore view between 25 8 and 40.8 km (16.1 and 25.4 mi) distance (e.g., mid-tower aviation obstruction lights visible above the horizon).	Unavoidably dominant features in the boat and ship ocean view between 0 and 25.8 km (0 and 16.1 mi) distance (e.g., top of foundation visible above the horizon).
Viewer Elevation	Near sea level vantage point (e.g., beach or dune).		Vantage point elevated above beach or dune level, but landform is not considered a unique topographic feature.		High elevated vantage point (e.g., hilltop or high bluff).
Horizontal Field-of-View (HFOV)	Project occupies a very small portion of the normal human field-of-view (e g., <5 degrees of the horizon, or project not visible).		Project occupies a moderate portion of the normal human field-of-view (e.g., (5 to 30 degrees of the horizon).		Project occupies a very large portion of the normal human field-of-view (e g., >30 degrees of the horizon).
Visual Contrast	Degree of Contrast is Weak. Form: New structures are similar in shape and mass with existing. Line: New structures have similar line characteristics (boldness, complexity and orientation) with existing. Color: New structures have similar value and hue. Also similar in chroma, color reflectivity and color temperature. Texture: New structures are similar in grain, density and internal contrast. Also similar in directional patterns.		Degree of Contrast is Moderate. Form: New structures are somewhat dissimilar in shape and mass with existing. Line: New structures have somewhat dissimilar line characteristics (boldness, complexity and orientation) with existing. Color: New structures have somewhat dissimilar value and hue. Also, somewhat dissimilar in chroma, color reflectivity and color temperature. Texture: New structures are somewhat dissimilar in grain, density and internal contrast. Also somewhat dissimilar in directional patterns.		Degree of Contrast is Strong. Form: New structures are substantially dissimilar in shape and mass with existing. Line: New structures have substantially dissimilar line characteristics (boldness, complexity and orientation) with existing. Color: New structures have substantially dissimilar value and hue. Also, substantially dissimilar in chroma, color reflectivity and color temperature. Texture: New structures are substantially dissimilar in grain, density and internal contrast. Also dissimilar in directional patterns.
Visual Prominence (Sullivan R. G., 2013, p. 8)	Visibility Level 1: Visible only after extended, close viewing; otherwise, invisible.	Visibility Level 2: Visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers.	Visibility Level 3: Visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers.	Visibility Level 4: Plainly visible, so could not be missed by casual observers, but does not strongly attract visual attention or dominate the view because of its apparent size, for views in the general direction of the study subject. .	Visibility Level 5: Strongly attracts the visual attention of views in the general direction of the study subject. Attention may be drawn to the strong contrast in form, line, color, or texture, luminance, or motion.	Visibility Level 6: Dominates the view because the study subject fills most of the visual field of views in its general direction. Strong contrasts in form, line, color, texture, luminance, or motions may contribute to view dominance.
Adjacent Scenery	Project is viewed from the interior of a SCA/LCA and the ocean/bays are not commonly visible.	Project is viewed across one or more SCA/LCA and the ocean/bays are occasionally a visual feature.	Project is viewed across one or more SCA/LCA and the ocean/bays are an important visual feature.	Project is viewed from the edge of an SCA where the adjacent scenery defines the sense of place, but the visual focus is the ocean/bays.	Project is viewed from within a single unified SCA (e.g., over open water from a boat).

Notes:

The definitions of LOW to HIGH offer general guidance in assigning value to the Size/Scale of Visual Change. The determination of this value should collectively consider all indicator categories. The visual analyst may place more or less emphasis on these ordinal values based on professional judgement.

Geographic Extent – The assessment of impact magnitude also considers the geographic extent over which the impact will be experienced. For seascape/landscape impacts from offshore wind projects, the geographic extent of most impacts (which ultimately is associated with visibility of the project) is related to the project ZLV. (Sullivan R. G., 2021, p. 31).

This evaluation is based on the extent of potential visibility based on the computer-based ZLV analysis (refer to Section 3.2 above). A Character Area with a high percentage of potential visibility will be rated as large, and a Character Area with a small percentage of potential visibility will be rated as small. The viewshed analysis only indicates if a single WTG is theoretically visible from a point in the landscape. It does not account for atmospheric conditions, visual acuity, or provide additional information about the level of visibility. Table 19 provides guidance in the determination of geographic extent of visibility.

Table 19 - Character Area Geographic Extent of Visibility

	SMALL	SMALL-MEDIUM	MEDIUM	MEDIUM-LARGE	LARGE
Percentage of Area with Potential Visibility (refer to Table 7.)	0% - 15% of Character Area has potential visibility.	15% - 30% of Character Area has potential visibility.		30% - 100% of Character Area has potential visibility.	
Notes: The definitions of LOW to HIGH offer general guidance in assigning value to the Geographic Extent of Visibility. The determination of this value should collectively consider all indicator categories. The visual analyst may place more or less emphasis on these ordinal values based on professional judgement.					

Duration and Reversibility of Impacts – The third element of assessing the magnitude of a particular impact is the consideration of its duration and reversibility; that is, the length of time over which the impact is likely to occur and the degree to which the currently existing conditions are restored after the impact ceases (Sullivan R. G., 2021, p. 31).

In the assessment of impact level, duration and reversibility are considered together and recorded on a scale of poor, fair, or good, based on the length of time the project will be visible (i.e., a permanent / irreversible visual change would receive a poor rating). Vineyard Mid-Atlantic is expected to operate for approximately 30 years and thus is considered a long-term installation. While Vineyard Mid-Atlantic is a utility scale renewable energy generating facility, it is fully reversible. In all cases, Vineyard Mid-Atlantic received a fair rating.

Magnitude of Visual Impact - The magnitude of visual impact for a Character Area is determined by combining the Size or Scale of Change, the Geographic Extent of potential visibility in the Character Area, and the Duration and Reversibility of Impacts.

Table 20 provides guidance in the determination of the magnitude of visual impact.

Table 20 - Character Area Magnitude Rating Matrix

SIZE/SCALE RATING (refer to Table 18)	**GEOGRAPHIC EXTENT RATING** (refer to Table 19)				
	LARGE	**MEDIUM-LARGE**	**MEDIUM**	**SMALL-**	**SMALL**
LARGE	LARGE	LARGE	LARGE	MEDIUM-LARGE	MEDIUM
MEDIUM-LARGE	LARGE	MEDIUM-LARGE	MEDIUM-LARGE	MEDIUM	MEDIUM
MEDIUM	LARGE	MEDIUM	MEDIUM	SMALL-MEDIUM	SMALL
SMALL-MEDIUM	MEDIUM	SMALL-MEDIUM	SMALL-MEDIUM	SMALL-MEDIUM	SMALL
SMALL	MEDIUM	SMALL	SMALL	SMALL	SMALL

Note:
This magnitude matrix is based on Table 6.4-2 in BOEM's SLVIA guidelines (Sullivan R. G., 2021, p. 32). The duration/reversibility of impacts factor identified in Table 6.4-2 is not included in Table 28 because it is a constant variable (i.e., "Fair," long term/fully reversable) for all SCAs/LCAs.

7.1.3 Overall Impact to Character Areas

Once the sensitivity and magnitude factors for an individual SCA, LCA, or OCA have been determined, they are combined into an overall finding of major, moderate, minor, or negligible impact for each SCA, LCA, or OCA. Table 21 combines sensitivity and magnitude of visual impacts in a matrix to determine the overall impact to the Character Area. While this table provides guidance on how to rate the evaluations, the definitions of the ratings below, summary narratives, and professional judgment support the evaluations. Any adjustments to the impact that are greater or less that the Magnitude of Impact rating must be accompanied by a written justification.

As stated in Sullivan, "a finding of negligible impact is warranted when there are minimal impacts; that is, the project is not visible or barely visible, or the potentially affected area is very small, and the other metrics are at medium or low values" (Sullivan R. G., 2021, p. 33). Although a finding of negligible impact may be considered in some circumstances, a finding of negligible impact may not be appropriate for highly valued places regardless of the size of the affected area.

Table 21 – Character Area Overall Impact Matrix

CHARACTER AREA SENSITIVITY (refer to Table 17)	**CHARACTER AREA VISUAL IMPACT MAGNITUDE** (refer to Table 20)				
	LARGE	**MEDIUM-LARGE**	**MEDIUM**	**SMALL-MEDIUM**	**SMALL**
HIGH	MAJOR	MAJOR	MAJOR	MODERATE	MODERATE
MEDIUM-HIGH	MAJOR	MAJOR	MODERATE	MODERATE	MODERATE
MEDIUM	MAJOR	MODERATE	MODERATE	MODERATE	MINOR
LOW-MEDIUM	MODERATE	MODERATE	MINOR	MINOR	MINOR
LOW	MODERATE	MODERATE	MINOR	MINOR	MINOR

Note:
This magnitude matrix is based on Table 6.4-3 in BOEM's SLVIA guidelines (Sullivan R. G., 2021, p. 33).

The overall impact definitions provided below characterize the findings of the SLIA process:

- Negligible – The project would have very little or no effect on the Character Area's features or qualities, either because there is minimal project visibility, the Character Area lacks value, or the Character Area is not sensitive to visual change.

- Minor - The project would introduce features that may have a noticeable to medium level of visual impact on the Character Area. The project may have a low to moderate level of visual prominence and would have a small to medium effect on the key features of the Character Area.
- Moderate - The project would introduce features that would have a medium to large change to the Character Area. The project may have a moderate to large level of visual prominence and would have a moderate effect on the key features of the Character Area.
- Major - The project would introduce features that have a major level of change to the Character Area. The project would introduce a dominant visual element that is inconsistent with the key features of the Character Area.

7.2 SLIA Results – Offshore Components

Based on the methodology described in Section 7.1 above, the following identifies the impact levels assigned to the factors of sensitivity and magnitude and the rationale behind these judgements for each Seascape, Landscape, and Ocean Character Area within the VSA.

Assessing the level of seascape/landscape impacts is a matter of professional judgment. In general, a large loss or irreversible adverse impact over an extensive area on elements and/or aesthetic and perceptual aspects that are key to the character of highly valued seascapes or landscapes are likely to be considered a major impact. On the other hand, reversible adverse impacts of short duration over a restricted area on elements and/or aesthetic and perceptual aspects that contribute to, but are not key characteristics of the distinctive character of seascapes/landscapes of lower value are likely to be judged to be less important (Sullivan R. G., 2021, p. 29).

7.2.1 Seascape Character Area Impact Levels

The following summarizes the impact levels for each SCA.

Nearshore Ocean SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	High	The Nearshore Ocean SCA includes the area 5.5 km (3.45 mi) (3.0 nm) away from the coastline in which the ocean relates to the seascape. This is the area where recreational boating, sailing and offshore fishing are most concentrated. This SCA is accessible only by watercraft and recreation is entirely water dependent. Recreational boating is a high use activity on a seasonal basis. Extended horizontal waves commonly advance toward the coast, featuring regular whitecaps and breaking waves, except during calm weather. This area varies greatly in color and motion while in the Open Ocean OCA it is generally a uniform dark blue. There may man-made features in this area such as buoys, jetties, and piers. The SCA offers 360-degree panoramic view of the ocean. Although coastal development is distinctly visible the open ocean exhibits a unique remoteness where man-made structures in close proximity are absent.
Scenic Resource Value: (see Table 16)	High	Although Nearshore SCA has no formal recognition or designation as a scenic resource it is nonetheless highly valued for its aesthetic quality, unique recreational opportunities, and tranquility.
SENSITIVITY RATING (see Table 17)	HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Medium-Large to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a portion of this SCA at distances ranging from approximately 33 km (20 mi) to the outer limit of the VSA where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 34 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above the horizon. This represents a VFOV of approximately 0.55 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. The degree of visual contrast ranges from moderate to weak depending on distance. On clear air days the offshore facilities will be plainly visible and could not be missed by a casual observer but do not strongly attract visual attention or dominate the view (Visibility Level 4). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (58,966 hectares [145,704 acres]) (47.0%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Nacelle Top visible (28,690 hectares [70,893 acres]) (22.9%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Mid-tower visible (27,332 hectares [67,537 acres]) (21.8%) – found east of Southampton, NY and west of Breezy Point, NY, and the off the coast of New Jersey south of Sandy Hook. • Foundation top visible (<1 hectare [1 acre]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Large	The ZLV analysis indicates that the offshore facilities will be visible from approximately 114,988 hectares (284,135 acres); 91.7% of the SCA. Affected ZLV is found in unbroken contiguous areas. The affected area is on the nearshore ocean where long vistas across an expanse of open water are found.
MAGNITUDE IMPACT RATING (see Table 20)	Varies: LARGE to MEDIUM	The Magnitude Impact Rating of LARGE is based on views from the closest point in the SCA to the Lease Area. The Magnitude Impact Rating of MEDIUM is based on views nearing the farthest point in the SCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MAJOR to NEGLIGIBLE	The Overall Impact Level for the Nearshore Ocean SCA varies depending on the distance from the Lease Area. A MAJOR value is recorded at the portion of the SCA nearest the Lease Area (33 km [20 mi]). Owing to a Large Geographic Extent visibility in this SCA a MAJOR value is also recorded at the outer limit of the VSA. Although Table 21 records the Overall Impact Level as MAJOR at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Oceanside Beach SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium-High	The Oceanside Beach SCA includes areas that are highly scenic with a wide vista of the open ocean often bordered by rolling, natural dunes and vegetation. Views are focused out to sea with secondary views extending up and down the coast. Inland views are diverse ranging from grassy dunes, coastal scrub vegetation, with minimal human-made structures. Human development in this area is not present or designed in a way that accentuates rustic and natural features of the area. The primary use is water dependent traditional beach-oriented recreational activities such as swimming, surfing, and beachcombing, to relaxation and viewing nature. The aesthetic quality of ocean beach views may be diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor in the Ambrose Anchorage or transiting near shore shipping lanes.
Scenic Resource Value: (see Table 16)	High	Ocean beaches typically carry federal, state, or local recognition for scenic, environmental, and/or recreational value. In all cases, ocean beaches maintain a unique aesthetic character strongly valued by residents and visitors. Views are almost exclusively focused on the open ocean.
SENSITIVITY RATING (see Table 17)	HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Medium-Large to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a portion of this SCA at distances ranging from approximately 39 km (24 mi) to the outer limit of the VSA where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 30 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above horizon. This represents a VFOV of approximately 0.41 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. The degree of visual contrast ranges from moderate to weak depending on distance. On clear air days, from the nearest point in the SCA to the Least Area the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (511 hectares [1,262 acres]) (21.0%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Nacelle Top visible (592 hectares [1,464 acres]) (24.3%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Mid-tower visible (466 hectares [1,151 acres]) (19.1%) – found east of Southampton, NY and west of Breezy Point, NY, and the off the coast of New Jersey south of Sandy Hook. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Large	The ZLV analysis indicates that the offshore facilities will be visible from approximately 1,569 hectares (3,877 acres); 64.4% of the SCA. Unobstructed views are found along the relatively narrow sand beach in extended contiguous areas. Views typically occur from near sea level vantage points. Seaward views inland of the dune line are often screened by dunes, scrub vegetation and occasionally oceanfront buildings. Limited view corridors are present between dune openings.
MAGNITUDE IMPACT RATING (see Table 20)	Varies: LARGE to MEDIUM	The Magnitude Impact Rating of LARGE is based on views from the closest point in the SCA to the Lease Area. The Magnitude Impact Rating of MEDIUM is based on views nearing the farthest point in the SCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MAJOR to NEGLIGIBLE	The Overall Impact Level for the Ocean Beach SCA varies depending on the distance from the Lease Area. Based on Table 21 a MAJOR value is recorded at the portion of the SCA nearest the Lease Area (39 km [24 mi]). Owing to a Large Geographic Extent visibility in this SCA a MAJOR value is also recorded at the outer limit of the VSA. Although Table 21 records the Overall Impact Level as MAJOR at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Oceanside Recreation SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium-High	The Oceanside Recreation SCA is characterized by developed parkland consisting of ocean beaches, bathhouses, concessions and associated large parking fields, as well as other recreational and entertainment amenities. The SCA includes areas of natural appearing seascape with rolling dunes and expanses of native coastal scrub vegetation and grasses. During the summer season oceanfront recreational facilities are highly visited. Parking lots are full, and beaches are crowded. At other times of year, the SCA can appear somewhat remote. The primary use of this area is passive recreation and nature appreciation which may or may not be water dependent but are almost always enhanced by seaside proximity. With minimal built structures the expanse oceans are panoramic.
Scenic Resource Value: (see Table 16)	High	This SCA is largely comprised of federal, state, and municipal oceanfront park land. This SCA includes highly valued and heavily used cultural, scenic, and environmentally sensitive resources. While some man-made development is found, many portions of the SCA appear remote with any opportunities for solitude.
SENSITIVITY RATING (see Table 17)	HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Medium-Large to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a portion of this SCA at distances ranging from approximately 39 km (24 mi) to the outer limit of the VSA where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 30 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above the horizon. This represents a VFOV of approximately 0.41 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. The degree of visual contrast ranges from moderate to weak depending on distance. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (227 hectares [560 acres]) (12.6%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Nacelle Top visible (673 hectares [1,663 acres]) (37.4%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Mid-tower visible (225 hectares [555 acres] (12.5%) – found east of Southampton, NY and west of Breezy Point, NY, and the off the coast of New Jersey south of Sandy Hook. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Large	The ZLV analysis indicates that the offshore facilities will be visible from approximately 1,124 hectares (2,778 acres); 62.4% of the SCA. Unobstructed views are found along the relatively narrow sand beach in extended contiguous areas. Views typically occur from near sea level vantage points. Seaward views inland of the dune line are often screened by dunes, scrub vegetation and occasionally oceanfront buildings.
MAGNITUDE IMPACT RATING (see Table 20)	Varies: LARGE to MEDIUM	The Magnitude Impact Rating of LARGE is based on views from the closest point in the SCA to the Lease Area. The Magnitude Impact Rating of MEDIUM is based on views nearing the farthest point in the SCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MAJOR to NEGLIGIBLE	The Overall Impact Level for the Ocean Recreation SCA varies depending on the distance from the Lease Area. A MAJOR value is recorded at the portion of the SCA nearest the Lease Area (39 km [24 mi]). Owing to a Large Geographic Extent visibility in this SCA a MAJOR value is also recorded at the outer limit of the VSA. Although Table 21 records the Overall Impact Level as MAJOR at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Oceanside Residential/Commercial SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Oceanside Residential/Commercial SCA is a mix of moderately developed areas organized in suburban style neighborhood clusters and lower density secluded residential properties. This SCA includes the sand beach and natural dunes between the residential/commercial edge to the surf line. Man-made development (at varying density) is dominant. Although sometimes screened by coastal scrub vegetation and other residential structures, shoreline residences often have panoramic or framed views of the ocean and dune landscape. When screened, ocean views are typically found in nearby areas and are recognized as contributing factors to the unique and valued character of the neighborhood. From the seaward edge of this SCA aesthetic quality of ocean views may be diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor in the Ambrose Anchorage or transiting near shore shipping lanes.
Scenic Resource Value: (see Table 16)	Medium	The Oceanside Urban SCA likely includes sites with local or regional recognition, such as local parks, central downtowns, community resources or local historic districts. Although specific sites considered to be of local or regional visually sensitive are found in this the Bayside Urban SCA, in aggregate the scenic resource value is low in most segments of this SCA. Properties in this SCA have often been developed to take advantage of ocean views and beachfront landscape. Shoreline residential areas may be adjacent to, or have visual access to, protected public or private conservation lands. Public enjoyment on the sand beach component of this SCA is of high value. The area is highly populated, often bustling with activity with clear perceptual distractions (e.g., crowds, traffic, etc.).
SENSITIVITY RATING (see Table 17)	MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Medium-Large to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a portion of this SCA at distances ranging from approximately 38 km (24 mi) to the outer limit of the VSA where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 30 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above the horizon. This represents a VFOV of approximately 0.41 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (880 hectares [2,175 acres]) (23.3%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Nacelle Top visible (140 hectares [346 acres]) (3.7%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Mid-tower visible (206 hectares [509 acres]) (5.5%) – found east of Southampton, NY and west of Breezy Point, NY, and the off the coast of New Jersey south of Sandy Hook. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Medium	The ZLV analysis indicates that the offshore facilities will be visible from approximately 1,226 hectares (3,030 acres); 32.5% of the SCA. Most of this affected area is along the relatively narrow sand beach and the seaward edge of adjacent residential/commercial development. Seaward views are generally limited to one or two blocks from the oceanfront by closely spaced residential structures or oceanfront dunes.
MAGNITUDE IMPACT RATING (see Table 20)	Varies: MEDIUM-LARGE to SMALL	The Magnitude Impact Rating of MEDIUM-LARGE is based on views from the closest point in the SCA to the Lease Area. The Magnitude Impact Rating of SMALL is based on views nearing the farthest point in the SCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MODERATE to NEGLIGIBLE	The Overall Impact Level for the Ocean Residential/Commercial SCA varies depending on the distance from the Lease Area. A MODERATE value is recorded at the portion of the SCA nearest the Lease Area (38 km [24 mi]). A MINOR value is recorded at the outer limit of the VSA. Although the lowest level of impact represented in Table 21 is MINOR, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Oceanside Urban SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Oceanside Urban SCA includes densely developed areas with views of the beach and/or ocean. These areas include a mix of residential, commercial, and entertainment uses often with boardwalks along the beach edge. This SCA includes the sand beach from the urban edge to the surf line. Densely developed low and high-rise residential and commercial areas and large-scale urban infrastructure dominate the view. Municipal parks and waterfront walkways are often found along the oceanfront. Other than the adjacent sand beach, natural areas are not present. From the seaward edge of this SCA aesthetic quality of ocean views may be diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor in the Ambrose Anchorage or transiting near shore shipping lanes.
Scenic Resource Value: (see Table 16)	Medium-High	The Oceanside Urban SCA likely includes sites with local or regional recognition, such as local parks, central downtowns, community resources or local historic districts. The proximity to the ocean is highly valued and contributes to a perceived high quality of life in this SCA. The area is highly populated, often bustling with activity with clear perceptual distractions (e.g., crowds, traffic, etc.). The visual proximity to the bay enhances the SCA's aesthetic appeal compared areas further inland.
SENSITIVITY RATING (see Table 17)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Small-Medium to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a portion of this SCA at distances ranging from approximately 55 km [34 mi) to the outer limit of the VSA where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 21 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above the horizon. This represents a VFOV of approximately 0.20 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (214 hectares [528 acres]) (21.3%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Nacelle Top visible (136 hectares [336 acres]) (13.5%) - found at the portion of the SCA nearest the Lease Area (33 km [20 mi]). This occurs in areas generally off the coast between Jones Beach and the eastern portion of Fire Island, NY. • Mid-tower visible (0 hectares [0 acres]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Medium-Large	The ZLV analysis indicates that the offshore facilities will be visible from a relatively small geographic area (350 hectares [864 acres]; 34.9% of the SCA. Most of this affected area is along the relatively narrow sand beach and the seaward edge of adjacent urban development in extended contiguous areas. Seaward views are generally limited to one or two blocks inland from the oceanfront by closely spaced oceanfront structures. Limited view corridors are present between buildings and landscape vegetation.
MAGNITUDE IMPACT RATING (see Table 20)	Varies: SMALL-MEDIUM to SMALL	The Magnitude Impact Rating of SMALL-MEDIUM is based on views from the closest point in the SCA to the Lease Area. The Magnitude Impact Rating of SMALL is based on views nearing the farthest point in the SCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MODERATE to NEGLIGIBLE	The Overall Impact Level for the Oceanside Urban SCA varies depending on the distance from the Lease Area. A MODERATE value is recorded at the portion of the SCA nearest the Lease Area (55 km [34 mi]). Owing to a Medium-Large Geographic Extent of visibility in this SCA a MODERATE value is also recorded at the outer limit of the VSA. Although Table 21 records the Overall Impact Level as MODERATE at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Seascape Residential SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Seascape Residential SCA includes developed, largely residential land with small main street style commercial areas that do not maintain direct views of the ocean, dunes, beaches, or other marine infrastructure. While these residences are not directly connected to any seascape or ocean body that are inherently influenced by them. Other than municipal parks and small to moderately sized conservation parcels, natural areas are not common. Man-made structures dominate the view.
Scenic Resource Value: (see Table 16)	Medium	The Seascape Residential LCA likely includes sites with local or regional recognition, such as local parks, central downtowns, community resources or local historic districts. Although specific sites considered to be of local or regional visually sensitive are found, in aggregate the scenic resource value is low in most segments of this SCA. The visual character of the area may be considered moderately attractive in certain areas but is not unique.
SENSITIVITY RATING (see Table 17)	MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this SCA at a distance of approximately 54 km [34 mi) and farther. Where visible, on clear air days the offshore facilities will be visible only after extended, close viewing (Visibility Level 1). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (15 hectares [37 acres]) (0.7%) - found at Long Branch, NJ and Lido Beach, NY. • Nacelle Top visible (6 hectares [14 acres]) (0.3%) - found at Robert Moses Causeway in West Islip, NY. • Mid-tower visible (0 hectares [0 acres]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (21 hectares [51 acres]; 1% of the SCA). Seaward views from this SCA are substantially screened by dense intervening structures.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this SCA will be MINOR. Due to intervening buildings and vegetation Vineyard Mid-Atlantic will not be visible from this SCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Seascape Urban SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Seascape Urban SCA includes densely developed urban areas that do not maintain direct views of the ocean, dunes, beaches, or other marine infrastructure, though likely serves the commercial needs of this area. Residential, commercial, and institutional uses and urban infrastructure dominate the view. Natural areas are not present.
Scenic Resource Value: (see Table 16)	Low-Medium	The Seascape Urban SCA likely includes sites with local or regional recognition, such as local parks, central downtowns, community resources or local historic districts. Although specific sites considered to be of local or regional visually sensitive are found, in aggregate the scenic resource value is low in most segments of this SCA. The visual character of the area may be considered moderately attractive in certain areas but is not unique.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (<1%) of the SCA).
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (1 hectare [1 acre]; <1% of the SCA).
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this SCA will be MINOR. Due to intervening buildings and vegetation Vineyard Mid-Atlantic will not be visible from this SCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Bayside Waterbodies SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Bayside Waterbodies SCA includes open water of inland bays separated from the Atlantic Ocean by barrier islands and tidal estuaries. Open water dominates the view and is the focal element in all directions. In near shore areas, human-made features such coastal development of varying character and density are evident at varying distance. Views of the New York City skyline, bridges/causeways, barges and commercial vessels, and other urban infrastructure may diminish the remoteness of this SCA to some degree. Despite man-made features, this SCA may be viewed as a natural and distinct landscape with abundant estuarine qualities. Recreational power boating, sailing, and paddling are popular activities in this unit. Recreation is entirely water dependent.
Scenic Resource Value: (see Table 16)	Medium	Segments of this SCA are within offshore boundaries of the Gateway National Recreation area and Fire Island National Seashore. While far fewer visitors experience offshore views within these resources, visiting these protected areas from on-water vantage points is a unique recreational, environmental, and cultural experience.
SENSITIVITY RATING (see Table 17)	MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Medium to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a portion of this SCA at distances ranging from approximately 38 km (24 mi) to the outer limit of the VSA where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 24 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above the landform, vegetation, and structures on the barrier Island visible across the bay. This represents a VFOV of approximately 0.41 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground vegetation adds complex forms. The degree of visual contrast ranges from moderate to weak depending on distance. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (15,983 hectares [39,494 acres]) (9.0%) - found at Great South Bay in NY and Lower Bay. • Nacelle Top visible (17,326 hectares [42,812 acres]) (9.7%) - found at Great South Bay in NY. • Mid-tower visible (1 hectare [4 acres]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [1 acre]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Medium-Large	The ZLV analysis indicates that the offshore facilities will be visible from approximately 33,311 hectares [82,310 acres]; 18.7% of the SCA. Most of this affected area is open water with vistas extending across the bay in all directions to distant coastal or barrier island landforms.
MAGNITUDE IMPACT RATING (see Table 20)	Varies: MEDIUM to SMALL	The Magnitude Impact Rating of MEDIUM is based on views from the closest point in the SCA to the Lease Area. The Magnitude Impact Rating of SMALL is based on views nearing the farthest point in the SCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MODERATE to NEGLIGIBLE	The Overall Impact Level for the Bayside Waterbodies SCA varies depending on the distance from the Lease Area. A MODERATE value is recorded at the portion of the SCA nearest the Lease Area (38 km [24 mi]). A MINOR value is recorded at the outer limit of the VSA. Although the lowest level of impact represented in Table 21 is MINOR, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Bayside Natural Wetland SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium-High	The Bayside Natural Wetland SCA includes upland habitats of natural or natural-appearing areas such as forested areas, shrub/scrubland, and large dunes, while maintaining a view of or providing direct connectivity to the bay and other bayside waterbodies. These areas also may include islands within the bay. Although nature trails are provided in places, the vast majority of this SCA is accessible only by small boat or paddle craft. Views are somewhat focused inward on the foreground natural landscape although vistas extending across the bay to distant coastal or barrier island landform are typical. Views of the New York City skyline, bridges/causeways, barges and commercial vessels, and other urban infrastructure may diminish the remoteness of this SCA to some degree.
Scenic Resource Value: (see Table 16)	Medium-High	The Character Area includes sites with state or national recognition for their scenic and/or conservation value. This SCA is largely intact and valued for its aesthetic quality, contains rare natural features, has strong conservation interest, recreation uses, and cultural associations. The area has very low population and is recognized for unique solitude, tranquility, or wildness.
SENSITIVITY RATING (see Table 17)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Medium to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a portion of this SCA at distances ranging from approximately 39 km (24 mi) to the outer limit of the SCA where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 24 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above the landform, vegetation, and structures on the barrier Island visible across the bay. This represents a VFOV of approximately 0.41 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground vegetation adds complex forms. The degree of visual contrast ranges from moderate to weak depending on distance. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (3,644 hectares [9,004 acres]) (27.8%) - found at Jones Island in NY and Hempstead, NY. • Nacelle Top visible (1,319 hectares [3,259 acres]) (10.1%) - found at Captree State Park in NY and Wertheim National Wildlife Refuge in NY. • Mid-tower visible (59 hectares [146 acres]) (0.5) - found at Massapequa, NY and Gilgo State Park in NY. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Medium-Large	The ZLV analysis indicates that the offshore facilities will be visible from approximately 5,022 hectares [12,410 acres]; 38.3% of the SCA. Most of this affected area is found in large contiguous wetland or tidal marsh areas. Although views are somewhat focused inward on the foreground natural landscape, vistas extending across the bay to distant coastal or barrier island landform are typical. A significant majority of this affected has limited public access.
MAGNITUDE IMPACT RATING (see Table 20)	Varies: MEDIUM to SMALL	The Magnitude Impact Rating of MEDIUM is based on views from the closest point in the SCA to the Lease Area. The Magnitude Impact Rating of SMALL is based on views nearing the farthest point in the SCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MODERATE to NEGLIGIBLE	The Overall Impact Level for the Bayside Natural Wetland SCA varies depending on the distance from the Lease Area. A MODERATE value is recorded at the portion of the SCA nearest the Lease Area (39 km [24 mi]). Owing to a Medium-Large Geographic Extent of visibility, a MODERATE value is also recorded at the outer limit of the VSA. Although Table 21 records the Overall Impact Level as MODERATE at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Bayside Natural Upland SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Bayside Natural Upland SCA includes natural or natural appearing areas such as forested regions, shrublands, and dunes offering a vista or access to the bay. Manmade structures and features are limited and scattered. Public access is available in some areas for nature appreciation. Views are largely focused inward due to dense vegetation. These regions have limited human development but may incorporate improved trails and paths for recreational purposes.
Scenic Resource Value: (see Table 16)	Medium-High	The Character Area includes sites with national or state recognition/ownership as State Parks and Wildlife Management Areas, Land Trust properties. The SCA may be valued for its aesthetic quality, natural features with strong conservation interest. The area has very low population and is generally remote.
SENSITIVITY RATING (see Table 17)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a small portion of this SCA at a distance of approximately 45 km (28 mi) and farther. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground vegetation adds complex forms. The degree of visual contrast ranges from moderate to weak depending on distance.. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (147 hectares [362 acres]) (3.6%) - found at Sandy Hook in NJ and Mastic Beach, NY. • Nacelle Top visible (66 hectares [164 acres]) (1.6%) - found at Jones Beach Causeway in NY, Cedar Creek Park in NY and Heckscher State Park in NY. • Mid-tower visible (5 hectares [13 acres]) (0.1%) - found at Norman J. Levy Park and Preserve in NY. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a relatively small geographic area (218 hectares [539 acres]; 5.4% of the SCA). Most of this affected area is found in small non-contiguous areas along the waterside perimeter of this SCA. Bayward views are typically screened from inland areas by existing shoreline vegetation. Views of Vineyard Mid-Atlantic's offshore facilities are largely limited to discrete vistas along bayside nature trails.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	MINOR	Table 21 indicates the overall impact level for this SCA will be MODERATE. Considering restricted views resulting from dense waterfront vegetation and limited public access withing affected bayfront areas this impact is reduced one ordinal level to MINOR.

Bayside Recreation SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Bayside Recreation SCA is characterized by developed parkland consisting of bayfront beaches, walking /bike trails playgrounds and sports fields and associated large parking. During the summer season bayfront recreational facilities are highly visited. Parking lots are full, and beaches are crowded. At other times of year, the SCA can appear somewhat remote. The primary use of this area is active and passive recreation and nature appreciation which may or may not be water dependent but are almost always enhanced by seaside proximity.
Scenic Resource Value: (see Table 16)	Medium-High	This SCA is largely comprised of state, and municipal oceanfront park land and includes highly valued and heavily used cultural, scenic, and environmentally sensitive resources. Although human activities are prevalent, opportunities exist for passive enjoyment of the landscape away from perceptual distractions.
SENSITIVITY RATING (see Table 17)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Small-Medium to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a small portion of this SCA at distances ranging from approximately 44 km (27 mi) to the outer limit of the VAS where the WTG would no longer be visible above the horizon. Vineyard Mid-Atlantic's HFOV is up to 24 degrees as viewed from the affected nearest point in this SCA. The mid-tower elevation and higher of the closest WTG will be seen above the landform, vegetation, and structures on the barrier Island visible across the bay. This represents a VFOV of approximately 0.33 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is ranges from moderate to weak depending on distance. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (192 hectares [474 acres]) (3.8%) - found at Middle Bay Country Club in NY and Wantagh Park in NY. • Nacelle Top visible (280 hectares [692 acres]) (5.5%) - found at Heckscher State Park in NY, Merrick Golf Course in NY and Timber Point Golf Course in NY. • Mid-tower visible (1 hectare [2 acres]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a relatively small geographic area (472 hectares [1,167 acres]; 9.3% of the SCA). Most of this affected area is in contiguous areas along the immediate waterfront. Open vistas extending across the bay are found along the immediate bayfront. Vistas are interrupted by the low landform of barrier islands visible in the distance. Bayward views are typically screened from inland areas by existing shoreline vegetation.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	The Magnitude Impact Rating of SMALL does not vary with increasing distance because the ordinal value reported on Table 20 for both distances result in a Magnitude Impact Rating of SMALL.

OVERALL IMPACT LEVEL (see Table 21)	Varies: MODERATE to NEGLIGIBLE	The Overall Impact Level for the Bayside Recreation SCA varies depending on the distance from the Lease Area. A MODERATE value is recorded at the portion of the SCA nearest the Lease Area (44 km [27 mi]). Owing to a Medium-High Sensitivity value, a MODERATE value is also recorded at the outer limit of the VSA. Although Table 21 records the Overall Impact Level as MODERATE at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Bayside Residential SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low-Medium	The Bayside Residential SCA includes residential units of varying density. Homes have direct access to the waterfront through piers, docks, or marinas with significant views of bays, inlets, and marshes. Private boat docks adjacent to waterfront residences are common along the bayfront and canals. Waterfront parks and walkways are found in some areas. Developed areas dominate the view. Natural areas are not common. Residential properties often extend up to the water's edge. Commercial and recreational marine traffic is commonly visible from shoreline vantage points.
Scenic Resource Value: (see Table 16)	Low-Medium	The Character Area includes few sites with formal recognition or designation as a scenic resource. Some valued natural or architectural features, recreational uses and places of conservation interest are found. Although human activities may be prevalent, opportunities exist for passive enjoyment of the landscape away from perceptual distractions, primarily on private properties. The area's proximity to the bay contributes to its perceived high quality of life.
SENSITIVITY RATING (see Table 17)	Low-MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Small-Medium to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this SCA approximately 47 km (29 mi) and farther. Views are generally limited to the seaward edge of the SCA. Vineyard Mid-Atlantic's HFOV is up to 24 degrees as viewed from the affected nearest point in this SCA. The mid-tower and higher of the closest WTG will be seen above the landform, vegetation, and structures on the barrier Island visible across the bay. This represents a VFOV of approximately 0.29 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (368 hectares [910 acres]) (1.5%) - found at Copiague, NY and Oak Beach, NY. • Nacelle Top visible (361 hectares [891 acres]) (1.5%) - found at Center Moriches, NY and Massapequa, NY. • Mid-tower visible (1 hectare [1 acre]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a relatively small geographic area (730 hectares [1,803 acres]; 3.0% of the SCA). Most of this affected area is found in contiguous areas extending along the immediate bayfront. Open vistas extending across the bay are interrupted by the low landform of barrier islands visible in the distance. Bayward views are typically screened within one or two blocks of the waterfront by existing buildings.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	Varies: MINOR to NEGLIGIBLE	The Overall Impact Level for the Bayside Residential SCA varies depending on the distance from the Lease Area. A MINOR value is recorded at the portion of the SCA nearest the Lease Area (47 km [29 mi]). Although Table 21 records the Overall Impact Level as MINOR at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

Bayside Urban SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low-Medium	The Bayside Urban SCA is characterized by multi-level commercial and residential development, parking, and access roads with direct views of inland waterbodies. Infrastructure associated in these areas often includes marinas, docks, and piers directly along the shoreline. Developed areas dominate the view. Natural areas are not present. Municipal parks, waterfront walkways and fishing piers are often found along the bayfront. In some sections of this SCA waterfront parking lots, boatyards and other infrastructure detract from the perceived quality of the bayfront. Commercial and recreational marine traffic is commonly visible from shoreline vantage points.
Scenic Resource Value: (see Table 16)	Low-Medium	The Bayside Urban SCA likely includes sites with local or regional recognition, such as local parks, central downtowns, community resources or local historic districts. Although specific sites considered to be of local or regional visually sensitive are found, in aggregate the scenic resource value is low in most segments of this SCA. The area is highly populated, often bustling with activity with clear perceptual distractions (e.g., crowds, traffic, etc.). The visual proximity to the bay enhances the SCA's aesthetic appeal compared to areas further inland. The area's proximity to the bay contributes to its perceived high quality of life.
SENSITIVITY RATING (see Table 17)	LOW-MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Varies: Small-Medium to Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this SCA at a distance of approximately 47 km (29 mi) and farther. Views are generally limited to the seaward edge of the SCA. Views are most commonly found at near sea level vantage points, but elevated views will occur from residential and commercial structures. Vineyard Mid-Atlantic's HFOV is up to 19 degrees as viewed from the affected nearest point in this SCA. The mid-tower and higher of the closest WTG will be seen above the landform, vegetation, and structures on the barrier Island visible across the bay. This represents a VFOV of approximately 0.29 degrees above the horizon. The vertical field-of-view is less from more distant points in the SCA. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. On clear air days the offshore facilities will be visible after a brief glance and unlikely to be missed by a casual observer (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (36 hectares [89 acres]) (1.0%) - found at Barnum Island, NY and Freeport, NY. • Nacelle Top visible (18 hectares [45 acres]) (0.5%) - found at Sanspit Marina in NY and Bay Shore Main Terminal in NY. • Mid-tower visible (0 hectares [0 acres]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (54 hectares [134 acres]; 1.5% of the SCA). Most of this affected area is found in small non-contiguous areas extending along the immediate bayfront. Open vistas extending across the bay are interrupted by the low landform of barrier islands visible in the distance. Bayward views are typically screened within one or two blocks of the waterfront by existing buildings.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	Varies: MINOR to NEGLIGIBLE	The Overall Impact Level for the Bayside Urban SCA varies depending on the distance from the Lease Area. A MINOR value is recorded at the portion of the SCA nearest the Lease Area (47 km [29 mi]). Although the lowest level of impact represented in Table 21 is MINOR, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this point a finding of NEGLIGIBLE impact is warranted.

Bayside Commercial Park SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Bayside Commercial Park SCA includes business districts and commercial areas, featuring office complexes, large retail stores, strip malls, and parking lots adjacent to bayside waterbodies. While non-ocean waterbodies may be visible from the premises, little to no infrastructure or general design of the space and the buildings themselves emphasize the view of the waterbodies. Man-made structures dominate the view. Few natural areas are found. Little or no recreational activity occurs here.
Scenic Resource Value: (see Table 16)	Low	The Character Area does not include sites with formal recognition or designation as a scenic resource. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this SCA at a distance of approximately 47 km (30 mi) and farther. Views are generally limited to the seaward edge of the SCA through small openings between buildings and mature vegetation. Where visible, on clear air days the offshore facilities will be seen when scanning in the general direction of the offshore facilities, but otherwise likely to be missed by the casual observer (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (2 hectares [5 acres]) (1.3%) - found at West Bay Shore, NY. • Nacelle Top visible (3 hectares [7 acres]) (1.8%) - found at West Bay Shore, NY. • Mid-tower visible (0 hectares [0 acres]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (5 hectares [12 acres]; 3.1% of the SCA). Most of this affected area is found in small non-contiguous areas along the immediate bayfront. Inland of the immediate bayfront views are typically limited by existing buildings and vegetation.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this SCA will be MINOR. Due to a very low sensitivity rating and very few public viewing opportunities this impact is reduced one ordinal level to NEGLIGIBLE.

Bayside Industrial SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Bayside Industrial LCA includes significantly developed land consisting of infrastructure such as smokestacks, warehouses, and bare lots adjacent to the bay or other bayside waterbodies. This heavily developed and industrialized region is usually flat but there may be sections of higher elevation. Man-made structures dominate the view. Few natural areas are found. Little or no recreational activity occurs here.
Scenic Resource Value: (see Table 16)	Low	The Character Area does not include sites with formal recognition or designation as a scenic resource. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this SCA at a distance of approximately 48 km (30 mi) and farther. Views are generally limited to the seaward edge of the SCA through small openings between buildings and mature vegetation. Where visible, on clear air days the offshore facilities will be seen when scanning in the general direction of the offshore facilities, but otherwise likely to be missed by the casual observer (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (7 hectares [17 acres]) (0.7%) - found at Island Park, NY and Lido Beach, NY. • Nacelle Top visible (19 hectares [47 acres]) (1.9%) - found at Cedar Creek Park Aerodrome in Wantagh NY and Suffolk County Sanitation Division in West Babylon NY. • Mid-tower visible (0 hectares [0 acres]) (0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (26 hectares [65 acres]; 2.5% of the SCA). Most of this affected area is found in small non-contiguous areas along the immediate bayfront. Inland of the immediate bayfront views are typically limited by existing buildings and vegetation.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this SCA will be MINOR. Due to a very low sensitivity rating and very few public viewing opportunities this impact is reduced one ordinal level to NEGLIGIBLE.

Bayside Industrial Resource SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Bayside Industrial Resource SCA consists of industrial zones such as wastewater treatment plants, landfills, and quarries. Man-made structures dominate the view. Man-made structures dominate the view. Few natural areas are found. Little or no recreational activity occurs here. Much of the affected area is a closed solid waste landfill in the Town of Hempstead, Nassau County, New York.
Scenic Resource Value: (see Table 16)	Low	The Character Area does not include sites with formal recognition or designation as a scenic resource. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this SCA approximately 57.4 km (35.6 mi) and farther. Where visible, on clear air days the offshore facilities will be visible only after extended, close viewing (Visibility Level 1). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (4 hectares [10 acres]) (5.5%) - found at Oceanside Landfill in Oceanside, NY. • Nacelle Top visible (15 hectares [38 acres]) (21.0%) - - found at Oceanside Landfill in Oceanside, NY. • Mid-tower visible (15 hectares [37 acres]) (20.7%) - found at Oceanside Landfill in Oceanside, NY. • Foundation top visible (0 hectares [0 acres]) (0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (34 hectares [85 acres]; 47.2% of the SCA). Most of this affected area is found in small non-contiguous areas along the immediate bayfront. Inland of the immediate bayfront views are typically limited by existing buildings and vegetation.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this SCA will be MINOR. Due to a very low sensitivity rating and very few public viewing opportunities this impact is reduced one ordinal level to NEGLIGIBLE.

Bayside Military Site SCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Bayside Military Site SCA includes bayside docks, piers, or other waterfront resources for military use. The LCA also includes light industrial and office buildings, gravel roads, chain-link fence, and railways. Man-made structures dominate the view. Few natural areas are found. Little or no recreational activity occurs here. This SCA is limited to a National Guard training center in Manasquan, Monmouth County, New Jersey.
Scenic Resource Value: (see Table 16)	Low	The Character Area does not include sites with formal recognition or designation as a scenic resource. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this SCA at a distance of approximately 70.7 km (43.9 mii) and farther. Where visible, on clear air days the offshore facilities will be visible only after extended, close viewing (Visibility Level 1). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Vistas appear horizontal/planar over open water. Vertical form of WTGs creates noticeable contrast. Existing foreground structures and vegetation add complex forms. The degree of visual contrast is weak. Summary of WTG element visibility within this SCA (refer to Table 7): • Blade tip visible (10 hectares [26 acres]) (7.0%) - found at National Guard Training Center in Manasquan, NY. • Nacelle Top visible (0 hectares [0 acres]) (0.0.#%) -no meaningful visibility. • Mid-tower visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (10 hectares [26 acres]; 7.0% of the SCA). Most of this affected area is found in small non-contiguous areas along the immediate bayfront. Inland of the immediate bayfront views are typically limited by existing buildings and vegetation.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this SCA will be MINOR. Due to a very low sensitivity rating and very few public viewing opportunities this impact is reduced one ordinal level to NEGLIGIBLE.

7.2.2 Landscape Character Area Impact Levels

The following summarizes the impact levels for each Landscape Character Area (LCA).

Inland Natural Area LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium-High	The Inland Natural Area LCA consists of natural or natural appearing greenspaces with no view of the beach and/or ocean and have no connection to seaside character. Forests, savannahs, and grasslands are included in this LCA. Views are largely focused inward due to dense vegetation. These regions have limited human development but may incorporate smaller trails and paths for recreational purposes.
Scenic Resource Value: (see Table 16)	Medium	Some portions of this LCA may be designated as State Forest land or may be protected as conservation land by a local government or not-for-profit land conservancy. Other lands may simply be undeveloped privately owned.
SENSITIVITY RATING (see Table 17)	MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 46.6 km (28.9 mi) and farther. Views would be above intervening vegetation from elevated vantage points. Where visible, on clear air days the offshore facilities will be seen when scanning in the general direction of the offshore facilities, but otherwise likely to be missed by the casual observer (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing vegetation is commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (33 hectares [81 acres]) (0.1%) - found at West Hampton, NY and Meadow Croft Park in Sayville, NY. • Nacelle Top visible (12 hectares [30 acres]) (0.0.%) - - found at Pine Ridge Conservation Area in Melville, NY. • Mid-tower visible (2 hectares [4 acres]) (0.0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (46 hectares [114 acres]; <1% of the LCA). Affected ZLV is found in small non-contiguous areas.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening buildings and vegetation very few viewing opportunities are found in this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Agriculture LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Inland Agriculture LCA is characterized by large areas of open agricultural lands. These areas are comprised of fields, pastures, orchards, vineyards, and livestock grazing areas. The terrain is typically flat to gently rolling. Agricultural fields are typically bordered by woodlots or hedgerows which restrict distant vistas. Some valued natural or architectural features, recreational uses and places of conservation interest are found. opportunities exist for passive enjoyment of the landscape away from perceptual distractions. Given the open nature of agricultural lands, views may extend beyond the immediate foreground. External distant views may occur in places where agricultural lands are at a higher elevation with minimal downslope vegetation limiting the line of sight. Such extending viewing opportunities are uncommon and extended vistas toward the ocean are rare.
Scenic Resource Value: (see Table 16)	Low-Medium	The Character Area includes public sites that may be identified in guidebooks but have no formal designation as a scenic resource. The visual character of the area may be considered attractive in certain areas but is not unique.
SENSITIVITY RATING (see Table 17)	LOW-MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 55.3 km (34.3 mi) and farther. Views would be above intervening vegetation from elevated vantage points. Where visible, on clear air days the offshore facilities will be visible only after extended, close viewing (Visibility Level 1). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing vegetation is commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (6 hectares [15 acres]) (0.1%) - found at Wading River, NY and East Moriches, NY. • Nacelle Top visible (0 hectares [1 acre]) (0.0.%) – no meaningful visibility. • Mid-tower visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (6 hectares [16 acres]; <1% of the LCA). Affected ZLV is found in small non-contiguous areas.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening vegetation very few viewing opportunities are found in this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Rural LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Inland Rural LCA is characterized by agricultural lands with low population density. This LCA is characterized by flat or gently rolling terrain, featuring architectural elements related to agriculture, along with scattered residential homes. Some valued natural or architectural features, recreational uses and places of conservation interest are found. opportunities exist for passive enjoyment of the landscape away from perceptual distractions. Given the open nature of rural land, views may extend beyond the immediate foreground. External distant views may occur in places where open fields are at a higher elevation with minimal downslope vegetation limiting the line of sight. Such extending viewing opportunities are uncommon and extended vistas toward the ocean are rare.
Scenic Resource Value: (see Table 16)	Low-Medium	The Character Area includes public sites that may be identified in guidebooks but have no formal designation as a scenic resource. The visual character of the area may be considered attractive in certain areas but is not unique.
SENSITIVITY RATING (see Table 17)	LOW-MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 60.8 km (37.8 mi) and farther. Views would be above intervening vegetation from elevated vantage points. Where visible, on clear air days the offshore facilities will be visible only after extended, close viewing (Visibility Level 1). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing structures vegetation are commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (30 hectares [75 acres]) (1.5%) - found at Wall Township, NJ and Eastport, NY. • Nacelle Top visible (9 hectares [23 acres]) (0.5.%) - found at Eastport, NY. • Mid-tower visible (0 hectares [1 acre]) (0.0%) – no meaningful visibility. • Foundation top visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 199)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (40 hectares [99 acres]; 2.0% of the LCA). Affected ZLV is found in small non-contiguous areas.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening vegetation very few viewing opportunities are found in this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Recreation LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Medium	The Inland Recreation LCA includes developed recreational lands with no view of the beach and/or ocean and have no connection to seaside character. This LCA is characterized by developed parkland consisting of parks with significant sports and recreational resources such as tennis courts, baseball diamonds, walking trails in non-natural landscapes, as well as public and private golf courses.
Scenic Resource Value: (see Table 16)	Medium	This SCA is largely comprised of state and municipal park land. This SCA includes valued and frequently used cultural, scenic, and environmentally sensitive resources.
SENSITIVITY RATING (see Table 17)	MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 48.1 km (29.9 mi) and farther. Views would be above intervening vegetation from elevated vantage points. Where visible, on clear air days the offshore facilities will be seen when scanning in the general direction of the offshore facilities, but otherwise likely to be missed by the casual observer (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing structures vegetation is commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (16 hectares [39 acres]) (0.2%) - found at Great Roak Golf Club in Wading River, NY and Towers Country Club in Floral Park, NY. • Nacelle Top visible (7 hectares [18 acres]) (0.1.%) - found at Mount Prospect Cemetery in Neptune City, NJ and Meadow Brook Club in Jericho, NY. • Mid-tower visible (3 hectares [8 acres]) (0.0%) - - found at Rock Hill Golf and Country Club in Manorville, NY. • Foundation top visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (26 hectares [65 acres]; <1% of the LCA). Affected ZLV is found in small non-contiguous areas.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening vegetation very few viewing opportunities are found in this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Suburban/Exurban Residential LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low-Medium	The Inland Suburban/Exurban Residential LCA Inland includes developed land of mostly residential units that do not have a view of the beach and/or ocean from any vantage point. This LCA consists of dwellings of ranging densities from multistory apartments to single family homes. Other than municipal parks and small to moderately sized conservation parcels, natural areas are not common. Man-made structures dominate the view. Views are largely focused inward within the immediate foreground of the suburban neighborhoods. External/more distant views are largely limited to axial views along roadways or from larger open areas such as parking lots. Recreational activities typically have or no association with water.
Scenic Resource Value: (see Table 16)	Low-Medium	The Inland Suburban/Exurban Residential LCA likely includes sites with local or regional recognition, such as local parks, central downtowns, community resources or local historic districts. Although specific sites considered to be of local or regional visually sensitive are found in this the Inland Urban LCA, in aggregate the scenic resource value is low in most segments of this SCA. The visual character of the area may be considered moderately attractive in certain areas but is not unique.
SENSITIVITY RATING (see Table 17)	LOW-MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 48.4 km (30.1 mi) and farther. Views would be above intervening vegetation or buildings from elevated vantage points. Where visible, on clear air days the offshore facilities will be seen when scanning in the general direction of the offshore facilities, but otherwise likely to be missed by the casual observer (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing structures vegetation are commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (132 hectares [327 acres]) (0.1%) - found at Mastic Beach, NY and East Farmingdale, NY. • Nacelle Top visible (53 hectares [132 acres]) (0.0.%) - - found at Monmouth Hills, NJ and Neptune, NJ. • Mid-tower visible (37 hectares [91 acres]) (0.0%) - found at Country Pointe Meadows in Yaphank, NY and Manorville, NY. • Foundation top visible (2 hectares [5 acres]) (0.0%) - found at Farmingville, NY.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (224 hectares [555 acres]; <1% of the LCA). Affected ZLV is found in small non-contiguous areas.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening buildings and vegetation very few viewing opportunities are found in this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Urban LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Inland Urban LCA includes densely developed areas with few views of the bays or ocean. Urban Residential, commercial, and institutional uses and urban infrastructure dominate the view. Few natural areas or recreational opportunities are found.
Scenic Resource Value: (see Table 16)	Low-Medium	The Inland Urban LCA likely includes sites with local or regional recognition, such as local parks, central downtowns, community resources or local historic districts. Although specific sites considered to be of local or regional visually sensitive are found in this the Inland Urban LCA, in aggregate the scenic resource value is low in most segments of this SCA. The visual character of the area may be considered moderately attractive in certain areas but is not unique.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 63.1 km (39.2 mi) and farther. Views would be above intervening vegetation or buildings from elevated vantage points. Where visible, on clear air days the offshore facilities will be visible only after extended, close viewing (Visibility Level 1). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing structures vegetation are commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (98 hectares [243 acres]) (0.2%) - found at North Patchogue, NY and Islip, NY. • Nacelle Top visible (48 hectares [120 acres]) (0.1.%) - found at Ocean Township, NJ. • Mid-tower visible (48 hectares [120 acres]) (0.1%) – found in Farmingdale, NY. • Foundation top visible (0 hectares [1 acre]) (0.0%) - no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (170 hectares [421 acres]; <1% of the LCA). Affected ZLV is found in small non-contiguous areas.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening buildings and vegetation very few viewing opportunities are found in this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Commercial Park LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Inland Commercial Park LCA includes business districts and commercial areas, featuring office complexes, large retail stores, strip malls, and expansive parking lots that do not have a view of the beach and/or ocean from any vantage point. Residential buildings are scarce within these surroundings. External/more distant views are largely limited to axial views along roadways or from larger open areas such as shopping center parking lots. Man-made structures dominate the view. Few natural areas are found. Little or no recreational activity occurs here.
Scenic Resource Value: (see Table 16)	Low	The Character Area does not include sites with formal recognition or designation as a scenic resource. Little or no public amenity or recreational value. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 47.5 km (29.5 mi) and farther. Views would be above intervening buildings or vegetation from elevated vantage points. Where visible, on clear air days the offshore facilities will be seen when scanning in the general direction of the offshore facilities, but otherwise likely to be missed by the casual observer (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing structures vegetation are commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (24 hectares [59 acres]) (0.3%) - found at Holtsville, NY and Mastic Beach, NY. • Nacelle Top visible (4 hectares [10 acres]) (0.0.%) - found at Great South Bay Shopping Center in West Babylon, NY and Holtsville, NY. • Mid-tower visible (2 hectares [4 acres]) (0.0%) - found at Suffolk County Community College in Selden, NY and Medford, NY. • Foundation top visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (30 hectares [73 acres]; <1% of the SCA). Affected ZLV is found in small non-contiguous areas.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening buildings and vegetation very few viewing opportunities are found in this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Industrial LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Inland Industrial LCA includes significantly developed land consisting of infrastructure like smokestacks, warehouses and bare lots that do not have a view of the beach and/or ocean from any vantage point. This heavily developed and industrialized region is usually flat but there may be sections of higher elevation. Man-made structures dominate the view. Few natural areas are found. These areas lack public access, and no recreational activity occurs here.
Scenic Resource Value: (see Table 16)	Low	Th The Character Area does not include sites with formal recognition or designation as a scenic resource. Little or no public amenity or recreational value. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small-Medium	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 49.9 km (31.0 mi) and farther. Views from this SCA would typically be across airport open spaces or above intervening buildings or vegetation from elevated vantage points. Where visible, on clear air days the offshore facilities will be seen when scanning in the general direction of the offshore facilities, but otherwise likely to be missed by the casual observer (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing structures vegetation are commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (112 hectares [278 acres]) (1.8%) - found at Copart Long Island in Brookhaven, NY and Francis S. Gabreski Airport in Westhampton, NY. • Nacelle Top visible (6 hectares [14 acres]) (0.1.%) - found at Farmingville, NY and Wheatley Heights, NY. • Mid-tower visible (16 hectares [39 acres]) (0.2%) - found at Long Island MacArthur Airport in Ronkonkoma and Babylon Town Dump in Wyandanch, NY. • Foundation top visible (0 hectares [0 acres]) (0.0%) – no meaningful visibility.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (134 hectares [331 acres]; 2.1% of the LCA). Most of this affected area is within the wide-open spaces of Long Island McArthur Airport, Republic Airport and Francis S. Gabreski Airport.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to a very low sensitivity rating and very few public viewing opportunities this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Industrial Resource LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Inland Industrial Resource LCA consists of industrial zones related to natural resources, such as wastewater treatment plants and quarries. Few natural areas are found. Man-made industrial infrastructure or resource extraction operations dominate the view. Few natural areas are found. These areas lack public access, and no recreational activity occurs here. Much of the affected area is a solid waste landfill in the Town of Babylon, Suffolk County, New York.
Scenic Resource Value: (see Table 16)	Low	The Character Area does not include sites with formal recognition or designation as a scenic resource. Little or no public amenity or recreational value. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	Vineyard Mid-Atlantic's offshore facilities are visible from a very small portion of this LCA at a distance of approximately 52.4 km (32.6 mi) and farther. Affected views are primarily limited to the slopes of a solid waste landfill. In other areas views would be above intervening buildings or vegetation from elevated vantage points. Where visible, on clear air days the offshore facilities will be visible only after extended, close viewing (Visibility Level 1). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Existing structures vegetation are commonly in foreground view. Open water is not in view. The degree of visual contrast of distant WTGs is weak. Summary of WTG element visibility within this LCA (refer to Table 7): • Blade tip visible (23 hectares [57 acres]) (1.5%) - found at East Northport, NY and Monmouth County Reclamation Center and Landfill in Tinton Falls, NJ. • Nacelle Top visible (13 hectares [31 acres]) (0.8%) - found at Monmouth County Reclamation Center and Landfill in Tinton Falls, NJ and East Coast Mines & Materials in East Quogue. • Mid-tower visible (34 hectares [85 acres]) (2.2%) - found at Hauppauge Landfill in Hauppauge, NY. • Foundation top visible (17 hectares [41 acres]) (1.1%) - found at Town of Brookhaven Landfill in Brookhaven, NY.
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (87 hectares [215 acres]; 5.7% of the LCA). Most of this affected area is at the upper elevations of an inland municipal landfill in the Town of Brookhaven, Long Island, New York.
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to a very low sensitivity rating and very few public viewing opportunities this impact is reduced one ordinal level to NEGLIGIBLE.

Inland Military Site LCA

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	Low	The Inland Military Site LCA generally consists of light industrial and office buildings, gravel roads, chain-link fence, and railways. Buildings are generally small, square, and nondescript in the traditional industrial style of the early 20th century. Man-made structures dominate the view. Few natural areas are found. These areas lack public access, and no recreational activity occurs here.
Scenic Resource Value: (see Table 16)	Low	The Character Area does not include sites with formal recognition or designation as a scenic resource. Little or no public amenity or recreational value. The landscape has minimal aesthetic appeal and has little conservation, recreation, or cultural interest.
SENSITIVITY RATING (see Table 17)	LOW	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (0.2%) of the LCA).
Geographic Extent: (see Table 19)	Small	The ZLV analysis indicates that the offshore facilities will be visible from a very small geographic area (1 hectare [3 acres]; 0.0% of the LCA).
MAGNITUDE IMPACT RATING (see Table 20)	SMALL	

OVERALL IMPACT LEVEL (see Table 21)	NEGLIGIBLE	Table 21 indicates the overall impact level for this LCA will be MINOR. Due to intervening buildings and vegetation Vineyard Mid-Atlantic will not be visible from this LCA. Based on professional judgement this impact is reduced one ordinal level to NEGLIGIBLE.

7.2.3 Ocean Character Area Impact Levels

As with the above impact analyses, the following assessment of impacts to the Ocean Character Area (OCA) conservatively considers the scenario that no other offshore wind projects have been constructed at the time of Vineyard Mid-Atlantic construction. However, as described in Section 10, other projects in the New York Bight, and the Empire Wind projects (OCS-A 0512), are in various stages of design or review within the vicinity of Vineyard Mid-Atlantic. It is possible that the OCAs will not be devoid of visible development at the time of Vineyard Mid-Atlantic construction.

Ocean Character Area (OCA)

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (see Table 15)	High	The open ocean is a blank slate, largely devoid of fixed development. Open water with a generally flat horizon (depending on sea state, weather, and atmospheric conditions) dominates the view. The ocean is distinctive for many reasons: the lack of visible development, the 360-degree views, the distance that viewers can see in all directions. Large ocean-going container ships, tankers, cargo ships, bulk carriers are regularly visible within designated shipping lanes extending seaward from New York harbor. When no transiting or anchored vessels are within view the absence of development, unique visual characteristics, 360-degree panoramic views and remoteness make the OCA highly susceptible to large scale visual change. However, the regular presence of ocean-going ships reduces the susceptibility value of the New York Bight OCA.
Scenic Resource Value: (see Table 16)	High	The ocean is a major attraction for all types of uses where the scenic value of the ocean plays a role. The regular presence of ocean-going reduces the intactness of the OCA.
SENSITIVITY RATING (see Table 17)	HIGH	The shipping lanes entering and exiting New York harbor are among the busiest in the world. When no large ocean-going vessels are visible the sensitivity of the OCA is HIGH. However, considering the Lease Area is immediately adjacent to these heavily used shipping lanes the frequency and industrial characteristics of transiting ocean-going vessels reduces the sensitivity value to MEDIUM-HIGH.

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (see Table 18)	Variable Large to Small	Vineyard Mid-Atlantic would add an obvious human-made element to otherwise undisturbed natural-appearing views. The degree of change will be a function of the viewers' distance from the offshore facilities. As observers approach the offshore facilities, the open ocean would become increasingly dominated by the scale and horizontal extent of the WTGs. Summary of WTG element visibility within this OCA (refer to Table 7): • Blade tip visible (523,156 hectares [4,945,884 acres]) (26.1%) – distance zone between 59.7 km (37.1 mi) and 77.2 km (48.0 mi) from nearest WTG. • Nacelle Top visible (462,949 hectares [1,143,946 acres]) (23.1%) distance zone between 43.8 km (27.2 mi) and 59.7 km (37.1 mi) from nearest WTG. • Mid-tower visible (406,796 hectares [1,005,193 acres]) (20.3%) – distance zone between 27.8 km (17.3 mi) and 43.8 km (27.2 mi) from nearest WTG. • Foundation top visible (411,071 hectares [1,015,756 acres]) (20.5%) – distance zone between 0 km (0 mi) and 27.8 km (17.3 mi) from nearest WTG. In close proximity to the WTG, viewers typically recognize a very high level of detail. Contrast and color intensity are at their greatest and human scale is an important cognitive factor in judging spatial relationships and the relative size of objects. At close distance offshore facilities will dominate the view because the study subject fills most of the visual field of view in its general direction. Strong contrasts in form, line, color, texture, luminance, or motions may contribute to view dominance (Visibility Level 6). As distance increases, visible elements lose detail and become less distinct. As the distance between an observer and a visible object increases, color intensity and contrast between light and dark diminish making objects appear "washed out." Approaching the outer limits of the VSA WTGs will be visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers (Visibility Level 2) and eventually be visible only after extended, close viewing; otherwise, invisible (Visibility Level 1).
Geographic Extent: (see Table 19)	Large	There is a large area within this unit with unscreened views of Vineyard Mid-Atlantic's offshore facilities. ZLV analysis indicates that visibility of Vineyard Mid-Atlantic's offshore components would be visible from approximately 90.1% of this character area.
MAGNITUDE IMPACT RATING (see Table 20)	Variable: LARGE to MEDIUM	The Magnitude Impact Rating of LARGE is based on views from the closest point in the OCA to the Lease Area. The Magnitude Impact Rating of MEDIUM is based on views nearing the farthest point in the OCA; where WTGs are not visible above the horizon.

OVERALL IMPACT LEVEL (see Table 21)	Variable: MAJOR to NEGLIGIBLE	The Overall Impact Level for the OCA varies depending on the distance from the Lease Area. A MAJOR value is recorded at the portion of the OCA nearest the Lease Area (0 km [0 mi]). Owing to a Large Geographic Extent visibility in this SCA a MAJOR value is also recorded at the outer limit of the VSA. Although Table 21 records the Overall Impact Level as MAJOR at the outer limit of the VSA, with increasing distance the WTG becomes "barely visible" and ultimately "not visible" as the blade tip falls over the horizon. At this extended distance a finding of NEGLIGIBLE impact is warranted.

7.2.4 Character Area Impact Level Summary

The SLIA evaluates the compatibility of the character of Vineyard Mid-Atlantic with the aspects that contribute to the distinctive character of the seascape and landscape areas from which the offshore facilities are visible. The impact assessment is based on the sensitivity of the affected SCA, LCA, and OCA and the magnitude of the changes in visual character brought about by Vineyard Mid-Atlantic. The overall impact level results of the SLIA for individual SCAs, LCAs, and the OCA are summarized in Table 22.

7.2.4.1 Offshore Facilities

SCA and LCA Findings

Sensitivity Factor - As a practical reality, the entire seascape within the Oceanfront is scenic and of great aesthetic importance to the social, cultural, and economic well-being of the region. Due in large part to extensive ocean views, noteworthy landscape distinctiveness, water dependent or water related recreational uses, and enhanced scenic resource value, SCA ratings trend toward the middle or higher end of the Sensitivity Factor scale. Being further inland with minimal visual access to the seascape, LCAs trend toward the lower end of the Sensitivity Factor scale.

Magnitude Factor – Given the distance of the offshore facilities from shore, the HFOV will be relatively limited within the context of a typically wide panorama of seascape. Vineyard Mid-Atlantic's offshore facilities will be viewed very low on the horizon, and blade movement will be difficult to detect. On clear air days, the offshore facilities may be visually apparent to focused observers. Under other atmospheric conditions, the offshore facilities will be faint and difficult to detect. As a result, the magnitude factor for SCAs and LCAs trend toward the "Small" to "Small-Medium" impact level.

Overall Impact Level - With the sensitivity and magnitude factors combined, all ten LCAs and 6 of 17 SCAs have an overall impact level of "Negligible." Negligible indicates that Vineyard Mid-Atlantic will have very little or no effect on the Character Area's features or qualities, either because: a) there is minimal visibility of the offshore facilities, b) the Character Area lacks value, or c) the Character Area is not sensitive to visual change.

Six SCA's has an overall impact level of "Minor," indicating that Vineyard Mid-Atlantic would introduce features that may have a noticeable to medium level of visual impact on the Character Area. Five SCA's will have an overall impact level of "Moderate" indicating that Vineyard Mid-Atlantic would have a moderate to large level of visual prominence and would have a moderate effect on the key features of the Character Area.

Because of the wide geographic extent of the VSA, ten SCAs will have an overall impact level that ranges from "Negligible" to a higher Overall Impact Level depending on distance from the Lease Area. These wide ranging SCAs are:

- Nearshore Ocean SCA
- Oceanside Beach SCA
- Oceanside Recreation SCA
- Oceanside Residential/Commercial SCA
- Oceanside Urban SCA
- Bayside Recreation SCA
- Bayside Residential SCA
- Bayside Urban SCA
- Bayside Waterbodies SCA
- Bayside Natural Wetland SCA

Segments of these SCAs are found at distances ranging from approximately 39 km (24 mi) to the outer limit of the VSA where the WTG would no longer be visible above the horizon. Table 20 identifies the Overall Impact Level of each of these SCAs based on the closest point in the Lease Area to the farthest point from the Lease Area.

No SCA/LCAs received an Overall Impact Level score of “Major”.

OCA Findings

The ocean is a major attraction for all types of uses where the scenic value of the ocean plays a role. The open ocean is a blank slate; devoid of any activity or permanent change will be noticeable and will contrast with the color, form, line, texture, and scale of the ocean. As such, the man-made characteristics of the WTGs and ESP(s) are incongruent with the visual character of the Ocean Character Area.

While the unique character of open ocean views is an important part of the recreational experience for most recreational mariners, viewers may also be cognizant of waterfront development visible from near shore vantage points. While the sensitivity of recreational mariners will vary, to most viewers, the unique visual character of the open ocean, bays, harbors, and inlets is an important and integral part of the recreational experience.

Vineyard Mid-Atlantic’s effect on the OCA will be highly variable due to the nature and extent of the ocean environment, and the unlimited number of viewpoints where the offshore facilities may be visible. Within the foreground viewing distance, the large-scale structures will be visually dominant. The clear contrast in color, form, line, texture, and scale will act as a focal point drawing the viewer’s attention. The overall impact is likely to be considered major from foreground distances within the OCA.

However, visual contrast will diminish with increasing distance. As the apparent height (VFOV) and the extent of the horizon occupied by the offshore facilities (HFOV) decreases, the contrasting elements of color, form, line, texture, and scale will become increasingly muted and less visually distinct, rendering the overall impact negligible.

Table 22 – Seascape. Landscape, and Ocean Character Area Impact Summary

	SENSITIVITY FACTOR			MAGNITUDE FACTOR			
	Susceptibility	Scenic Resource Value	SENSITIVITY RATING	Size or Scale of Change	Geographic Extent	MAGNITUDE IMPACT RATING	OVERALL IMPACT LEVEL
SEASCAPE CHARACTER AREAS							
Nearshore Ocean SCA							
Closest Point to Lease Area	High	High	HIGH	Medium-Large	Large	LARGE	MAJOR
Farthest Point from Lease Area	High	High	HIGH	Small	Large	MEDIUM	NEGLIGIBLE (1)
Oceanside Beach SCA							
Closest Point to Lease Area	Medium-High	High	HIGH	Medium-Large	Large	LARGE	MAJOR
Farthest Point from Lease Area	Medium-High	High	HIGH	Small	Large	MEDIUM	NEGLIGIBLE (1)
Oceanside Recreation SCA							
Closest Point to Lease Area	Medium-High	High	HIGH	Medium-Large	Large	LARGE	MAJOR
Farthest Point from Lease Area	Medium-High	High	HIGH	Small	Large	MEDIUM	NEGLIGIBLE (1)
Oceanside Residential/Commercial SCA							
Closest Point to Lease Area	Medium	Medium	MEDIUM	Medium-Large	Medium	MEDIUM-LARGE	MODERATE
Farthest Point from Lease Area	Medium	Medium	MEDIUM	Small	Medium	SMALL	NEGLIGIBLE (1)
Oceanside Urban SCA							
Closest Point to Lease Area	Medium	Medium-High	MEDIUM-HIGH	Small-Medium	Medium-Large	SMALL-MEDIUM	MODERATE
Farthest Point from Lease Area	Medium	Medium-High	MEDIUM-HIGH	Small	Medium-Large	SMALL	NEGLIGIBLE (1)
Seascape Residential SCA	Medium	Medium	MEDIUM	Small	Small	SMALL	NEGLIGIBLE (2)
Seascape Urban SCA	Low	Low- Medium	LOW	Small	Small	SMALL	NEGLIGIBLE (2)
Bayside Waterbodies SCA							
Closest Point to Lease Area	Medium	Medium	MEDIUM	Medium	Medium-Large	MEDIUM	MODERATE
Farthest Point from Lease Area	Medium	Medium	MEDIUM	Small	Medium-Large	SMALL	NEGLIGIBLE (1)
Bayside Natural Wetland SCA							
Closest Point to Lease Area	Medium-High	Medium High	MEDIUM-HIGH	Medium	Medium-Large	MEDIUM	MODERATE
Farthest Point from Lease Area	Medium-High	Medium High	MEDIUM-HIGH	Small	Medium-Large	SMALL	NEGLIGIBLE (1)
Bayside Natural Upland SCA	Medium	Medium-High	MEDIUM-HIGH	Small-Medium	Small	SMALL	MINOR (3)
Bayside Recreation SCA							
Closest Point to Lease Area	Medium	Medium-High	MEDIUM-HIGH	Small-Medium	Small	SMALL	MODERATE
Farthest Point from Lease Area	Medium	Medium-High	MEDIUM-HIGH	Small	Small	SMALL	NEGLIGIBLE (1)
Bayside Residential SCA							
Closest Point to Lease Area	Low-Medium	Low-Medium	LOW-MEDIUM	Small-Medium	Small	SMALL	MINOR
Farthest Point from Lease Area	Low-Medium	Low-Medium	LOW-MEDIUM	Small	Small	SMALL	NEGLIGIBLE (1)
Bayside Urban SCA							
Closest Point to Lease Area	Low-Medium	Low-Medium	LOW-MEDIUM	Small-Medium	Small	SMALL	MINOR
Farthest Point from Lease Area	Low-Medium	Low-Medium	LOW-MEDIUM	Small	Small	SMALL	NEGLIGIBLE (1)
Bayside Commercial Park SCA	Low	Low	LOW	Small-Medium	Small	SMALL	NEGLIGIBLE (2)
Bayside Industrial SCA	Low	Low	LOW	Small-Medium	Small	SMALL	NEGLIGIBLE (2)
Bayside Industrial Resource SCA	Low	Low	LOW	Small	Small	SMALL	NEGLIGIBLE (2)
Bayside Military Site SCA	Low	Low	LOW	Small	Small	SMALL	NEGLIGIBLE (2)

Table 22 – Seascape. Landscape, and Ocean Character Area Impact Summary

	SENSITIVITY FACTOR			MAGNITUDE FACTOR			
	Susceptibility	Scenic Resource Value	SENSITIVITY RATING	Size or Scale of Change	Geographic Extent	MAGNITUDE IMPACT RATING	OVERALL IMPACT LEVEL
LANDSCAPE CHARACTER AREAS							
Inland Natural Area LCA	Medium-High	Medium	MEDIUM	Small-Medium	Small	SMALL	NEGLIGIBLE (2)
Inland Agriculture LCA	Medium	Low-Medium	LOW-MEDIUM	Small	Small	SMALL	NEGLIGIBLE (2)
Inland Rural LCA	Medium	Low-Medium	LOW-MEDIUM	Small	Small	SMALL	NEGLIGIBLE (2)
Inland Recreation LCA	Medium	Medium	MEDIUM	Small-Medium	Small	SMALL	NEGLIGIBLE (2)
Inland Suburban/Exurban Residential LCA	Low-Medium	Low-Medium	LOW-MEDIUM	Small-Medium	Small	SMALL	NEGLIGIBLE (2)
Inland Urban LCA	Low	Low-Medium	LOW	Small	Small	SMALL	NEGLIGIBLE (2)
Inland Commercial Park LCA	Low	Low	LOW	Small-Medium	Small	SMALL	NEGLIGIBLE (2)
Inland Industrial LCA	Low	Low	LOW	Small-Medium	Small	SMALL	NEGLIGIBLE (2)
Inland Industrial Resource LCA	Low	Low	LOW	Small	Small	SMALL	NEGLIGIBLE (2)
Inland Military Site LCA	Low	Low	LOW	Small	Small	SMALL	NEGLIGIBLE (2)
OCEAN CHARACTER AREAS							
Ocean Character Area (OCA) *Closest Point to Lease Area* *Farthest Point from Lease Area*	 High High	 High High	 HIGH HIGH	 Large Small	 Large Large	 LARGE MEDIUM	 MAJOR NEGLIGIBLE (1)

Notes:

(1) Because the WTGs become less visible with increasing distance, this impact value is reduced to NEGLIGIBLE for distances at the outer limit of the VSA where the WTG blade tip is "barely visible" or not visible above the horizon.

(2) Table 21 indicates the overall impact level will be MINOR. Based on site conditions and professional judgement this impact is reduced one ordinal level to NEGLIGIBLE. Justification in the analysis for this SCA/LCA is provided in Sections 7.1.1 and 7.1.2.

(3) Table 21indicates the overall impact level will be MODERATE. Based on site conditions and professional judgement this impact is reduced one ordinal level to MINOR. Justification in the analysis for this SCA/LCA is provided in Sections 7.1.1 and 7.1.2.

7.2.4.2 Onshore Facilities

A preliminary visual assessment for the onshore facilities is provided in Appendix F and summarized here.

[redacted]

Where visible, the lower portion of onshore substation structures may be fully or substantially screened by intervening street tree vegetation and residential or commercial structures. The upper portions of the onshore substation structures may be visible above or through small gaps in intervening vegetation or structures. In all cases onshore substation structures will be viewed within the context of the densely developed Inland Suburban/Exurban Residential character area.

[redacted]

Where visible, the lower portion of onshore substation structures may be fully or substantially screened by intervening street tree vegetation and residential or commercial structures. The upper portions of

the onshore substation structures may be visible above or through small gaps in intervening vegetation or structures. [redacted] onshore substation structures will be viewed within the context of the densely developed Inland Suburban/Exurban Residential character area.

[redacted]

In most cases, the lower portion of onshore substation structures may be fully or substantially screened by intervening street tree vegetation and residential or commercial structures. The upper portions of the onshore substation structures may be visible above or through small gaps in intervening vegetation or structures. Where visible, the onshore substation structures will be seen within the context of the densely developed existing commercial and high traffic areas of the Inland Urban and Inland Suburban/Exurban residential landscape.

[redacted]

[redacted]

[redacted] views of the lower portion of onshore substation structures may be fully or substantially screened by intervening street tree vegetation and residential or commercial structures. The upper portions of the onshore substation structures may be visible above or through small gaps in intervening vegetation or structures. From Spagnoli road directly in front of the onshore substation, views of the full facility will occur. Where visible, the onshore substation structures will be seen within the context of the densely developed existing commercial and high traffic areas of the Inland Urban landscape.

8.0 VISUAL IMPACT ASSESSMENT (VIA)

8.1 VIA Methodology

This section explains the methodology used to evaluate the potential visual impact on viewers. This methodology is based on "Section 6.4 Evaluation of Impacts" in BOEM's SLVIA guidelines (Sullivan R. G., 2021, pp. 43-47).

As is the case for the SLIA, in the VIA, the key characteristics are referred to as the sensitivity of the receptor and the magnitude of the impact. Sensitivity is broken down into susceptibility and value, while magnitude is broken down into size/scale, geographic extent, and duration and reversibility of impacts. Although the general approach to determining impact levels is similar for the SLIA and the VIA, because the impact receptors are different, there are some differences in exactly what is assessed at the detailed level. The receptors for visual impacts are always people, while the receptors for SLIAs are the seascapes and landscapes themselves.

Although the factors of sensitivity and magnitude are evaluated on an ordinal scale, assessing the qualities of each evaluated KOP and arriving at an ordinal rating are a matter of professional judgment. The following descriptions, tables, and matrices provide general definitions to assist the professional visual analyst in determining the degree of impact on a visual impact receptor (a person or group of people).

8.1.1 Sensitivity of Visual Impact Receptors

The sensitivity of a visual impact receptor (a person or group of people) depends on their susceptibility to change in particular views and also on the value they place on those views (Sullivan R. G., 2021, p. 44).

The evaluation of viewer sensitivity is derived from an understanding of a) the susceptibility of viewers to changes in the landscape/seascape; and b) the values attached to the views. A rating (low to high) was assigned to viewers' sensitivity. Viewers with a low capacity to absorb change and high values attached to the viewpoint are considered most sensitive to visual change. Likewise, viewers with high tolerance to change and low value viewpoints are considered least sensitive to visual change.

Susceptibility to Change – Impacts on people who are particularly sensitive to changes in views are more likely to be considered important than the same impacts would be to someone who is less sensitive to the quality of views. The relative susceptibility of viewers to changes in views is primarily a function of the degree to which the activities in which the viewers are engaged focus attention or interest on the seascape/landscape view (Sullivan R. G., 2021, p. 44).

A viewer's susceptibility to change is based on visitor use patterns at a KOP and the relationship between the viewpoint to the ocean. The indicators are based on the primary recreation or scenic use of the site; the value of the ocean setting to the activity; visitor expectations; the duration of the view; and viewer elevation. Places where visitor activities are dependent on ocean views with high visitor expectations are rated as high. Likewise, a place without recreational activity, low viewer expectations, and minimal views of the ocean are likely to absorb substantial visual change and are rated as low. Table 23 provides guidance on the assessment of a viewer's susceptibility to change.

Table 23 - Viewer Susceptibility to Change

	LOW	MEDIUM	HIGH
Local Residents	Residents do not have views of the proposed project from their homes or place of employment, or do not regard visual the visual environment as an important asset to their community.	Residents have views of the proposed project from their homes and regard visual the visual environment as an important asset to their community.	
Cultural Importance	A culturally important site is not present.	A culturally important site is present, but appreciation of the resource is not dependent on views of the landscape/seascape.	A culturally important site is present and appreciation of the cultural resource is dependent on views of the landscape/seascape.
Outdoor Recreation	Minimal recreational activity present or recreational activity is present; however enjoyment of the activity is not focused on views of the landscape/seascape.	Recreational activity is present and enjoyment of the activity is focused on views of the landscape/seascape.	
Visitor Expectations	Other people are constantly present, frequent distractions, lights.	Other people are noticeably present, distractions are present.	Limited presence of other people or infrastructure, little distraction, limited lights, night sky visible.
Note: The definitions of LOW to HIGH offer general guidance in assigning a Susceptibility to Change Value. The determination of this value should collectively consider all indicator categories. The visual analyst may place more of less emphasis on these ordinal values based observed field conditions and professional judgement.			

Value Attached to Views – Impacts on people at heavily visited, widely recognized, and highly valued viewpoints are more likely to be important (Sullivan R. G., 2021, p. 45).

The scenic value of a view is based on the site's recognition as a high quality or unique visual landscape. At the high end of the scenic resource value spectrum, KOPs may be located within areas recognized nationally for their scenic value, such as National Parks or National Seashores. These sites are likely to receive heavy visitation or recreational use and have high value attached to the site. At the low end of the spectrum are areas without any formal scenic designation. These sites may have low visitation or may not offer recreation amenities to the public. Table 24 provides guidance on the assessment of a KOP's scenic value.

Table 24 - KOP Scenic Resource Value

LOW	LOW-MEDIUM	MEDIUM	MEDIUM-HIGH	HIGH
A site without formal recognition or designation as a scenic resource. Little or no public amenity or recreational value.	A site generally recognized as scenic but has no formal designation as a scenic resource.	A site with local or regional recognition/ ownership. May include local parks, central downtowns, community resources, or local historic sites.	A site with state recognition/ownership. May include State Parks and Recreation Areas, Wildlife Management Areas, Land Trust properties, or sites identified or eligible for the NHRP or SRHP.	A site with state or national recognition for its scenic and/or recreational value. May include State Parks and recreation areas, National Parks, National Seashores, or sites on the NHRP that derive significance from their landscape setting.
Low number of viewers	Moderate visitation		High number of viewers	
No facilities for view enjoyment	Some site improvement for view enjoyment		Facilities for view enjoyment (parking, restrooms, interpretive panels, telescopes, etc.)	
Note: The definitions of LOW to HIGH offer general guidance in assigning a Scenic Resource Value. The determination of this value should collectively consider all indicator categories. The visual analyst may place more of less emphasis on these ordinal values based observed field conditions and professional judgement. Sites identified in guidebooks, tourist maps, web sites, online photo collections, and social media, or places with views referenced in literature and art may justify a higher scenic resource value.				

Viewer Sensitivity Rating - The sensitivity of each viewpoint is determined by combining viewer susceptibility to change with the scenic resource value of the viewpoint/KOP. Table 25 provides guidance in the form of a matrix to determine the overall sensitivity of the viewer.

Table 25 – Viewer Sensitivity Matrix

SCENIC RESOURCE VALUE RATING (refer to Table 24)	VIEWER SUSCEPTIBILITY RATING (refer to Table 23)				
	HIGH	MEDIUM-HIGH	MEDIUM	LOW-MEDIUM	LOW
HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM
MEDIUM-HIGH	HIGH	MEDIUM-HIGH	MEDIUM-HIGH	MEDIUM	LOW-MEDIUM
MEDIUM	HIGH	MEDIUM	MEDIUM	LOW-MEDIUM	LOW
LOW-MEDIUM	MEDIUM	MEDIUM	LOW-MEDIUM	LOW-MEDIUM	LOW
LOW	MEDIUM	LOW-MEDIUM	LOW	LOW	LOW
Note: This sensitivity matrix is based on Table 6.4-1 in BOEM's SLVIA guidelines (Sullivan R. G., 2021, p. 32).					

8.1.2 Magnitude of Visual Impact

Large-scale changes that introduce new, non-characteristic, discordant, or intrusive elements into the view are likely to be more important than small changes or changes involving features already present within the view. The magnitude of visual impacts expected from the proposed project is similar to that used for the SLIA and is based on the size or scale of the change, the geographic extent of its effects, and its duration and reversibility (Sullivan R. G., 2021, p. 45).

Size or Scale of Change - This evaluation considers the anticipated degree of visual change from the project at the KOP. The rating (small to large) is based upon measurable or observable physical factors that contribute to project visibility. Factors include distance to the nearest WTG, VFOW, HFOV covered by the project, curvature of the earth, landscape contrast, and the level of visual alteration caused by the project. Table 26 provides guidance on the assessment of the size/scale of visual change from the KOP.

Table 26 - KOP Size/Scale of Visual Change

	SMALL	SMALL-MEDIUM	MEDIUM	MEDIUM-LARGE	LARGE
Distance to nearest visible WTG	Intermittently noticed features in the onshore to offshore view between 63.9 km and 72.0 km (39.7 and 44.7 mi) distance (e.g., one blade only visible above the horizon).	Low on the horizon, but persistent features in the onshore to offshore view between 55.7 and 63.9 km (34.6 and 39.7 mi) distance. (e.g., two blades visible above horizon)	Clearly visible features in the onshore to offshore view between 40.8 and 55.7 km (25.4 and 34.6 mi) distance. (e.g., nacelle top aviation obstruction lights visible above horizon)	Strongly pervasive features in the onshore to offshore view between 25.8 and 40.8 km (16.1 and 25.4 mi) distance (e.g., mid-tower aviation obstruction lights visible above the horizon).	Unavoidably dominant features in the boat and ship ocean view between 0 and 25.8 km (0 and 16.1 mi) distance (e.g., top of foundation visible above the horizon).
Horizontal Field of View (HFOV)	Project occupies a very small portion of the normal human field-of-view (e.g., <5 degrees of the horizon, or project not visible).	Project occupies a moderate portion of the normal human field-of-view (e.g., (5 to 30 degrees of the horizon).		Project occupies a very large portion of the normal human field-of-view (e.g., > 30 degrees of the horizon).	
Viewer Elevation	Near sea level vantage point (e.g., beach or dune).	Vantage point elevated above beach or dune level, but landform is not considered a unique topographic feature.		High elevated vantage point (e.g., hilltop or high bluff).	
Color Contrast/ Atmospheric Perspective	WTGs appear as various shades of gray, often blending into background sky.	WTGs appear as varying shades of white to gray, depending on light.		WTGs appear bright white, especially in full sun.	
Visual Contrast	Degree of Contrast is Weak. Form: New structures are similar in shape and mass with existing. Line: New structures have similar line characteristics (boldness, complexity and orientation) with existing. Color: New structures have similar value and hue. Also similar in chroma, color reflectivity and color temperature. Texture: New structures are similar in grain, density and internal contrast. Also similar in directional patterns.	Degree of Contrast is Moderate. Form: New structures are somewhat dissimilar in shape and mass with existing. Line: New structures have somewhat dissimilar line characteristics (boldness, complexity and orientation) with existing. Color: New structures have somewhat dissimilar value and hue. Also, somewhat dissimilar in chroma, color reflectivity and color temperature. Texture: New structures are somewhat dissimilar in grain, density and internal contrast. Also somewhat dissimilar in directional patterns.		Degree of Contrast is Strong. Form: New structures are substantially dissimilar in shape and mass with existing. Line: New structures have substantially dissimilar line characteristics (boldness, complexity and orientation) with existing. Color: New structures have substantially dissimilar value and hue. Also, substantially dissimilar in chroma, color reflectivity and color temperature. Texture: New structures are substantially dissimilar in grain, density and internal contrast. Also dissimilar in directional patterns.	

Visual Prominence (Sullivan R. G., 2013, p. 8)	Visibility Level 1: Visible only after extended, close viewing; otherwise, invisible.	Visibility Level 2: Visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers.	Visibility Level 3: Visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers.	Visibility Level 4: Plainly visible, so could not be missed by casual observers, but does not strongly attract visual attention or dominate the view because of its apparent size, for views in the general direction of the study subject. .	Visibility Level 5: Strongly attracts the visual attention of views in the general direction of the study subject. Attention may be drawn to the strong contrast in form, line, color, or texture, luminance, or motion.	Visibility Level 6: Dominates the view because the study subject fills most of the visual field of views in its general direction. Strong contrasts in form, line, color, texture, luminance, or motions may contribute to view dominance.

Note:
The definitions of SMALL to LARGE offer general guidance in assigning value to the Size/Scale of Visual Change. The determination of this value should collectively consider all indicator categories. The visual analyst may place more or less emphasis on these ordinal values based on observed field conditions and professional judgement.

Geographic Extent - This evaluation is based on the extent of potential visibility from the KOP. This includes any visual obstructions between the KOP and the project, the angle of view toward the project relative to the primary view axis, and the area in the vicinity of the KOP with potential project visibility. KOPs with unobstructed, central views toward the project and where the project is seen over a wide associated area are considered to have a large geographic extent. Alternatively, KOPs where the project is outside the primary view axis or where there are obstructions to the view are rated as small. Table 27 provides guidance on the assessment of the geographic extent of project visibility from the KOP.

Table 27 - KOP Geographic Extent of Visibility

	SMALL	SMALL-MEDIUM	MEDIUM	MEDIUM-LARGE	LARGE (1)
Apparent size	Project appears very small (nearly indistinguishable) to the viewer.		Project appears large enough to be visually apparent but is not the primary focus of attention.	Project appears very large and physically dominant to the viewer.	
Extent of the area where the same changes would be visible	The project is visible only in the immediate vicinity of the KOP's photo point (e.g., visual exposure is a specific viewing location).		The degree of project visibility varies in the vicinity of the KOP (e.g., visual exposure changes as the viewer moves though the landscape in the vicinity of the KOP).	The project is visible over a wide area in and around the KOP (e.g., visual exposure changes little as the viewer moves though the landscape in the vicinity of the KOP).	
Visual Obstructions	The HOFV is substantially obstructed.		The HOFV is partially obstructed.	The HFOV is substantially unobstructed.	
View angle in relation to the primary view axis	The project appears well outside the primary view axis (usually at the outer limit of the HFOV).		The HFOV is off the primary view axis causing the viewer to turn away from the primary view to look in the direction of the project. This rating applies for panoramic vista views where the primary view is not well defined (e.g., 360° lighthouse view).	The most prominent project components are aligned with the primary view axis.	

Note:
The definitions of SMALL to LARGE offer general guidance in assigning value to the Geographic Extent of Visibility. The determination of this value should collectively consider all indicator categories. The visual analyst may place more or less emphasis on these ordinal values based on observed field conditions and professional judgement.

Duration and Reversibility of Impacts – "Duration" refers to the length of time the impact is likely to occur (from short term to considered permanent), and "reversibility" refers to the degree to which the currently existing conditions are restored after the impact ceases (i.e., nonreversible, partially reversible, or fully reversible, and taking into consideration any residual impacts remaining after decommissioning) (Sullivan R. G., 2021, p. 46).

In the assessment of impact level, duration and reversibility are considered together and recorded on a scale of poor, fair, or good based on the length of time the project will be visible (i.e., a permanent / irreversible visual change would receive a poor rating). Vineyard Mid-Atlantic is expected to operate for approximately 30 years and thus is considered a long-term installation. While Vineyard Mid-Atlantic is a

major utility scale renewable energy generating facility, it is fully reversible. In all cases, Vineyard Mid-Atlantic received a fair rating.

Magnitude of Visual Impact Rating - The magnitude of visual impact to the viewer is determined by combining the Size or Scale of Change, the Geographic Extent of potential visibility from the KOP, and the Duration and Reversibility of Impacts. Table 28 provides guidance in the determination of the magnitude of visual impact.

Table 28 – KOP Magnitude Rating Matrix

SIZE/SCALE RATING (see Table 26)	**GEOGRAPHIC EXTENT RATING** (refer to Table 27)				
	LARGE	**MEDIUM-LARGE**	**MEDIUM**	**SMALL-MEDIUM**	**SMALL**
LARGE	LARGE	LARGE	LARGE	MEDIUM-LARGE	MEDIUM
MEDIUM-LARGE	LARGE	MEDIUM-LARGE	MEDIUM-LARGE	MEDIUM	MEDIUM
MEDIUM	LARGE	MEDIUM	MEDIUM	SMALL-MEDIUM	SMALL
SMALL-MEDIUM	MEDIUM	SMALL-MEDIUM	SMALL-MEDIUM	SMALL-MEDIUM	SMALL
SMALL	MEDIUM SMALL	SMALL	SMALL	SMALL	SMALL

Note:
This magnitude matrix is based on Table 6.4-2 in BOEM's SLVIA guidelines (Sullivan R. G., 2021, p. 32). Note, the duration/reversibility of impacts factor identified in Table 6.4-2 is not included in Table 28 because it is a constant variable (i.e., "Fair", long term/fully reversable) for all KOPs.

8.1.3 Overall Impact to Viewer

Once the sensitivity and magnitude factors have been determined, they are combined into an overall finding of major, moderate, minor, or negligible impact for each KOP. Table 29 combines the sensitivity and magnitude of visual impact to determine the overall impact on viewers at the KOP. While this table provides guidance on how to rate the evaluations, the definitions of the ratings below, summary narratives, and professional judgment support the evaluations.

Table 29 - KOP Overall Impact Matrix

VIEWER SENSITIVITY (see Table 25)	**KOP VISUAL IMPACT MAGNITUDE** (refer to Table 28)				
	LARGE	**MEDIUM-LARGE**	**MEDIUM**	**SMALL-MEDIUM**	**SMALL**
HIGH	MAJOR	MAJOR	MAJOR	MODERATE	MODERATE
MEDIUM-HIGH	MAJOR	MAJOR	MODERATE	MODERATE	MODERATE
MEDIUM	MAJOR	MODERATE	MODERATE	MODERATE	MINOR
LOW-MEDIUM	MODERATE	MODERATE	MINOR	MINOR	MINOR
LOW	MODERATE	MODERATE	MINOR	MINOR	MINOR

Note:
This magnitude matrix is based on Table 6.4-3 in BOEM's SLVIA guidelines (Sullivan R. G., 2021, p. 33).

The overall impact definitions provided below characterize the findings of the VIA process:

- Negligible - The project would have very little or no effect on viewer experience, either because there is minimal project visibility, the magnitude or contrast to the view is low, or viewers are relatively insensitive to visual change.

- Minor - The project would introduce features that have a small but noticeable to medium level of change to the character of the view. The project may have a low to moderate level of visual prominence but may or may not hold the viewer's attention and would have a small to medium effect on viewer experience.
- Moderate - The project would introduce features that may have a medium to large change to the character of the view. The project may have a moderate to large level of visual prominence, would attract and hold the viewer's attention, and would have a moderate effect on viewer experience.
- Major - The project would introduce features that would have a major level of change to the character of the view. The project would attract, hold, and dominate the viewer's attention and would have a moderate to major effect on viewer experience.

8.2 VIA Results

8.2.1 KOP Impact Levels

Based on the methodology described in Section 8.1 above, the following identifies the impact levels assigned to the factors of sensitivity and magnitude and the rationale behind these judgements for each of the 12 KOPs for which photo simulations were prepared (see Section 0).

The KOPs selected for the VIA are representative of affected SCAs/LCAs and are publicly accessible places considered to be of high visual sensitivity and/or recreational value. Evaluated KOPs also represent a geographic distribution across the VSA, illustrating a range of distances to the Lease Area. Seven KOPs are in New York and three KOPs are in New Jersey.

Assessing the impact level on viewer experience is a matter of professional judgment. In general, a large loss or irreversible adverse impact on elements and/or aesthetic and perceptual aspects that are key to the character of highly valued resources are likely to be considered a major impact. On the other hand, reversible adverse impacts of short duration on elements and/or aesthetic and perceptual aspects that contribute to but are not key characteristics of the viewer experience are likely to be judged to be less important (Sullivan R. G., 2021, p. 47).

The following evaluation is based on direct in-the-field observations of KOP views by the visual analyst, as well as review of the KOP photo log provided in Appendix D and photographic simulations provided in Appendix E. The analysis considers all Vineyard Mid-Atlantic offshore facilities including the WTGs and ESP(s).

KOP 01: Jacob Riis Park (Oceanside Recreation SCA)
Refer to: KOP Photo Log: Appendix D, Figure D1 and Photo Simulation: Appendix E, Figure E-1a and E-1b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	High	Jacob Riis Park is a popular oceanfront recreational resource located on Rockaway Peninsula in Queens, New York. The park includes a wide ocean beach with bathhouse and concessions. A boardwalk runs along the beach, providing a pathway for walking, jogging, and enjoying ocean views. The park has a range of natural habitats, including dunes, maritime forests, and wetlands with opportunities for birdwatching and observing local wildlife. During the summer season Jacob Riis Park is heavily visited. Parking lots are full, and beaches are crowded. At other times of year, the park can appear somewhat remote. The primary use of this area is passive recreation and nature appreciation. The ocean view duration for visitors may range from a few minutes as visitors enjoy brief glimpses of ocean vistas along the boardwalk and adjacent natural areas to several hours or longer for beach goers, fisherman, bird watchers, or other passive recreation users. The KOP is within the Oceanside Recreation SCA. This KOP is also in the vicinity of dense residential areas in the Oceanside Residential/Commercial SCA. Views from this KOP are representative of seaward vantage points in these character areas as well. The aesthetic quality of this KOP is somewhat diminished by aging park buildings and infrastructure, and the presence of a large parking field and high traffic roadways adjacent to the beachfront area. The aesthetic quality of the ocean view is also somewhat diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor in the Ambrose Anchorage or transiting near shore shipping lanes. The presence of these vessels may draw attention from WTGs visible in the far background.
Scenic Resource Value: (refer to Table 24)	High	Jacob Riis Park is a part of the Gateway National Recreation Area Jamica Bay Unit. A greater number of recreational users will be present at Jacob Riis Park during the summer and on sunny days, when the weather is clear and warm. Fewer visitors spend time at beachfront locations during the off-season. At off-peak times, the resource will appear more secluded.
SENSITIVITY RATING (see Table 25)	HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Small	Vineyard Mid-Atlantic's WTGs would be visible at a great distance (69.3 km [43.0 mi]). At this distance, the nacelle of the nearest WTG falls below the horizon as viewed from beach elevation. Blade movement will not be easily discerned. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/boardwalk level. The offshore facilities will be viewed very low on the horizon (approximately 0.09 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is weak. Even on clear air days the offshore facilities will be visible only after extended, close viewing; otherwise, invisible (Visibility Level 1). With the nacelle of the nearest WTG below the horizon, marine navigation lighting and FAA obstruction lights (when activated) would not be visible.
Geographic Extent: (refer to Table 27)	Medium	Vineyard Mid-Atlantic's HFOV occupies up to 16 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and the primary view axis is not aligned with the proposed WTGs.
MAGNITUDE IMPACT RATING (see Table 28)	SMALL	

OVERALL IMPACT LEVEL (see Table 29)	MINOR	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to great distance (63.3 km [43.0 miles]) WTGs will be virtually undetectable. Based on professional judgement this impact is reduced to MINOR.

KOP 02: Ocean Beach Park/Long Beach Boardwalk (Oceanside Urban SCA)
Refer to: KOP Photo Log: Appendix D, Figure D2 and Photo Simulation: Appendix E, Figure E-1a and E-1b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	Medium-High	The City of Long Beach is a densely populated oceanfront residential community on the Long Beach barrier island in Nassau County, just beyond the New York City limits. The Long Beach oceanfront is marked by 6-8 story high-rise apartments/condominiums with tightly spaced residential and commercial uses found on the landward side. Ocean Beach Park is a City of Long Beach municipal recreation facility with a 4-mile beachfront, playgrounds, fishing pier, boat ramp and marina. The popular Long Beach Boardwalk is central feature of Ocean Beach Park. This 50-foot wide, 2.2-mile-long promenade separates the beach from shoreline residential neighborhoods. Thousands of residents and visitors walk, jog and ride bikes along the boardwalk every day for exercise and to enjoy the unique seaside setting within the surrounding dense urban landscape. The ocean view duration for visitors may range from a few minutes as visitors enjoy brief glimpses of ocean vistas while strolling the boardwalk promenade to several hours or longer for beach goers, fisherman, or other passive recreation users. The KOP is within the Oceanside Urban SCA. The KOP is also in the vicinity of dense residential urban areas in the Seascape Urban SCA. Views from this KOP are representative of seaward vantage points in these character areas as well. The aesthetic quality of ocean views is somewhat diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor in the Ambrose Anchorage or transiting near shore shipping lanes. The presence of these vessels may draw attention from WTGs visible in the far background.
Scenic Resource Value: (refer to Table 24)	Medium-High	The beach front is part of the City of Long Beach municipal park system. The park is open to the public however a seasonal beach pass is required for beach access on summer weekends. A greater number of recreational users will be present at Ocean Beach Park during the summer and on sunny days, when the weather is clear and warm. Although fewer visitors spend time at beachfront locations during the off-season the Long Beach Boardwalk is heavily used year-round.
SENSITIVITY RATING (see Table 25)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Small-Medium	Vineyard Mid-Atlantic's nearest WTGs would be visible at a great distance (56.3 km [35.0 mi]). At this distance, the nacelle of the nearest WTG rises above the horizon. Blade movement will be somewhat difficult to discern. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/boardwalk level. The offshore facilities will be viewed very low on the horizon (approximately 0.21 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is weak. Even on clear air days the offshore facilities will be visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers (Visibility Level 2). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. With the nacelle of the nearest turbine above the horizon, when activated, nacelle top Aviation obstruction lights will be seen as small points of light just above the horizon. The intensity of the lights will diminish for WTGs further in the distance. Mid-tower aviation obstruction lights and marine navigation lighting on the WTGs/ESP(s) would fall below the horizon and will not be visible.
Geographic Extent: (refer to Table 27)	Medium	The HFOV of the Lease Area is approximately 21 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and the primary view axis is not aligned with the proposed WTGs.
MAGNITUDE IMPACT RATING (see Table 28)	SMALL-MEDIUM	

OVERALL IMPACT LEVEL (see Table 29)	MINOR	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to great distance (56.3 km [35.0 miles]) WTGs will be difficult to discern. Based on professional judgement this impact is reduced to MINOR.

KOP 04: Norman J. Levy Park & Preserve (Bayside Natural Upland SCA)
Refer to: KOP Photo Log: Appendix D, Figure D4 and Photo Simulation: Appendix E, Figure E-3a and E-3b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	Medium	Norman J. Levy Park and Preserve is a nature preserve and passive recreation area in the Town of Hempstead, Nassau County, New York. The park is an adaptive reuse of the former Merrick Landfill. At the park highpoint 155 feet above sea level open vistas extend to the south across Merrick Bay toward Jones Beach Island and the Atlantic Ocean, and to the west to the New York City Skyline. The park includes three miles of multi-use trails as well as an elevated boardwalk through the bay's wetlands and a fishing pier into Merrick Bay. There are also overlook spots marked by benches, making Levy Park a popular location for bird watching and nature appreciation. Users are likely to spend 30 minutes to 2 hours at the park. The KOP is within the Bayside Natural Upland SCA. Views from the highpoint in Levy Park are unique and not representative of lower elevation views found in the surrounding Bayside Urban, and Bayside Residential SCAs. The aesthetic quality of views is somewhat diminished by views of existing development on Jones Beach Island, as well as large ocean-going container ships, tankers, cargo ships, bulk carriers transiting near shore shipping lanes. The presence of these elements may draw attention from WTGs visible in the far background.
Scenic Resource Value: (refer to Table 24)	Medium	Norman J. Levy Park & Preserve is a Town of Hempstead municipal park. The park is open free to the public year-round during daytime hours. A greater number of recreational users will be present at Norman J. Levy Park & Preserve during the summer and on sunny days, when the weather is clear and warm. Although the park is likely popular with residents for daily walks and nature appreciation year-round.
SENSITIVITY RATING (see Table 25)	MEDIUM	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Small-Medium	Vineyard Mid-Atlantic's nearest WTGs would be visible at a great distance (56.2 km [35.1 mi]). At this distance, the nacelle of the nearest WTG rises above the horizon. Blade movement would be somewhat difficult to discern. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewpoint is elevated on top of a reclaimed municipal landfill. The offshore facilities will be viewed very low on the horizon (approximately 0.28 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is moderate. On clear air days the offshore facilities may be visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. Although the nacelle of the nearest turbine is above the horizon, the Levy Preserve is not open during the hours of darkness. Visibility of the Aviation obstruction lights will not affect views from this resource.
Geographic Extent: (refer to Table 27)	Medium	Vineyard Mid-Atlantic's HFOV occupies up to 22 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from bayside vantage point is partially obstructed by perimeter trees. Jones beach Island, including the Jones Beach tower and Norwell Heath at Jones Beach Theater are visible in the distance and are notable foreground elements on the distant horizon. The HFOV is generally aligned with the primary view axis
MAGNITUDE IMPACT RATING (see Table 28)	SMALL-MEDIUM	

OVERALL IMPACT LEVEL (see Table 29)	MINOR	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to extended distance (56.2 km [35.1 miles]) WTGs will be visible to casual observers. However, the presence of existing development and intervening landform across the bay draws viewer focus away from the WTGs. Based on professional judgement this impact is reduced to MINOR.

KOP 05: Jones Beach State Park (Oceanside Recreation SCA)
Refer to: KOP Photo Log: Appendix D, Figure D5 and Photo Simulation: Appendix E, Figure E-4a and E-4b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	High	Jones Beach State Park is located in southern Nassau County on Jones Beach Island, one of the central barrier islands off the southern coast of Long Island. The 2,400-acre park features 6.5 miles of white-sand beach on the Atlantic Ocean. Approximately 6 million visitors enjoy the park each year. Park activities include ocean swimming, hiking/biking, and nature appreciation. The park features playgrounds, splash pads, miniature golf, shuffleboard, basketball, and an Adventure Park. The 15,000-seat Norwell Heath at Jones Beach Theater hosts outdoor concerts during the summer months. During the summer season Jones Beach State Park is heavily visited. Parking lots are full, and beaches are crowded. At other times of year, the park can appear somewhat remote. The primary use of this area is passive recreation and nature appreciation. The ocean view duration for visitors may range from a few minutes as visitors enjoy brief glimpses of ocean vistas from the parking lot and adjacent natural areas to several hours or longer for beach goers, fisherman, bird watchers, or other passive recreation users. The KOP is within the Oceanside Recreation SCA. Less developed portions of Jones Beach State Park and surrounding areas are within the Bayside Natural Upland and Ocean Beach SCAs. Views from this KOP are representative of seaward vantage points in these character areas as well. The aesthetic quality of ocean beach views is somewhat diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor in the Ambrose Anchorage or transiting near shore shipping lanes. The presence of these vessels may draw attention from WTGs visible in the far background.
Scenic Resource Value: (refer to Table 24)	High	Jones Beach State Park is managed by the New York State Office of Parks, Recreation and Historic Preservation. In the peak season, the beach has an entrance fee. A greater number of recreational users will be present at Jones Beach State Park during the summer and on sunny days, when the weather is clear and warm. Fewer visitors spend time at the park during the off-season.
SENSITIVITY RATING (see Table 25)	HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Medium	Vineyard Mid-Atlantic's nearest WTGs would be visible at a great distance (48.8 km [30.3 mi]). At this distance, the nacelle of the nearest WTG rises above the horizon. Blade movement will be somewhat difficult to discern. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.29 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is moderate. On clear air days the offshore facilities may be visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. With the nacelle of the nearest turbine above the horizon, when activated, nacelle top and mid-tower Aviation obstruction lights will be seen as small points of light just above the horizon. The intensity of the lights will diminish for WTGs further in the distance. Marine navigation lighting on the WTGs/ESP(s) would fall below the horizon and will not be visible.
Geographic Extent: (refer to Table 27)	Medium	The HFOV of the Lease Area is approximately 25 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and the primary view axis is almost aligned with the proposed WTGs.
MAGNITUDE IMPACT RATING (see Table 28)	MEDIUM	

OVERALL IMPACT LEVEL (see Table 29)	MODERATE	Table 29 indicates the overall impact level for this KOP will be MAJOR. Due to extended distance (48.8 km [30.3 miles]) WTGs will be visible to casual observers but do not strongly attract visual attention. Based on professional judgement this impact is reduced to MODERATE.

KOP 06: Gilgo Town Beach (Oceanside Residential/Commercial SCA)
Refer to: KOP Photo Log: Appendix D, Figure D6 and Photo Simulation: Appendix E, Figure E-5a and E-5b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	Medium-High	Gilgo Town Beach is located in the Town of Babylon in southwestern Suffolk County on Jones Beach Island, one of the central barrier islands off the southern coast of Long Island. Gilgo Beach is one of the Town's three ocean beaches on the Atlantic Ocean. The beach is separated from the bayside residential enclave of Gilgo Beach by Ocean Parkway. During the summer season Gilgo Town Beach is heavily visited. Parking lots are full, and beaches are crowded. At other times of year, the park can appear somewhat remote. The primary use of this area is passive recreation and nature appreciation. While the ocean view duration for visitors is variable, most beach goers will spend several hours enjoying passive and active oceanfront recreational activities. The KOP is within the Oceanside Residential/Commercial SCA. Beyond the developed residential enclaves nearby are areas segments of the Ocean Beach and Oceanside Recreation SCAs. Views from this KOP are representative of seaward vantage points in these character areas as well. The aesthetic quality of ocean beach views is somewhat diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers transiting near shore shipping lanes. The presence of these vessels may draw attention from WTGs visible in the far background to some degree.
Scenic Resource Value: (refer to Table 24)	Medium-High	Gilgo Town Beach is managed by the Town of Babylon. In the peak season, the beach has an entrance fee. A greater number of recreational users will be present at Gildo Town Beach during the summer and on sunny days, when the weather is clear and warm. Fewer visitors spend time at the park during the off-season.
SENSITIVITY RATING (see Table 25)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Medium	Vineyard Mid-Atlantic's nearest WTGs would be visible at a great distance (45.4 km [28.2 mi]). At this distance, the nacelle of the nearest WTG rises above the horizon. Blade movement will be somewhat difficult to discern. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.34 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is moderate. On clear air days the offshore facilities may be visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. With the nacelle of the nearest turbine above the horizon, when activated, nacelle top and mid-tower Aviation obstruction lights will be seen as small points of light just above the horizon. The intensity of the lights will diminish for WTGs further in the distance. Marine navigation lighting on the WTGs/ESP(s) would fall below the horizon and will not be visible.
Geographic Extent: (refer to Table 27)	Medium	The HFOV of the Lease Area is approximately 27 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and the primary view axis is almost aligned with the proposed WTGs.
MAGNITUDE IMPACT RATING (see Table 28)	MEDIUM	

OVERALL IMPACT LEVEL (see Table 29)	MODERATE	Table 29 indicates the overall impact level for this KOP will be MAJOR. Due to extended distance (45.4 km [28.2 miles]) WTGs will be visible to casual observers but do not strongly attract visual attention. Based on professional judgement this impact is reduced to MODERATE.

KOP 08: Saltaire Beach (Oceanside Residential/Commercial SCA)
Refer to: KOP Photo Log: Appendix D, Figure D8 and Photo Simulation: Appendix E, Figure E-6a and E-6b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	High	This oceanfront recreation resource is located on Fire Island adjacent to the seaside vacation enclave of Saltaire. Fire Island is a pedestrian only summer resort community accessible only by ferry service from mainland Long Island. Saltaire is at the west end of Fire Island and is accessible on foot along gated service road from Robert Moses State Park; a distance of more than one mile. The nearby vacation enclave is a summer retreat comprised of tightly spaced quaint summer homes and vacation rentals along narrow pedestrian streets. Intermixed with the vacation oriented residential areas are scenic barrier beaches and fragile tidal marshland protected as part of the Fire Island National Seashore. Passive nature and water enhanced recreational opportunities are plentiful. The wide sand beach on Fire Island extends more than 18 miles. With restricted access east of Robert Moses State Park, use of Fire Island beaches is almost exclusively limited to vacationers spending extended time on the island and day use visitors who have ventures to the island by ferry. By comparison with the more accessible municipal and State Park beaches to the west, the remote beaches of Fire Island beaches are relatively lightly used even during peak summer season. While the ocean view duration for visitors is variable, most beach goers will spend many hours on the beach during their visit enjoying natural environment and serenity. The KOP is within the Oceanside Residential/Commercial SCA. Beyond the developed residential enclaves nearby are areas segments of the Ocean Beach and Oceanside Recreation SCAs. Views from this KOP are representative of seaward vantage points in these character areas as well. The aesthetic quality of ocean beach views is somewhat diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers transiting near shore shipping lanes. The presence of these vessels may draw attention from WTGs visible in the far background to some degree.
Scenic Resource Value: (refer to Table 24)	High	Saltaire Beach is within the Fire Island National Seashore, managed by the National Park Service. A greater number of recreational users will be present at Saltaire Beach during the summer and on sunny days, when the weather is clear and warm. Fewer visitors spend time at the park during the off-season
SENSITIVITY RATING (see Table 25)	HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Medium-Large	Vineyard Mid-Atlantic's nearest WTGs would be visible at a great distance 38.8 km (24.1 mi). At this distance, the nacelle of the nearest WTG rises above the horizon. Blade movement will be somewhat difficult to discern. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.43 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is moderate. On clear air days the offshore facilities may be plainly visible, so could not be missed by casual observers, but does not strongly attract visual attention or dominate the view because of its apparent size, for views in the general direction of the study subject. (Visibility Level 4). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. With the nacelle of the nearest turbine above the horizon, when activated, nacelle top and mid-tower Aviation obstruction lights will be seen as small points of light just above the horizon. The intensity of the lights will diminish for WTGs further in the distance. Marine navigation lighting on the WTGs/ESP(s) would fall below the horizon and will not be visible.
Geographic Extent: (refer to Table 27)	Medium-Large	The HFOV of the Lease Area is approximately 30 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and the primary view axis is almost aligned with the proposed WTGs.
MAGNITUDE IMPACT RATING (see Table 28)	MEDIUM-LARGE	

OVERALL IMPACT LEVEL (see Table 29)	MODERATE	Table 29 indicates the overall impact level for this KOP will be MAJOR. Due to extended distance (38.8 km [24.1 miles]) WTGs will be visible to casual observers but do not strongly attract visual attention. Based on professional judgement this impact is reduced to MODERATE.

KOP 09: Heckscher State Park (Bayside Recreation SCA)
Refer to: KOP Photo Log: Appendix D, Figure D9 and Photo Simulation: Appendix E, Figure E-7a and E-7b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	Medium-High	Heckscher State Parkis a 6.71 km2 (1,657 acre) state park on the shore of Great South Bay in Suffolk County, NY. Heckscher offers a beach, picnic tables with pavilions, a playground, playing fields and a disc golf course, recreation programs, hiking and biking, fishing, cross-country skiing, a boat launch, and a food concession. Heckscher State Park has two bayfront swimming beach areas, each with a large parking field and bathhouse facilities. Beaches overlook Great South Bay with Fire Island visible across the 5.5 km (3.5 mi) wide bay. During the summer season Hecksher State Park is heavily visited. Parking lots are full, and beaches are crowded. At other times of year, the park can appear somewhat remote. The primary use of this area is passive recreation and nature appreciation. The bay view duration for visitors may range from a few minutes as visitors enjoy brief glimpses as the pass by waterfront areas on walks or bike rides to several hours or longer for beach goers, fisherman, bird watchers, or other passive recreation users. The KOP is within the Bayside Recreation SCA. The park is also immediately adjacent to residential areas within the Bayside Residential SCA. Thus, views from this KOP are also representative of what may be seen from seaward location in this SCA as well.
Scenic Resource Value: (refer to Table 24)	Medium-High	Heckscher State Park is managed by the New York State Office of Parks, Recreation and Historic Preservation. In the peak season, the beach has an entrance fee. A greater number of recreational users will be present at Heckscher State Park during the summer and on sunny days, when the weather is clear and warm. Fewer visitors spend time at the park during the off-season.
SENSITIVITY RATING (see Table 25)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Medium	Vineyard Mid-Atlantic's nearest WTGs would be visible at a great distance 44.2 km (27.5 mi). At this distance, the nacelle of the nearest WTG rises above the horizon. Blade movement will be somewhat difficult to discern. Viewer elevation is beach/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.33 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is weak. On clear air days the offshore facilities may be visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers (Visibility Level 3). However, the presence of existing development and intervening landform across the bay draws viewer focus away from the WTGs. At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. With the nacelle of the nearest turbine above the horizon, when activated, nacelle top and mid-tower Aviation obstruction lights will be seen as small points of light just above the horizon. The intensity of the lights will diminish for WTGs further in the distance. Marine navigation lighting on the WTGs/ESP(s) would fall below the horizon and will not be visible.
Geographic Extent: (refer to Table 27)	Medium	The HFOV of the Lease Area is approximately 24 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from bayside vantage point is partially obstructed by barrier island development and is aligned with the primary view axis.
MAGNITUDE IMPACT RATING (see Table 28)	MEDIUM	

OVERALL IMPACT LEVEL (see Table 29)	MINOR	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to extended distance (44.2 km [27.5 miles]) WTGs will be visible to casual observers. However, the presence of existing development and intervening landform across the bay draws viewer focus away from the WTGs. Based on professional judgement this impact is reduced to MINOR.

KOP12: Cupsogue Beach County Park (Oceanside Recreation SCA)
Refer to: KOP Photo Log: Appendix D, Figure D12 and Photo Simulation: Appendix E, Figure E-8a and E-8b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	Medium-High	Cupsogue Beach County Park is a 296-acre park at the eastern end of Fire Island and the western end of Westhampton Island, one of Long Island's easternmost barrier islands. The Atlantic Ocean, Moriches Inlet and Moriches Bay surround the park. The park features a sandy beach along the ocean, providing opportunities for swimming, sunbathing and other water-based activities such as fishing. Cupsogue Beach County Park offers amenities such as restrooms, picnic areas, outdoor showers, and concessions where visitors can purchase food and beverages. Campers and recreational vehicles are permitted along the access road running parallel to the outer beach. During the summer season Cupsogue Beach is heavily visited. Parking lots are full, and beaches are crowded. At other times of year, the park can appear somewhat remote. The primary use of this area is passive recreation and nature appreciation. The ocean view duration for visitors may range from a few minutes as visitors enjoy brief glimpses of ocean vistas while passing through to several hours or longer for beach goers, fisherman, bird watchers, or other passive recreation users. The KOP is within the Oceanside Recreation SCA but is immediately adjacent to the Oceanside Beach SCA. Views from this KOP are representative of seaward vantage points in these character areas as well.
Scenic Resource Value: (refer to Table 24)	Medium-High	Cupsogue Beach County Park is part of the Suffolk County Parks system. The park is open to Suffolk County Residents with a seasonal beach pass. Non-residents pay a daily fee. A greater number of recreational users will be present at Cupsogue Beach County Park during the summer and on sunny days, when the weather is clear and warm. Fewer visitors spend time at the park during the off-season.
SENSITIVITY RATING (see Table 25)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Small-Medium	Vineyard Mid-Atlantic's nearest WTGs would be visible at a great distance 54.7 km (34.0 mi). At this distance, the nacelle of the nearest WTG rises above the horizon. Blade movement will be difficult to discern. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.23 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is weak. On clear air days the offshore facilities may be visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers (Visibility Level 3). At other times the offshore facilities will be substantially or completely obscured by haze, fog, and other marine atmospheric conditions. With the nacelle of the nearest turbine above the horizon, when activated, nacelle top Aviation obstruction lights will be seen as small points of light just above the horizon. The intensity of the lights will diminish for WTGs further in the distance. Mid-tower aviation obstruction lights and marine navigation lighting on the WTGs/ESP(s) would fall below the horizon and will not be visible.
Geographic Extent: (refer to Table 27)	Medium	The HFOV of the Lease Area is approximately 13 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and the primary view axis is almost aligned with the proposed WTGs.
MAGNITUDE IMPACT RATING (see Table 28)	SMALL-MEDIUM	

OVERALL IMPACT LEVEL (see Table 29)	MINOR	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to great distance (54.7 km [34.0 miles]) WTGs will be difficult to discern. Based on professional judgement this impact is reduced to MINOR.

KOP15: Sandy Hook National Recreation Area (South Beach) – Gateway National Recreation Area (Oceanside Beach SCA)
Refer to: KOP Photo Log: Appendix D, Figure D15 and Photo Simulation: Appendix E, Figure E-9a and E-9b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	High	Sandy Hook South Beach is within the Sandy Hook Unit of Gateway National Recreation Area on the Sandy Hook barrier peninsula separating the Atlantic Ocean from Sandy Hook Bay. Approximately 2 million visitors enjoy a wide array of recreational and other outdoor activities including ocean swimming, hiking/biking, surf fishing and nature appreciation. Sandy Hook features seven designated swimming beaches along over 6 miles of the barrier peninsula's oceanfront. Landside activities include camping, picnic facilities, a five-mile-long multi-use pathway, and interpretive facilities associated with the Fort Hancock and Sandy Hook Proving Ground National Historic Landmark and a former life-saving station. During the summer season Sandy Hook South Beach is heavily visited. Parking lots are full, and beaches are crowded. At other times of year, the park can appear somewhat remote. The primary use of this area is passive recreation and nature appreciation. The ocean view duration for visitors may range from a few minutes as visitors enjoy brief glimpses of ocean vistas from the parking lot and adjacent natural areas to several hours or longer for beach goers, fisherman, bird watchers, or other passive recreation users. The KOP is within the Oceanside Beach SCA and immediately adjacent to the Oceanside Recreation. Views from this KOP are representative of seaward vantage points in this character areas as well. The aesthetic quality of ocean views is somewhat diminished by high-rise buildings in New York City and Nassau County, New York visible across the open water to the north and northeast. The aesthetic quality of this KOP is also somewhat diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor transiting near shore shipping lanes. The presence of these vessels may draw attention from WTGs visible in the far background.
Scenic Resource Value: (refer to Table 24)	High	Sandy Hook South Beach is part of the Gateway National Recreation Area, a 109 km2 (2,700 acres) protected area that extends from Sandy Hook in New Jersey to Breezy Point in New York City. The Gateway National Recreation Area is open to the public. An entrance fee is charged during the summer months. A greater number of recreational users will be present at Sandy Hook during the summer and on sunny days, when the weather is clear and warm. Fewer visitors spend time at the park during the off-season.
SENSITIVITY RATING (see Table 25)	HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Small	Vineyard Mid-Atlantic's WTGs would be visible at a great distance (69.4 km [43.1 mi]). At this distance, the nacelle of the nearest WTG will likely fall below the horizon as viewed from beach elevation. Blade movement will not be easily discerned. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.10 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is weak. Even on clear air days the offshore facilities will be visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers (Visibility Level 2). With the nacelle of the nearest WTG below the horizon, marine navigation lighting and FAA obstruction lights (when activated) would not be visible.
Geographic Extent: (refer to Table 27)	Medium	Vineyard Mid-Atlantic's HFOV occupies up to 14 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and the primary view axis is almost aligned with the proposed WTGs.
MAGNITUDE IMPACT RATING (see Table 28)	SMALL	

OVERALL IMPACT LEVEL (see Table 29)	MINOR	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to great distance (69.4 km [43.0 miles]) WTGs will be difficult to discern. Based on professional judgement this impact is reduced to MINOR.

KOP17: Seven Presidents Oceanfront Park (Oceanside Recreation SCA)
Refer to: KOP Photo Log: Appendix D, Figure D17 and Photo Simulation: Appendix E, Figure E-10a and E-10b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	Medium-High	Seven Presidents Oceanfront Park is a 36-acre beachfront park in Long Branch, New Jersey. The park features a one-mile-long sandy beach along the ocean providing opportunities for swimming, surfing, sunbathing, surf fishing and other water-based activities The park also includes a playground, skate park, dog park, restrooms, outdoor showers, picnic areas, and shaded pavilions. During the summer season Seven Presidents Park is heavily visited. Parking lots are full, and beaches are crowded. At other times of year, the park can appear somewhat remote. The primary use of this area is passive recreation. The ocean view duration for visitors may range from a few minutes as visitors enjoy brief glimpses of ocean vistas along the boardwalk and adjacent natural areas to several hours or longer for beach goers, fisherman, or other passive recreation users. The KOP is within the Oceanside Recreation SCA and adjacent to dense residential urban areas in the Oceanside Urban SCA. Views from this KOP are representative of seaward vantage points in these character areas as well. The aesthetic quality of ocean beach views is somewhat diminished by views of large ocean-going container ships, tankers, cargo ships, bulk carriers at anchor transiting near shore shipping lanes. The presence of these vessels may draw attention from WTGs visible in the far background.
Scenic Resource Value: (refer to Table 24)	Medium-High	Seven Presidents Oceanfront Park is a Monmouth County Park. In the peak season, there is a parking fee to access the beach. A greater number of recreational users will be present at Seven Presidents Oceanfront Park during the summer and on sunny days, when the weather is clear and warm. Although fewer visitors spend time at beachfront locations during the off-season the Park is used by residents year-round.
SENSITIVITY RATING (see Table 25)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Small	Vineyard Mid-Atlantic's WTGs would be visible at a great distance (66.7 km [41.5mi]). At this distance, the nacelle of the nearest WTG will appear very low to, or below the horizon as viewed from beach elevation. Blade movement will not be easily discerned. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.10 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is weak. Even on clear air days the offshore facilities will be visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers (Visibility Level 2). With the nacelle of the nearest WTG very low to the horizon, marine navigation lighting and FAA obstruction lights (when activated) are unlikely to be visible.
Geographic Extent: (refer to Table 27)	Medium	Vineyard Mid-Atlantic's HFOV occupies up to 14 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and is aligned with the primary view axis.
MAGNITUDE IMPACT RATING (see Table 28)	SMALL	

OVERALL IMPACT LEVEL (see Table 29)	MINOR	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to great distance (66.7 km [41.5 miles]) WTGs will be virtually undetectable. Based on professional judgement this impact is reduced to MINOR.

KOP18: Asbury Park Boardwalk (Oceanside Urban SCA)
Refer to: KOP Photo Log: Appendix D, Figure D18 and Photo Simulation: Appendix E, Figure E-11a and E-11b

SENSITIVITY FACTOR	RATING	RATIONALE
Susceptibility: (refer to Table 23)	Medium-High	The City of Asbury Park is a highly populated oceanfront residential community in Monmouth County, New Jersey. The Asbury Park oceanfront is characterized by a heavily developed urban seascape character that includes buildings, facilities and open spaces dedicated to enjoyment and leisure for seaside visitors. These areas typically feature souvenir shops, dining establishments, night clubs, arcades, and amusement parks, offering rides, games, and family friendly attractions. The famed Asbury Park Boardway is the central feature of Asbury Park's seascape. Extending approximately 1.6 km (1 mi) along the beachfront, this promenade separates the beach from the urbanized area and is fronted by amusement venues, arcades, food stands and sweets shops, restaurants, and night clubs. Thousands walk, jog, and ride bikes along the boardwalk during the summer vacation season for exercise and to enjoy the unique seaside setting within the surrounding dense urban landscape. The boardwalk is not limited to Asbury Park but continues as a paved multi-use trail into neighboring communities. The ocean view duration for visitors may range from a few minutes as visitors enjoy brief glimpses of ocean vistas while strolling the boardwalk promenade to several hours or longer for beach goers, fisherman, or other passive recreation users. The KOP is within the Oceanside Urban SCA. The KOP is also in the vicinity of residential areas in the Seascape Residential and Inland Urban SCAs. Views from this KOP are representative of seaward vantage points in these character areas as well.
Scenic Resource Value: (refer to Table 24)	Medium-High	Asbury Park Boardwalk is a popular summer destination along the "Jersey Shore" and is adjacent to Asbury Park's downtown, several municipal parks, and historic sites.
SENSITIVITY RATING (see Table 25)	MEDIUM-HIGH	

MAGNITUDE FACTOR	RATING	RATIONALE
Size or Scale of Change: (refer to Table 26)	Small	Vineyard Mid-Atlantic's WTGs would be visible at a great distance (67.6 km [42.0mi]). At this distance, the nacelle of the nearest WTG will appear very low to, or below the horizon as viewed from beach elevation. Blade movement will not be easily discerned. All ESP positions currently under consideration fall below the horizon and will not be visible. Viewer elevation is beach/boardwalk/dune level. The offshore facilities will be viewed very low on the horizon (approximately 0.10 degrees VFOV). Vertical form of WTGs creates noticeable contrast. The degree of visual contrast is weak. Even on clear air days the offshore facilities will be visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers (Visibility Level 2). With the nacelle of the nearest WTG very low to the horizon, marine navigation lighting and FAA obstruction lights (when activated) are unlikely to be visible.
Geographic Extent: (refer to Table 27)	Medium	Vineyard Mid-Atlantic's HFOV occupies up to 14 degrees, which represents a relatively small amount of the 180-degree ocean vista. The HFOV from beachfront vantage points is unobstructed and is aligned with the primary view axis.
MAGNITUDE IMPACT RATING (see Table 28)	SMALL	

OVERALL IMPACT LEVEL (see Table 29)	MINOR to NEGLIGIBLE	Table 29 indicates the overall impact level for this KOP will be MODERATE. Due to great distance (67.6 km [42.0 miles]) WTGs will be virtually undetectable. Based on professional judgement this impact is reduced one ordinal level to MINOR to NEGLIGIBLE.

8.2.2 KOP Impact Level Summary

The VIA evaluates the possible effect that Vineyard Mid-Atlantic may have on viewers who live, work, recreate, and enjoy the landscape, seascape, and open ocean. The key characteristics considered are the sensitivity of the receptor and the magnitude of the impact. Sensitivity is broken down into susceptibility and value, while magnitude is broken down into size/scale, geographic extent, duration and reversibility of impacts. The VIA overall impact levels for individual KOPs are summarized in Table 30.

Sensitivity Factor - As a practical reality, the entire seascape within the VSA is scenic and of aesthetic importance to the social, cultural, and economic well-being of the region. Due in large part to the significant cultural, scenic, natural, and recreational importance of places selected as KOPs, all evaluated vantage points have a “Medium” to “Medium High” Sensitivity Factor.

Magnitude Factor - From all evaluated KOPs, Vineyard Mid-Atlantic’s WTGs would be visible at a great distance (more than 38 km (24 miles [mi]) from the nearest WTG position). Blade movement will not be easily discerned. All ESPs will fall below the horizon. In all cases, the HFOV of the Lease Area is less than 30 degrees, which represents a relatively small amount of available ocean vista, and the WTGs will be viewed very low on the horizon (less than 0.49 degrees VFOV). On clear air days, the offshore facilities may be visually apparent with focused observation. Under other atmospheric conditions, the offshore facilities will be faint and difficult to detect.

When activated, top of nacelle and mid-tower aviation obstruction lights will be seen as small points of light just above the horizon (if the nacelle is visible above the horizon). The intensity of the lights will diminish for WTGs farther in the distance. Marine navigation lighting would fall below the horizon and would not be visible from coastal vantage points.

Although the HFOV is unobstructed and is often aligned with the primary view axis from most seascape vantage points, the sheer distance of Vineyard Mid-Atlantic from all KOPs results in a Magnitude Impact Rating of “Small” or “Small-Medium.”

Overall Impact Rating - With the sensitivity and magnitude factors combined, four KOPs have an overall impact level of “Negligible.” Negligible indicates that Vineyard Mid-Atlantic would have very little or no effect on viewer experience, either because there is minimal project visibility, the magnitude or contrast to the view is low, or viewers are relatively insensitive to visual change.

Three KOPs have an overall impact level of “Minor,” indicating that Vineyard Mid-Atlantic would introduce features that have a small but noticeable to medium level of change to the character of the view. Vineyard Mid-Atlantic may have a low to moderate level of visual prominence but may or may not hold the viewer’s attention and would have a small to medium effect on viewer experience.

Three KOPs have an overall impact level of “Moderate,” indicating that Vineyard Mid-Atlantic would introduce features that may have a medium to large change to the character of the view. The project may have a moderate to large level of visual prominence, would attract and hold the viewer’s attention, and would have a moderate effect on viewer experience.

No KOPs received an Overall Impact Level score of “Major.”

Table 30– Key Observation Point (KOP) Impact Summary

	SENSITIVITY FACTOR			MAGNITUDE FACTOR			OVERALL IMPACT LEVEL
	Susceptibility	Scenic Resource Value	SENSITIVITY RATING	Size or Scale of Change	Geographic Extent	MAGNITUDE IMPACT RATING	
KOP 01: Jacob Riis Park	High	High	HIGH	Small	Medium	SMALL	MINOR (1)
KOP 02: Ocean Beach Park/Long Beach Boardwalk	Medium-High	Medium-High	MEDIUM-HIGH	Small-Medium	Medium	SMALL-MEDIUM	MINOR (1)
KOP 04: Norman J. Levy Park & Preserve	Medium	Medium	MEDIUM	Small-Medium	Medium	SMALL-MEDIUM	MINOR
KOP 05: Jones Beach State Park	High	High	HIGH	Medium	Medium	MEDIUM	MODERATE
KOP 06: Gilgo Beach	Medium-High	Medium-High	MEDIUM-High	Medium	Medium	MEDIUM	MODERATE
KOP 08: Saltaire Beach	High	High	HIGH	Medium-Large	Medium-Large	MEDIUM-LARGE	MODERATE (2)
KOP 09: Heckscher State Park	Medium-High	Medium-High	MEDIUM-HIGH	Medium	Medium	MEDIUM	MINOR (1)
KOP 12: Cupsogue Beach County Park	Medium-High	Medium-High	MEDIUM-HIGH	Small-Medium	Medium	SMALL-MEDIUM	MINOR (1)
KOP 15: Sandy Hook (South Beach)	High	High	HIGH	Small	Medium	SMALL	MINOR (1)
KOP 17: Seven Presidents Oceanfront Park	Medium-High	Medium-High	MEDIUM-HIGH	Small	Medium	SMALL	MINOR (1)
KOP 18: Asbury Park Boardwalk	Medium-High	Medium-High	MEDIUM-HIGH	Small	Medium	SMALL	MINOR (1) to NEGLIGIBLE

Note:
(1) Table 29 indicates the overall impact level will be MODERATE. Based on site conditions this impact is reduced to MINOR. Justification in the analysis for this SCA/LCA is provided in Section 8.2.1.
(2) Table 29 indicates the overall impact level will be MAJOR. Based on site conditions this impact is reduced to MODERATE. Justification in the analysis for this SCA/LCA is provided in Section 8.2.1.

8.2.3 Evaluating Additional (Non-Simulated) KOPs

The VIA evaluated 11 of the 20 KOPs identified in Section 0. The VIA methodology described in Section 8.1 can be applied to the remaining 9 KOPs to make an informed judgement concerning the sensitivity, magnitude of impact, and overall impact level likely to be experienced by viewers who live, work, recreate, and enjoy the landscape, seascape, and open ocean at these additional visually sensitive places.

Appendix D – Key Observation Point (KOP) Photo Log provides information necessary to understand the sensitivity and magnitude factors, which contribute to the overall impact level at each additional KOPs. Information provided in Appendix D includes:

Sensitivity Factors

- Existing condition panorama view photographs illustrating a 124-degree horizontal human field-of-view of the seascape looking in the direction of the Lease Area;
- A series of context images offering an understanding of the natural and built character found in this visual setting; and
- A table summarizing the general information necessary to determine the sensitivity factors of susceptibility and scenic resource value (i.e., SCA/LCA type, resource type and uses, and viewer types).

Magnitude Factors

- A vicinity map identifying the HFOV, and directions and distances to the nearest WTG;
- A table identifying viewer elevation, distance to the nearest/farthest WTG, and Lease Area HFOV;
- A view compass indicating the primary view orientation, HFOV, and available ocean horizon;
- A graphic indicating the degree of visibility of the nearest WTG; and
- Meteorological data summarizing the weather conditions at the time the panorama image was taken.

The 10 photo simulations provided in Appendix E were selected as representative examples of visually sensitive seascape views found in the VSA. These KOPs were selected in part based on their representation of a larger group of candidate KOPs of the same type or in the same geographic area. Although photo simulations were not prepared for the remaining 9 KOPs, the photo simulations prepared for the 10 evaluated KOPs may be used as surrogate images to help predict the visual conditions likely to be found at other KOPs of similar distance, elevation, and scenic character.

Where simulated and un-simulated KOPs are closely spaced and have very similar views, the level of impact is likely to be quite similar. With the overall impact to the viewer ranging from “Negligible” to “Moderate” for all evaluated KOPs (see Section 8.2.2), absent significant distinguishing sensitivity or magnitude factors, overall impact levels for nearby un-simulated KOPs will be in the same range.

8.2.4 Viewer Perception

Sullivan, in *Offshore Wind Turbine Visibility and Visual Impact Threshold Distances* (2013), concludes that small- to moderately-sized facilities (i.e., ranging in blade tip height from 115 m [377 ft] to 153 m [501 ft]), were visible to the unaided eye at distances greater than 41.8 km (26 mi), with WTG blade movement visible up to 38.6 km (24 mi). The observed wind facilities were judged to be a major focus of visual attention at distances up to 16.1 km (10 mi), were noticeable to casual observers at distances of almost 28.9 km (18 mi) and were visible with extended or concentrated viewing at distances beyond 40.2 km (25 mi). While Vineyard Mid-Atlantic is larger in scale (i.e., WTG blade tip height of 355 m [1,065 ft]) than the projects evaluated by Sullivan, these findings provide additional perspective concerning the effect of distance on human visibility of offshore wind energy facilities and further support the conclusion that the 83.7 km (52 mi) VSA is highly conservative.

Regardless of the viewer group, public reaction to Vineyard Mid-Atlantic is likely to be variable. Not all viewers see the WTGs as having an adverse visual impact. A number of research studies examining the visual impacts of offshore and onshore wind energy developments indicate that wind power enjoys strong support among members of the public and, unlike most large-scale energy facilities, WTGs are, in some cases, viewed as a positive visual impact by significant portions of the public (BOEM, 2007).

While strong support for wind power development generally exists, local concerns relating to the aesthetics of planned wind facilities are not uncommon. The perceptions of visual impacts associated with wind energy development vary among potential viewers and may be positive or negative, can change over time, and, in some cases, possibly trend toward more positive perceptions after the installation of wind energy facilities (BOEM, 2007).

Warren et al. (2005) assessed pre- and post-development attitudes toward visual impacts associated with two onshore wind facilities in Ireland. Their survey found, for one location, that more than 90% of survey respondents supported the concept of wind power, but 66% of respondents were initially opposed to a local proposed wind facility. Contrary to expectations, individuals living closest to the onshore wind facility, who had originally opposed it on aesthetic grounds, actually increased their acceptance of the visual impacts after construction, with 62% regarding the visual impact as positive. Similar results were observed for a second onshore wind facility. The results in both cases suggest that familiarity with the wind facilities decreased aesthetic objections. Stated reasons for changing perceptions of visual impacts varied among respondents—some felt the WTGs were attractive while others felt that the actual impacts were less than had been anticipated (BOEM, 2007).

9.0 POTENTIAL VISUAL IMPACTS OF VINEYARD MID-ATLANTIC

9.1 Construction and Installation[8]

9.1.1 Offshore Construction and Installation

Visual impacts during offshore construction would be limited to partially built WTGs as well as construction vessels working offshore. All ESPs fall below the horizon and will not be visible from coastal vantage points.

Offshore construction will require several types of vessels, many of which will be specifically designed for offshore wind construction and cable installation. In general, while performing construction work, vessels may anchor, moor to other vessels or structures, operate on DP, or jack-up. These vessels will transit within the Lease Area, along the OECC, and along vessel routes between the Lease Area, OECC, and various ports in New York, New Jersey, Connecticut, Rhode Island, Massachusetts, Maryland, South Carolina, and Canada.

As shown on Figure 10, the ports that may be used to stage offshore components are primarily coastal, although some are located along inland waterways. These staging ports could be used for frequent crew transfer and to offload, store, pre-assemble, inspect, pre-commission, and/or load components onto vessels for delivery to the Lease Area and OECC.[9] Offshore components may alternatively be delivered directly from the US or international manufacturing facilities to the Lease Area or OECC. The Proponent has identified a wide range of potential construction ports due to the uncertainty in Vineyard Mid-Atlantic's construction schedule and the expected demand for ports by other offshore wind developers in the coming years. Only a subset of the ports identified would ultimately be used. The combination of ports used during construction will depend on the final construction schedule, the availability and capability of each port to support construction activities, and the component suppliers that are ultimately selected for Vineyard Mid-Atlantic.

It is challenging to precisely quantify the number of vessels and vessel trips from each port at the early planning stages of Vineyard Mid-Atlantic because they depend on: (1) the specific vessels and ports used; (2) the final construction schedule; and (3) the installation and transportation methods employed, which continue to evolve rapidly and will vary based on the final project design. The estimated number of vessels and vessel trips are presented in Section 3.10.4 of COP Volume I and are based on current understanding of a potential construction schedule, are likely conservative and subject to change.

Assuming the maximum design scenario (see Section 3.11 of COP Volume I), it is estimated that an average of ~22 vessels would operate at the Lease Area or along the OECC at any given time during offshore construction. During the most active period of construction, it is conservatively estimated that a maximum of approximately 60 vessels could operate in the Offshore Development Area at one time.[10] Up to approximately 2,200 total vessel round trips are expected to occur during the busiest year of offshore construction. During the most active month of construction, it is anticipated that an average of

[8] Refer to Section 3 of COP Volume I for further information concerning construction and installation.

[9] Some components (e.g., monopiles) may instead be pulled by tugs while floating in the water rather than loaded onto vessels.

[10] This includes vessels at the Lease Area, at the OECC, and in transit to, from, or within a port.

approximately 12 daily vessel round trips could occur. The large majority of these vessel trips would be smaller cand support vessels that would not be visible from coastal vantage points. Some larger construction vessels would be a visible feature within the VSA. However, the largest vessels used during the construction of Vineyard Mid-Atlantic are expected to be of comparable size to vessels that currently transit through the Lease Area. Based on 2017–2022 AIS data, the largest vessels that currently transit the Lease Area are approximately 367 m (1,204 ft) in length overall, which exceeds the length of the largest vessels that that have been contemplated for use during the construction of Vineyard Mid-Atlantic.[11] Vessel traffic associated with Vineyard Mid-Atlantic is not anticipated to represent a significant increase over the current levels of vessel traffic within the Offshore Development Area. Based on AIS data from 2017-2022, a total of 1,195 unique vessels passed through the Lease Area. However, only commercial vessels greater than 20 m (65 ft) in length overall are required to carry AIS under USCG requirements. As a result, not all vessels, particularly fishing vessels and recreational vessels which comprise a large majority of vessel traffic in the region, are included in this estimate of current vessel traffic levels.

Construction is expected to occur during daylight hours, but nighttime activity may also occur. Construction vessels would have nighttime lights in accordance with USCG regulations. During dawn and dusk periods, particularly on cloudy days, work lights may be required for worker safety as well as to improve visibility on construction vessels. Work lights are generally downward directed and would not typically be oriented horizontally where visibility onshore would be increased. Additionally, during construction, temporary lighting will be used, including red aviation obstruction lights on each WTG and ESP topside, once (and if) they reach a height of 61 m (200 ft). The Proponent expects to install temporary yellow flashing marine navigation lights near the tops of the structures' foundations. Other lighting (e.g., helipad lights) may be utilized on the structures for safety purposes. Permanent lighting and marking of the WTGs and ESP(s) during the operational period are discussed in Section 9.2.3.

The Proponent will minimize lighting to the extent practicable by using best management practices while adhering to federal regulations for worker safety and complying with BOEM, FAA, and USCG guidance.

Because most offshore construction activities within the Lease Area will occur far offshore and construction vessels would be only in use temporarily, visual impacts associated with construction activities, as viewed from onshore vantage points, would be less than the impacts experienced during the operations and maintenance phase (refer to Table 22 and Table 30).

Offshore views from recreational and commercial vessels, which may view the Vineyard Mid-Atlantic facilities from closer distances, will be highly variable, with an impact level ranging from Negligible to Major depending on viewing distance. Within the foreground distance zone, the large-scale structures will be visually dominant. From background viewing distances visual impact will diminish with distance as linear perspective reduces the apparent size of the offshore facilities and atmospheric conditions reduce visual contrast (refer to Table 22).

[11] As this stage of the development process, vessel data is highly speculative given that the Proponent has not selected the contractors or specific vessels that will carry out construction activities.

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Data Source: U.S. Bureau of Ocean Energy Management (BOEM), National Oceanic and Atmospheric Administration (NOAA)

Basemap: National Geographic World Map

LEGEND

- Potential Port for Construction and O&M
- Potential Port for Construction Only
- Potential Port for O&M Only
- Lease Area OCS-A 0544
- State Boundary
- County Boundary

Scale 1:1,969,000 (1 inch = 50 km) 0 25 50 km

Basemap: Northeast/Southeast Atlantic Coastal Relief Model, NOAA/NCEI
Coordinate System: NAD 1983 (2011) UTM Zone 18N

OCS-A 0544

Port of Albany-Rensselaer

NYS Offshore Wind Port

Port of Coeymans Marine Terminal

Salem Harbor

Brayton Point Commerce Center

South Quay Terminal

Port of Providence

New Bedford Marine Commerce Terminal and Other Areas in New Bedford

Port of Davisville

New London State Pier

Port of Tomkins Cove

Port of Bridgeport

Greenport Harbor

Port Jefferson Harbor

Shoreham

Paulsboro Marine Terminal

New Jersey Wind Port

Sparrows Point

Goose Creek

Hugh K. Leatherman Terminal

Wando Welch Terminal

Columbus Street Terminal

Union Pier Terminal

Ravenswood Generating Station

Port Newark Container Terminal and Other Areas in Newark Bay

Red Hook Container Terminal

GMD Shipyard

South Brooklyn Marine Terminal

Atlantic Salt Terminal

Homeport Pier

Staten Island Marine Terminal

Rossville Municipal Site

Arthur Kill Terminal

Figure 10
Potential Construction and O&M Ports in the US

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

9.1.2 Onshore Construction and Installation

Onshore construction impacts will be temporary and much of the onshore construction equipment is expected to be similar to that used during typical public works projects (e.g., road resurfacing, storm sewer installation, transmission line construction).

Landfall Sites - As described in Section 2.3.1, the offshore export cables will transition onshore at up to two landfall site(s) on the southern shore of Long Island, New York in previously disturbed areas. At the landfall site(s), the offshore export cables will connect to the onshore export cables within underground transition vaults, which will not be visible (except for any at-grade manhole covers). At each landfall site, the offshore export cables are expected to transition onshore using horizontal directional drilling (HDD).[12] HDD is a trenchless installation method that avoids or minimizes impacts to the beach, intertidal zone, and nearshore areas. To support HDD activities, the Proponent will set up an approximately 8,000 m^2 (2 acre) HDD staging area in a parking lot or other previously disturbed area. The Proponent will restore the HDD staging area to match pre-existing conditions. Any paved areas that have been disturbed will be properly repaved.

Onshore Cables - The onshore cables (see Section 2.3.2) are expected to be installed entirely underground primarily within public roadway layouts (or immediately adjacent areas).[13] The onshore cables may be installed within a duct bank or installed within directly buried conduit(s). HVAC and HVDC onshore cables typically require splices approximately every 152–457 m (500–1,500 ft) or more. At each splice location, one or more underground splice vaults will be installed. The splice vaults are typically two-piece (top and bottom) pre-formed concrete chambers with openings at both ends to admit the onshore cables. The duct bank and splice vaults are expected to be installed in open trenches using conventional construction equipment (e.g., hydraulic excavator, loader, dump trucks, flatbed trucks, crew vehicles, cement delivery trucks, and paving equipment). While one trench will typically be used, two trenches may be needed for portions of the onshore cable routes. The trench dimensions will vary along the onshore cable route (depending on the duct bank layout) but are expected to measure up to approximately 3.4 m (11 ft) in depth, 4.0 m (13 ft) in width at the bottom, and 4.3 m (14 ft) in width at the top. In locations where splice vaults are necessary, the excavated area will be larger (up to approximately 13m [43 ft] wide, 15 m [50 ft] long, and 6 m [20 ft] deep). Since the splice vaults may be installed anywhere along the onshore cable routes, the maximum extent of disturbance along the entire route is based on the dimensions of the area excavated for splice vaults.

Any pavement will be removed before excavating and shoring the trenches. Minimal tree trimming and/or tree clearing may be needed where the routes follow existing roadway layouts, depending on the final duct bank alignment.[14] Tree trimming, tree clearing, and/or grading may be required to facilitate onshore cable installation in limited areas where the routes depart from the public roadway layout (particularly at complex crossings) and at trenchless crossing staging areas (see Section 3.8.4.3 of COP Volume I).The work, however, will be confined to as narrow a corridor as possible. The Proponent

[12] While not anticipated, offshore open trenching may be used to bring the export cables onshore.

[13] In limited areas, the onshore cable routes may follow utility rights-of-way (ROW) or depart from public roadway layouts, particularly at complex crossings.

[14] Subject to further engineering and consultations with local and state agencies (e.g., New York State Department of Transportation [NYSDOT]).

will endeavor to minimize tree clearing in consultation with state and local agencies. While the extent of surface disturbance and tree trimming/clearing required will depend on the final design of the onshore cable routes and consultation with agencies, the Proponent expects that potential visual impacts resulting from surface disturbance and removal of woody vegetation (shrubs/trees) during onshore cable installation will be minimal due to the temporary and likely sporadic nature of the impacts and expected regrowth of vegetation.

Where the onshore cables cross wetlands, waterbodies, railroads, or busy roadways, specialty trenchless crossing methods (such as HDD, pipe jacking, or direct pipe) are expected to be employed to avoid impacts to those features.

Construction activities at construction staging areas (i.e., equipment laydown and storage areas) located proximate to the onshore cable routes are not expected to cause new ground disturbance, with the exception of staging areas for trenchless crossings. Additionally, at each POI, based on negotiations with the substation's owner/operator, the Proponent may install grid interconnection cables and associated duct bank (i.e., perform ground disturbing activities) within the property line of the existing substation.

Onshore Substation Sites and Onshore Reactive Compensation Stations (RCS) - Construction of the onshore substations and onshore RCSs (if needed) (see Section 2.3.2) is expected to involve site preparation (e.g., land clearing and grading), installation of the substation equipment and cables, commissioning, and site clean-up and restoration. Although the Proponent intends to prioritize industrial/commercial sites that have been previously disturbed, depending on the onshore substation and onshore RCS sites ultimately selected, land clearing and grading may be needed prior to excavation and trenching (for equipment foundations, cable trenches, containment, drainage, and retaining walls). Some onshore substation sites may require up to approximately 0.06 km^2 (15 acres) of tree clearing and ground disturbance (per site) from grading, excavation, and trenching.[15] Construction of each onshore RCS may require up to ~0.008 km^2 (2 acres) of tree clearing and ground disturbance.[16] Although substation construction may require initial clearing and grading of the site, the periphery of the site (outside the security fencing) will be restored and revegetated (if required). Vegetative buffers for visual screening and sound attenuation walls may also be installed, if needed.

Outdoor lighting will be used at the onshore substation sites during construction and commissioning. During operations, the majority of the lights will only be used on an as-needed basis (e.g., if equipment inspection is needed at night). For security reasons, a few lights will typically be illuminated on dusk-to-dawn sensors, and a few lights will likely be controlled by motion sensors. Outdoor lighting at the onshore substation sites will typically be equipped with light shields to prevent light from encroaching into adjacent areas. The Proponent will ensure that the lighting scheme complies with local requirements.

[15] The actual size of the onshore substation site parcel may be larger than the area cleared and disturbed to accommodate the onshore substation.

[16] The actual size of the parcel may be larger than the area cleared and disturbed to accommodate the onshore RCS.

9.2 Operations and Maintenance

Visual impact is any modification in landforms, water bodies, or vegetation, or any loss or introduction of structures or other human-made visual elements, that negatively or positively affect specific views experienced by people. Visual impacts result from visual contrast, which is the opposition or unlikeness of different forms, lines, colors, or textures in a landscape (Sullivan R. G., 2021, p. 66). The following describes the compatibility of Vineyard Mid-Atlantic's offshore facilities with regional seascape patterns within which it is contained and viewed. This evaluation is based on views depicted in the visual simulations provided in Appendix E.

The form of the regional landscape is comprised of the Atlantic Ocean, coastline, and the barrier islands and upland portions of New York and New Jersey. The patterns of the open water are temporal, changing with the wind, sun angle, cloud cover, and other factors that affect the texture and colors of the surface. Visible shorelines (mainland and barrier islands) may vary from a subtle linear form low on the horizon to a low undulating landform where the coastline recedes into the distance. The horizontal layering of the water and sky is visually appealing and draws viewers' attention. The ocean is generally perceived as a broad expanse of dark open water that spans the view, with a sky that features a dynamic mix of partially illuminated cloud formations. The texture of the open water viewed out to the horizon is smooth.

9.2.1 Wind Turbine Generators

Daytime Visibility from Onshore Vantage Points - During daylight hours, a field of WTGs would be visible from coastal vantage points extending across a portion of the seascape. The WTGs would introduce a contrasting pattern of geometric vertical lines into the strong horizontal planar form of the distant horizon, potentially heightened by contrast in texture, luminance, or motion. In the unexpected scenario that no other offshore wind projects have been constructed at the time of Vineyard Mid-Atlantic construction (see Section 10.0), the proposed WTGs will be the tallest visible elements on the horizon, albeit at great distance (more than 38 km [24 mi] from the nearest WTG). The series of vertical, overlapping towers with rotating blades arrayed across an expanse of the visible horizon can create a strong contrasting element on the seascape.

With the nearest coastal vantage point just over 38 km (24 mi) from any WTG, the HFOV occupied by the Lease Area ranges from approximately 14 to 30 degrees on the visible horizon as viewed from land-based vantage points. This represents a relatively small amount of the 124-degree horizontal human field-of-view and of the 180-degree ocean vista visible from most coastal vantage points. Similarly, at this distance, the WTGs maintain a very low profile with a vertical-field-of-view of less than 0.5 degrees above the horizon.

As described in Section 2.2.3, the WTGs will be no lighter than pure white (RAL 9010) and no darker than light grey (RAL 7035) in color. The expected neutral off-white/light grey color[17] of the WTG tower, nacelle, and blades will always be viewed against the background sky. The color of the WTGs will be generally compatible with the hue, saturation, and brightness of the seascape. However, depending on sun angle, time of day, and the presence of cloud cover, the backdrop sky color may have different intensities and hues. The visual interplay and contrast of the form, line, color, and texture of WTG components would vary with the changing character of the backdrop. For example, front-lit WTGs may have strong color contrast against a darker sky, giving definition to the WTGs' vertical form and line contrast against the ocean's horizontal character and the line where the sea meets sky. WTG components would be more likely to visually dissipate against a lighter sky backdrop. Variable cloudiness or passing clouds can change lighting conditions and effects, placing some WTGs in the shadow and making them appear darker and less conspicuous, while highlighting others with a bright color contrast. The level of noticeability would be directly proportional to the degree of visual contrast and scale of change between the WTGs and the backdrop. Color and texture contrast will further diminish or disappear completely during periods of haze, fog, or precipitation.

As noted above, the nearest Vineyard Mid-Atlantic WTG is more than 38 km (24 mi) from the nearest vantage point on land. At this extended distance, linear perspective reduces the apparent size of the project components, curvature of the earth becomes a meaningful factor in screening significant portions of WTGs, and objects become less prominent in the overall seascape due to their relative size and occupation of the horizon. Notably, at and beyond this distance, the WTGs' yellow-colored foundations fall below the visible horizon and will not be visible from any coastal vantage point.

Additionally, at such an extended distance, atmospheric perspective changes colors to blue-greys and surface texture characteristics are lost. Even when visible under clear atmospheric conditions, the WTGs will be viewed very low on the horizon and would be visually subordinate to the expansive Atlantic Ocean. As an observer moves farther and farther from the WTGs, the smaller they appear. Beyond a certain distance and depending upon the degree of contrast between the WTGs and its surroundings, the WTGs may not be a point of interest for most people.

The individual and cumulative effect of blade motion on the distant horizon may contribute to texturing of the seascape and appear in contrast with the horizontal line and rolling form of the open ocean. Although visible rotor movement could attract visual attention, this effect may diminish at distances of about 38.6 km (24 mi) (Sullivan R. G., 2013)[18]. Sullivan notes on page 12 of that study "Turbine blade movement was visible at distances as great as 42 km (26 mi) in 42 of the 49 daytime observations....", and on page 2 of that study, "[a]s the early distance-visibility studies do not account for turbines or projects of these sizes, it is inappropriate to use limits of visibility established in these studies as the

[17] In accordance with BOEM and FAA guidance, the WTGs will be no lighter than pure white (RAL 9010) and no darker than light grey (RAL 7035) in color. Although the Proponent expects that the WTGs will be off-white/light grey, the exact color of the WTGs within this range (between RAL 9010 and RAL 7035) is unknown at this time. As clarified in Section 6.3, the visual simulations assume that the WTGs are pure white (RAL 9010), which represents a worst-case scenario, although the difference between WTGs colored RAL 9010 and RAL 7035 is likely indiscernible from coastal vantage points given the WTGs' distance from shore.

[18] Note, Sullivan's observation of 24 miles was for WTGs that are considerably shorter with a smaller rotor diameter than the WTGs proposed for Vineyard Mid-Atlantic.

basis for current visual impact assessments. Clearly, impact assessments and siting decisions must rely on accurate, up-to-date knowledge regarding the visibility of today's offshore wind facilities."

Given Vineyard Mid-Atlantic is 38 km (24 mi) from the nearest coastal vantage point, blade movement would be difficult to detect for the typical observer. Blade movement would be even more difficult to detect when viewed from vantage points where the nacelle falls below the horizon (a minimum of 65.5 km [40.7 mi] as viewed from beach elevation).

Daytime Visibility from Offshore Vantage Points - For offshore viewers closer to Vineyard Mid-Atlantic, potential visual impacts will be greater than for onshore viewers because boats could closely approach or potentially move through the offshore facilities. In a close approach, the large form and geometric lines of both the individual WTGs and the array of WTGs would be visually dominant and the sweep of the moving rotors would attract visual attention. Structural details, such as surface textures, could become apparent, as could specular reflections from the WTG towers and moving rotor blades (BOEM, 2007).

There would be daily variation in the WTGs' color contrast against their surroundings as sun angles change from backlit to front-lit (sunrise to sunset) and the backdrop varies under different lighting and atmospheric conditions. The strongest daytime visual contrast would result from tranquil and flat seas combined with sunlit WTG towers and nacelles, rotating and flickering rotors, and a yellow foundation color against a dark background sky, and an undifferentiated foreground. The weakest daytime contrasts would result from turbulent seas combined with overcast daylight conditions on WTG towers, nacelles, and rotors against an overcast background sky and a foreground occupied by varied landscape elements.

The Proponent expects to paint each WTG and ESP foundation (above sea level) in high visibility yellow paint in compliance with USCG and BOEM guidelines. Due to regulatory guidelines, no mitigation or minimization alternatives are available to reduce visibility of foundation structures. In all cases the WTG and ESP foundations fall below the horizon and will not be visible from coastal vantage points.

The individual and cumulative effect of blade motion will contribute to texturing of the horizon and appear in contrast with the horizontal line and rolling form of the open ocean. The circular rotation and lack of synchronization between WTGs do not correspond with the natural back and forth motion of the ocean swells and smaller waves, further enhancing the contrast for offshore viewers with daytime views of Vineyard Mid-Atlantic.

The potential visual impacts of nighttime lighting on the WTGs during operations is discussed in Section 9.2.3.

9.2.2 Electrical Service Platforms (ESPs)

Daytime Visibility from Onshore Vantage Points - Vineyard Mid-Atlantic will include one or two offshore ESPs, which contain transformers and other electrical gear. The nearest possible ESP would be approximately 38 km (24 mi) from the nearest coastal vantage point. At this distance, an ESP located at any position in Lease Area OCS-A 0544 will fall below the visible horizon as viewed from any coastal vantage point.

Daytime Visibility from Offshore Vantage Points The ESP topside(s) are expected to be light grey in color, which would appear muted and indistinct.

From offshore vantage points, the potential visual impacts of an ESP will vary depending on the distance of the viewer to the Lease Area. When viewing an ESP from foreground distances, the viewer will be either within or immediately adjacent to the WTG field. Structural details, such as the surface textures and colors will be apparent, and the ESP will appear as a large rectilinear form elevated above the ocean surface. Although the ESP will be visually dominant, in contrast to and substantially out of character with the horizontal expanse of the surrounding ocean, the ESP structure itself will be visually subordinate to the WTGs. The level of impact will diminish with increasing distance from the Lease Area as contrasting elements of form, line, color, and texture become more muted and the scale and dominance of the structure becomes more subordinate to the open ocean.

The potential visual impacts of nighttime lighting on the ESP(s) during operations are discussed in Section 9.2.3.

9.2.3 Nighttime Lighting

The WTGs will include an aviation obstruction lighting system in compliance with FAA and/or BOEM requirements. Based on current guidance, the aviation obstruction lighting system will consist of two synchronized red flashing lights placed on the nacelle of each WTG. If the WTGs' total tip height is 213.36 m (699 ft) or higher, there will be at least three additional low intensity flashing red lights on the tower approximately midway between the top of the nacelle and sea level.

Whether or not the ESP(s) are required to have nighttime aviation obstruction (FAA) lights depends on the final height of the ESP(s). If the height of an ESP station exceeds 60.96 m (200 ft) above mean sea level or any obstruction standard contained in 14 CFR Part 77, it will include an aviation obstruction lighting system in compliance with FAA and/or BOEM guidelines. Other lighting (e.g., helipad lights) may be located on the ESP(s) for safety purposes. Temporary outdoor lighting on the ESP(s) may be necessary if any maintenance occurs at night or during low-light conditions; these lights would not be illuminated if no technicians are present. Nighttime work on the ESP(s) during operations would be limited.

The Proponent will use an ADLS or similar system that automatically activates all aviation obstruction lights present on the WTGs and ESP(s) when an aircraft approaches the structures. An ADLS utilizes surveillance radar to track aircraft operating in proximity to the structures. The ADLS will activate the obstruction lighting system when aircraft enter the light activation volume and will deactivate the system when all aircraft depart. As a result, the ADLS activates the aviation obstruction lights on an as-needed basis, thereby significantly reducing the amount of time that obstruction lights will be illuminated.

Appendix II-I of the COP provides an Aircraft Detection Lighting System Efficacy Analysis. This analysis utilized historic air traffic data obtained from the FAA to determine the total duration that an ADLS-controlled obstruction lighting system would have been activated. The results of this analysis can be used to predict an ADLS's effectiveness in reducing the total amount of time that an obstruction lighting system would be activated. Historical air traffic data for flights passing through the light activation

volume surrounding the Lease Area in 2021 indicates that ADLS-controlled obstruction lights would have been activated for a total of 1 hour 10 minutes over a one-year period for a 355-meter (1,165-foot) tall WTG. Of the 261 flights that passed through the ADLS activation volume in 2021, only 48 flights occurred at night (when a traditional obstruction lighting system would be activated). Considering the local sunrise and sunset times, an ADLS-controlled obstruction lighting system could reduce the duration of nighttime lighting by over 99% as compared to a traditional always-on obstruction lighting system (Capitol Airspace Group, 2023).

When activated, aviation obstruction lights on the WTGs may be visible from all coastal locations where daytime views of WTG nacelles occur. Inland views are typically screened by dunes, low hills, and existing vegetation. When visible from inland locations, nighttime views will include the significant existing coastal light sources of the metropolitan New York City region, offshore vessels, and marine navigation aids.

The introduction of aviation obstruction lights in the night sky may be noticeable from beach areas, coastal bluffs, and other near coast inland areas within the ZLV, especially under clear weather conditions. The contrast of aviation obstruction lights in the night sky will likely be minimal considering significant coastal light sources of the New York City metropolitan region currently in view.

Nighttime visibility of Vineyard Mid-Atlantic will be most noticeable from beachfront areas in clear air conditions. Recreational beaches are primarily visited during daytime hours, minimizing the number of affected viewers. From beach level vantage points (assuming a viewer eye level of 1.83 meters [6 feet] asl), the nacelle (and aviation obstruction lights) will fall below the horizon at approximately 65.5 km (40.7 mi).

The impact of FAA lighting is substantially limited by the distance of Vineyard Mid-Atlantic from vantage points. At distances 38 km (24 mi) or greater from the closest costal vantage point for the WTGs, aviation obstruction lights may be visible very low on the horizon and will appear to shimmer and vary in intensity due to the slow flash rate, intermittent shadowing as rotating blades pass in front of the light source, and atmospheric variations. Visibility can be frequently reduced or blocked by fog, snow, particulate matter, smog, or any combination thereof.

For each WTG and ESP, marine navigation lighting will include yellow flashing lights that are visible in all directions at a distance of 3.7 to 9.5 km (2.3 to 5.9 mi [2 to 5 nm]), in accordance with USCG guidance (see Section 2.1.3). The intensity of the lights will depend on the location of the structure within the Lease Area. Marine navigation lighting will be mounted on each foundation (or near the bottom of the ESP topside[s]). At this low mounting height (assuming 35 m [114 ft] asl), marine navigation lights will fall below the horizon at a distance of approximately 27.7 km (17.2 mi) as viewed from beach elevation (assuming an observer eye level of 1.83 m [6 ft] asl). With the nearest coastal vantage point over 38 km (24 mi) from the nearest WTG or ESP, marine navigation lights on the WTGs and ESP(s) will not be visible from any coastal vantage point.

Many ocean beaches in the VSA are typically dark. They are affected by manmade light sources including dense urban coastal development throughout a majority of the VSA. Significant existing light emitted from sources throughout the New York City metropolitan area creates significant existing light pollution.

Upward dispersion of light generated from this densely populated region creates a distant sky glow to a degree dependent on atmospheric conditions at any given time.

Decommissioning Impacts

Decommissioning of Vineyard Mid-Atlantic would involve the disassembly and removal of WTGs, ESP(s), associated foundations and scour protection (if required), offshore cables and cable protection (if required), and the shipment of these materials to shore for reuse, recycling, or disposal (see Section 5 of COP Volume I). In terms of expected visual impacts, decommissioning activities would be similar to construction activities. However, activities would generally proceed in the reverse order from construction, and may proceed more quickly than construction; thus, any associated impacts may be shorter in duration. During decommissioning, all offshore facilities would be removed to a depth of at least 4.5 m (15 ft) below the mudline and the Lease Area would be returned to pre-construction condition, unless otherwise authorized by BOEM. Impacts associated with any new or expanded permanent onshore facilities resulting from Vineyard Mid-Atlantic may remain, subject to discussions with local agencies on the decommissioning approach that best meets agency expectations and has the fewest environmental impacts.

10.0 IMPACTS OF REASONABLY FORESEEABLE PLANNED ACTIONS

Vineyard Mid-Atlantic occupies one of six offshore wind energy lease areas in the New York Bight, as illustrated in Figure 11. As BOEM points out in its SLVIA guidelines, NEPA requires that projects be considered within the context of reasonably foreseeable additional projects. Multiple projects throughout the New York Bight are in various stages of design or review within the vicinity of Vineyard Mid-Atlantic. Ultimately, more than one project will likely be in view from some or all the KOPs considered in this SLVIA (see Figure 11).

Due to viewing distance, only one (OCS-A 0537 [Bluepoint Wind]) of the six offshore wind energy lease areas in the New York Bight, and OCS-A 0512 (Empire Wind projects), could potentially be cumulatively visible with Vineyard Mid-Atlantic in the same field of view.

At its closest point, OCS-A 0537 (Bluepoint Wind) is approximately 71.3 km (44.3 mi) south of Fire Island, New York. At this extended distance, and assuming OCS-A 0537 would use a WTG of the same specifications as Vineyard Mid-Atlantic, only the upper ½ of the rotor blade of the closest WTG would be visible above the horizon. Such limited visibility would be difficult to discern even on clear air days. OCS-A 0537 is 98.0 km (60.9 mi) east of Asbury Park New Jersey. At this extended distance the closest WTG falls completely over the horizon and would not be visible from coastal vantage points in New Jersey. As such there is no cumulative visibility of these two projects.

At its closest point OCS-A 0512 (Empire Wind projects) is 21.2 km (13.2 mi) south of Jones Beach State Park in New York and 32.2 km (20.0 mi) east of the Gateway National Recreation Area at the Sandy Hook Unit in New Jersey. As viewed from coastal vantage points in northern Monmouth County, New Jersey, OCS-A 0512 would appear closer to, and in front of Vineyard Mid-Atlantic. From coastal vantage points in southern Monmouth Couty and northern Ocean County, New Jersey OCS-A 0512 would appear somewhat closer and immediately adjacent to Vineyard Mid-Atlantic.

As viewed from coastal vantage points in the Boroughs of Brooklyn and Queens, in New York City, and Nassau County, New York and western Suffolk County, New York, OCS-A 0512 would appear closer to (i.e., visually larger), and in front of, Vineyard Mid-Atlantic. From vantage points farther east in Suffolk County, New York OCS-A 0512 would appear approximately the same distance offshore and immediately adjacent to Vineyard Mid-Atlantic. From all coastal vantage points viewers would not distinguish two separate projects. The two projects would appear as a single larger grouping of offshore WTGs.

Photo simulations illustrating this cumulative visibility for New York Bight lease areas are referenced in the NY Bight PEIS: Appendix H - Seascape, Landscape, and Visual Impact Assessment (BOEM, 2024). These cumulative photo simulations are available for viewing at https://www.boem.gov/renewable-energy/state-activities/new-york-bight.

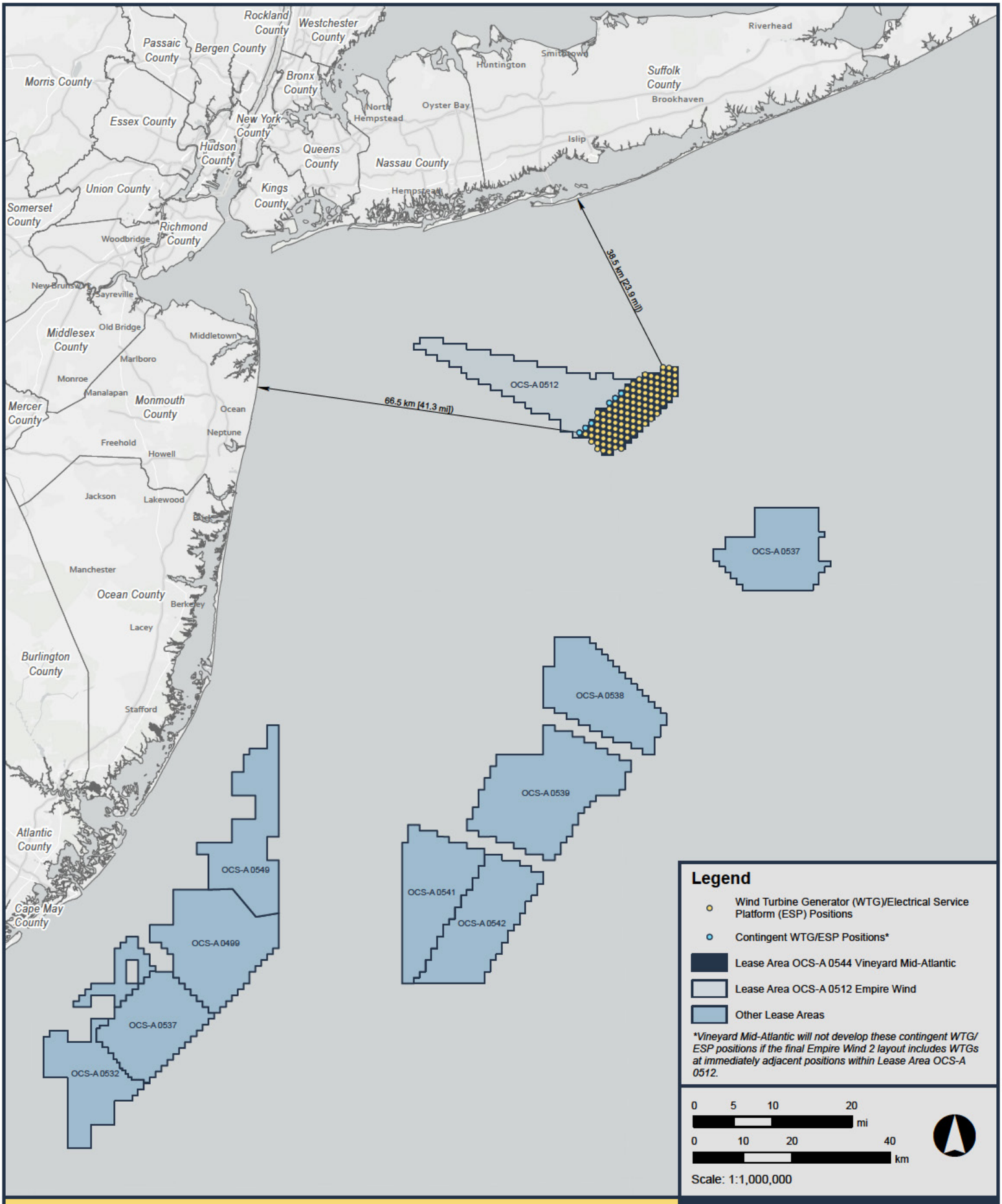

Figure 11

Reasonably Foreseeable Planned Actions

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

11.0 MINIMIZATION AND MITIGATION MEASURES

11.1 Offshore Facilities

The distance of Vineyard Mid-Atlantic from the nearest coastal vantage point—greater than 38 km (24 mi) from the closest WTG to any coastal vantage point—would minimize visibility of Vineyard Mid-Atlantic's offshore facilities from sensitive visual resources. For a development of this type, mitigation options are limited due to the size and structural requirements of WTGs, the number of WTGs necessary to meet energy production requirements, and their location on an unscreened seascape. However, Vineyard Mid-Atlantic is applying important mitigation techniques, such using an ADLS or similar system, to minimize potential visual impacts to the maximum extent practicable.

Visual Screening—Nearly all views of Vineyard Mid-Atlantic's offshore facilities occur from beachfront vantage points or elevated overlooks where the existing landscape is highly scenic. Localized screening, such as berms, vegetative barriers, or fences, would not be practical for screening miles of beachfront views, or even welcomed in places where such screening would block scenic vistas.

Design and Appearance—The WTGs are uniform in shape, design, and color, which serves to minimize visual contrast between structures in the Lease Area. Tubular tower designs are similarly used throughout, and components are in proportion to one another. The design and appearance of Vineyard Mid-Atlantic is consistent with best practices to minimize visual impact (BOEM, 2007).

No commercial/advertising messages will be placed on WTGs.

Reduction in Night Lighting—Visual analysis demonstrates that the marine navigation lights on WTGs and ESP(s) will not be visible from any land-based vantage point and will not be an impact.

Where visible above the horizon, aviation obstruction lights on the WTGs and ESP(s) contribute to their visual impact. However, such lighting is required as a safety measure and cannot be eliminated. Lighting-related impacts can be reduced by limiting aviation obstruction lighting to the minimum duration allowable by the FAA. As described in Section 9.2.3, the Proponent will use an ADLS or similar system that automatically activates all aviation obstruction lights present on the WTGs and ESP(s) when aircraft approach the structures. This technology would substantially reduce the amount of time such lights would be visible. An assessment of the activation frequency of an ADLS indicates that it would be activated approximately 1 hour 10 minutes per year (see Appendix II-I of the COP).

11.2 Onshore Facilities

The onshore export cables are expected to be installed entirely underground and will not be visible (except for at-grade manholes).

Although the specific location and design of the onshore substations have not yet been determined, potential mitigation measures may be incorporated into the final design. Mitigation measures may include:

- Screening/Landscaping – To the degree practicable and where existing vegetation exists, onshore substation site development will maintain perimeter vegetation for visual screening. Where onshore substation components may be visible from offsite vantage points, vegetative

buffers (e.g., supplemental plantings and other landscape elements) may be installed to minimize offsite visibility to the extent possible.

- Color Treatment - The design of the onshore substation will consider the color of materials used for buildings, fences, and specular steel structures to minimize visual contrast. Neutral colors that tend to blend with the vernacular materials in the area can minimize the color contrast presented by the onshore substation. The Proponent will consider using a black vinyl coating on chain-link fencing (if used) as an alternative to standard galvanized steel to reduce color contrast.
- Low Profile - The height of the electrical equipment and lightning masts within the onshore substation site must be designed to ensure the safe operation of the onshore substation and cannot be lowered. The design of the onshore substation will specify the lowest profile components practicable considering the engineering requirements of the selected design type.
- Downsizing and Alternate Technologies - The onshore substation will be designed to occupy the smallest footprint and vertical height practicable considering all electrical and safety requirements, feasible technologies, and the space available at the selected onshore substation site.
- Non-specular Materials - Where applicable and practicable, the onshore substation will utilize non-specular conductors and dulled galvanized metal materials to minimize glare.
- Lighting – Onshore substation site lighting will be designed and installed using best practice sustainable outdoor lighting specifications to minimize impact to natural night skies and light trespass and glare impact on offsite properties. During operations, the majority of the lights will only be used on an as-needed basis (e.g., if equipment inspection is needed at night). For security reasons, a few lights will typically be illuminated on dusk–to-dawn sensors and a few lights will likely be controlled by motion sensors. Outdoor lighting at the onshore substation sites will typically be equipped with light shields to prevent light from encroaching into adjacent areas. The Proponent will ensure that the lighting scheme complies with local requirements.
- Maintenance - The onshore substation components and site will be maintained to ensure a clean and orderly appearance.

The agencies/departments and associated jurisdictions that have review and/or approval authority over the onshore facilities are as follows:

Table 31 – Required Permits/Approvals for Onshore Facilities

Agency/Regulatory Authority	Permit/Approval	Status
Federal Permits/Approvals		
Bureau of Ocean Energy Management (BOEM)	Construction and Operations Plan (COP) Approval	Initially filed with BOEM in January 2024.
	National Environmental Policy Act (NEPA) Review and Record of Decision (ROD)	To be initiated by BOEM.
US Army Corps of Engineers (USACE)	Section 404 permission pursuant to Section 14 of the Rivers and Harbors Act of 1899	TBF

Agency/Regulatory Authority	Permit/Approval	Status
	(required if Vineyard Mid-Atlantic affects a USACE civil works project)	
Federal Highway Administration (FHWA)	Approval of New York State Department of Transportation (NYSDOT) exception to the existing New York State Utility Accommodation Plan for Longitudinal Installation (if needed) Approval of NYSDOT Use and Occupancy (U&O) Permits (if needed)	TBF
National Park Service (NPS)	Parkland conversion under Land and Water Conservation Fund (LWCF) 6F program (if needed)	TBF[1]
New York State Permits/Approvals[2,3]		
New York State Department of State (NYSDOS) Division of Coastal Resources	Federal Consistency Concurrence under the CZMA	TBF
New York State Public Service Commission (NYSPSC)/New York State Department of Public Service (NYSDPS)	Certificate of Environmental Compatibility and Public Need (CECPN) under Article VII of the New York State Public Service Law Environmental Management & Construction Plan (EM&CP) approval Section 68 Petition (permission to exercise the grants of municipal rights, if required)	TBF
New York State Department of Environmental Conservation (NYSDEC)	State Pollutant Discharge Elimination System Permit	TBF
New York State Department of Transportation (NYSDOT)	Highway Work Permits Exception to Utility Accommodation Plan for Longitudinal Use of Freeway Right-of Way by Utilities (if needed) Use and Occupancy (U&O) Permit (if needed)	TBF
New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)	Limited use agreement/license or utility right-of-way easement	TBF
New York State Legislature	Parkland alienation legislation for cable emplacement within municipal parkland (if needed)	TBF
Regional and Local Permits/Approvals[2,3]		
County and Local Highway Departments	County and local roadway use and occupancy permits	TBF

Agency/Regulatory Authority	Permit/Approval	Status
County and Town Agencies	County and town work permits	TBF
Interconnection Authorizations		
New York Independent System Operator (NYISO)	Interconnection Authorizations	Interconnection requests are under review.

Notes:

(1) The Proponent has had initial discussions with the LWCF Coordinator for NYSOPRHP regarding the potential applicability of parkland conversion under Section 6(f) of LWCF for construction activities within Jones Beach State Park. The LWCF Coordinator will be consulting with NPS on the applicability of the parkland conversion program, which will be dependent on construction durations within the park. If applicable, the Proponent would work with NYSOPRHP on securing approvals from NPS.

(2) Required state, regional, and local permits/approvals will be based upon the final design of Vineyard Mid-Atlantic and the associated effects on regulated resources.

(3) The Article VII process obviates the need to prepare and submit separate applications to most state, county, and local agencies while allowing affected municipal and community organizations the ability to participate in the proceedings.

12.0 SUMMARY AND CONCLUSIONS

Vineyard Mid-Atlantic includes up to 118 WTG/ESP positions. One or two of those positions will be occupied by ESPs and the remaining positions will be occupied by WTGs. At its closest point, the 174 square kilometer (km^2) (43,056 acre) Lease Area will be approximately 38 km (24 miles [mi]) south of Fire Island, New York, and 66 km (41 miles [mi]) east of Long Branch, New Jersey.

Visual impacts are contingent on a viewer's distance from shore, the viewer's elevation, and atmospheric conditions that could expose or screen some or all of Vineyard Mid-Atlantic's WTG towers, nacelles, rotors and aviation obstruction lights. Due to extended distance and the earth's curvature, there are no land-based vantage points where WTG foundations would be visible above the horizon. In addition, given the narrow width of the WTG tower and rotor, combined with the distance from land-based viewpoints, the visibility of these elements of the WTG would range from Visual Prominence Level 1 (i.e., visible only after extended, close viewing) to Visual Prominence Level 4 (i.e., plainly visible and could not be missed by a casual observer, but does not strongly attract visual attention or dominate the view because of apparent size, for views in the general direction of study subject)(refer to Table 26 in the best visibility conditions (a clear, low humidity day) and not detectable in the haze or fog typical for this marine landscape. The overall impact level to onshore viewers of Vineyard Mid-Atlantic's offshore facilities is expected to be moderate to negligible (refer to Table 30).

Zone of Likely Visibility — Excluding open ocean vantage points surrounding Lease Area OCS-A 0544, the primary areas where the WTGs may be seen are largely limited to the south shore of Long Island New York (including a portion of New York City, Nassau County, and western Suffolk County), as well as coastal New Jersey (including Monmouth County and northern Ocean County). There are no land-based vantage points where ESP(s) would be visible above the horizon.

In most circumstances, visibility of Vineyard Mid-Atlantic will be screened from inland vantage points by coastal topography and vegetation. Most views of the offshore facilities will be limited to immediate waterfront locations. Few publicly accessible vantage points with views of the Atlantic Ocean are found inland. Areas of likely visibility are also found on tidal marshlands and the surface waters of bays and estuaries on the leeward side of Long Islands' barrier islands.

At distances greater than 59.7 km (37.1 mi), the top of the nacelle will fall below the visible horizon as viewed from sea level vantage points (assuming an observer eye level of 1.83 m [6 ft] asl). The blade tip will fall below the horizon at distances greater than 76.9 km (48 mi).

Open views toward the Lease Area from locations within a number of SCAs (see 7.2.1) will be visually impacted by Vineyard Mid-Atlantic, due to their proximity to the shoreline and/or lack of screening by vegetation and topography. These SCAs contain visually sensitive resources including historic sites, open space/wildlife conservation areas, public beaches, and recreation areas that will have views of Vineyard Mid-Atlantic. Additionally, residential areas in densely populated coastal neighborhoods of New York City, Nassau and Suffolk Counties, New York, and highly populated communities in coastal New Jersey, which currently have ocean views, will have distant views of Vineyard Mid-Atlantic.

Oceanfront recreational areas and coastal communities within the VSA are popular family summer destinations for visitors seeking to enjoy the scenic, recreational, and cultural qualities of the seascape.

Greater numbers of tourists, vacationers, and recreational users will be present in the coastal area during the summer and on sunny days, when the weather is clear and warm, as compared to overcast, rainy, or cold days. In addition, more recreational users will be present in the coastal area on weekends and holidays than on weekdays. Also, fewer visitors spend time at beachfront locations during the off-season.

The coasts of New York and New Jersey include numerous scenic, cultural, recreational, and natural resources directly fronting, or near the ocean and its associated bays and estuaries. As a practical reality, the entire ocean and bayfront within the VSA is considered scenic and of aesthetic importance to the social, cultural, and economic well-being of the region. This notwithstanding, man-made development is a common aspect of the visual landscape. The urban landscape of the New York City metropolitan area with its high-rise structures, dense residential neighborhoods, supporting commercial districts, industrial uses, transportation corridors (local, regional, and interstate highways), utility infrastructure, commercial marine uses, and other man-made features are readily apparent in nearly all views.

Meteorological Visibility—Visibility is reduced by fog, snow, particulate matter, smog, or any combination thereof. Additionally, different factors affect visibility, including air quality, sea spray and salts over the ocean's surface, and the angle of the sun. Although the presence of sea spray and salts affects visibility, it is not likely captured by measurements of visibility taken at airports (see Section 5.3). Therefore, calculated visibilities should be considered conservative since they do not account for these light-reducing factors.

Additionally, the WTGs are expected to be off-white/light grey and the ESP topside(s) are expected to be light grey, which combined with normal atmospheric conditions, will reduce daytime visibility of the ocean-based elements of Vineyard Mid-Atlantic. However, the color of the WTGs will not be constant. Depending on sun angle, the backdrop sky color may have various intensities of white to gray and sky blue to pale blue to dark blue-gray. Partly cloudy to overcast conditions will also influence the color make-up of the horizon's backdrop. The sunrise and sunset have varying degrees of light blue to dark blue and light and dark purples intermixed with oranges, yellows, and reds. Partly cloudy skies may increase the remarkable color effects during the sunset and sunrise periods of the day. The visual interplay and contrasting elements in form, line, color, and texture may vary with the ever-changing character of the backdrop. Front-lit WTGs may have strong color contrast against a darker gray sky, giving definition to the WTG's vertical form and line contrast to the ocean's horizontal character and the line where the sea meets sky, or the white/light grey color may visually blend into a whiter backdrop created by high levels of evaporative atmospheric moisture during clear sunny days. Partly cloudy skies may create varying degrees of sunlight reflecting off the white WTGs, placing some WTGs in the shadow and making them appear a darker gray and less conspicuous while highlighting others with a bright white color contrast. The level of noticeability would be directly proportional to the degree of visual contrast and scale of change between the WTGs and the corresponding backdrop. (BOEM, 2024, pp. H5-H6)

Due to reduced visibility caused by atmospheric conditions, the WTGs will not be visible most of the time for viewers along the New York and New Jersey coastlines.

Distance of Visibility— The WTGs are over 38 km (24 mi) from the nearest coastal vantage point. At these extended distances, the curvature of the earth will affect visibility of Vineyard Mid-Atlantic. As distance increases, the portion of WTGs visible above the horizon decreases exponentially. From the closest land point on Fire Island, New York (38 km [24 mi] to the nearest WTG), for a standing observer at beach elevation (assuming an observer eye level of 1.83 m [6 ft] asl), the lower 76 m [250 ft] of the closest WTG fall below the visible horizon. From this land location, the top of the foundation platform will not be visible. The tower mid-point elevation (i.e., aviation obstruction lights) and above will be visible above the horizon.

From the closest land point in New Jersey (66 km (41 miles [mi] at Long Branch), the lower 252 m (828 ft) will be screened by the horizon. With the top of nacelle 203.5 m (668 ft) above MLLW, only WTG blades will be visible above the horizon from New Jersey beachfront areas.

The HFOV occupied by the Lease Area ranges from approximately 9 to 30 degrees on the visible horizon as viewed from land-based vantage points in New York and New Jersey. The HFOV for all KOPS is listed in Table 13.

In New York, the HFOV ranges from 9 degrees at KOP 13 – Tiana Town Beach (68.1 km [34.0 mi] from the nearest WTG) to 30 degrees at KOP 08 - Saltaire Beach (38.8 km [24.1 mi] from the nearest WTG). In New Jersey the HFOV ranges from 9 degrees at KOP 20 – Seaside Heights Boardwalk (66.7 km [41.5 mi] from the nearest WTG) to 14 degrees at KOP 14 – Sandy Hook (North Beach) – Gateway National Recreation Area (73.9 km [45.6 mi] from the nearest WTG). This represents a relatively small amount of the 124-degree horizontal human field-of-view and of the 180-degree ocean vista visible from most coastal vantage points. Similarly, at this distance, the WTGs maintain a very low profile with a VFOV of less than 0.5 degrees above the horizon.

As an observer moves along the coast farther from the Lease Area, the smaller the WTGs will appear. Beyond a certain distance, depending upon the size and degree of contrast between the WTGs and its surroundings, the WTGs may cease to be a point of interest for most people or become indistinguishable.

At 38 km (24 mi) and farther from shore, there is no land-based vantage point that will view an entire WTG. Some portion of the structures will always fall below the visible horizon. Because atmospheric conditions reduce visibility, sometimes significantly, and the presence of waves obscure objects very low on the horizon, maximum theoretical viewing distances typically exceed what is experienced in reality. Furthermore, limits to human visual acuity reduce the ability to discern objects at great distances, suggesting that a WTG may not be discernible at the maximum distances, although they theoretically would be visible (BOEM, 2007).

Sullivan, in *Offshore Wind Turbine Visibility and Visual Impact Threshold Distances* (2013), concludes that small- to moderately-sized facilities were visible to the unaided eye at distances greater than 41.8 m (26 mi), with WTG blade movement visible up to 38.6 m (24 mi). At night, aviation obstruction lighting was visible at distances greater than 38.6 (24 mi). The observed wind facilities were judged to be a major focus of visual attention at distances up to 16 km (10 mi), were noticeable to casual observers at distances of almost 29 km (18 mi) and were visible with extended or concentrated viewing at distances

beyond 40.2 km 25 (mi). While Vineyard Mid-Atlantic is larger in scale than the projects evaluated by Sullivan, these findings provide additional perspective concerning the effect of distance on human visibility of offshore wind energy facilities and further support the conclusion that the 83.7 km (52 mi) VSA is highly conservative.

For offshore viewers closer to Vineyard Mid-Atlantic, potential visual impacts could be much greater than for onshore viewers because boats could approach or potentially move through Lease Area OCS-A 0544. In a close approach, the very large form and geometric lines of both the individual WTGs and the array of WTGs could dominate views, and the large sweep of the moving rotors would command visual attention. Structural details, such as surface textures, could become apparent, and the ESP(s) could be visible as well, as could specular reflections from the towers and moving rotor blades (BOEM, 2007).

Visibility of Night Lighting—Night lighting may have an effect on residents and vacationers in beachfront settings where they currently experience dark skies. While many residences enjoy ocean views, most year-round and vacation homes within the proposed maximum theoretical area of nacelle visibility are located inland where intervening landforms and vegetation provide substantial or complete screening of the ocean.

The impact of FAA lighting will be substantially limited by the distance of Vineyard Mid-Atlantic from coastal vantage points. At a minimum distance of 38 km (24 mi) to the closest WTG, Vineyard Mid-Atlantic's aviation obstruction lights may be visible very low on the horizon. Lights will appear to shimmer and vary in intensity due to the slow flash rate, intermittent shadowing as rotating blades pass in front of the light source, and atmospheric variations. Visibility will be frequently reduced or blocked by fog, snow, particulate matter, smog, or any combination thereof. The Proponent will use an ADLS or similar system that automatically activates all aviation obstruction lights present on the WTGs and ESP(s) when aircraft approach the structures. This technology would substantially reduce the amount of time such lights would be visible. An assessment of the activation frequency of an ADLS indicates that it would be activated less than 1 hour 10 minutes per year (see Appendix II-I of the COP).

Based on current USCG guidance, yellow flashing marine navigation lights mounted on each foundation (or near the bottom of the ESP topside) will be visible in all directions at a distance of 3.7 to 9.5 km (2.3 to 5.9 mi [2 to 5 nm]), depending on the structure's location. Due to earth curvature , the WTG and ESP marine navigation lights will not be visible above the horizon from any coastal vantage point.

Human Perception—Public reaction to views of Vineyard Mid-Atlantic is likely to be variable. Not all viewers see WTGs as having an adverse visual impact. While there is generally strong support for wind power development, there are often local concerns relating to the aesthetics of planned wind facilities. The perceptions of visual impacts associated with wind energy development vary among potential viewers and may be positive or negative. Anecdotal information from public comments for recent offshore wind projects indicates that viewers that live, own property, or frequently visit the coast can have greater concerns about potential visual impacts, whereas viewers that live or spend the majority of their time farther inland are less concerned over visual impacts. Perceptions can also change over time, in some cases possibly trending toward more positive perceptions after the installation of wind energy facilities (BOEM, 2007). Certain individuals may also feel that potential visual effects from WTGs are offset by the positive benefits associated with clean, renewable energy.

Additionally, the presence of structures in the Lease Area may provide additional recreational opportunities by creating sightseeing interest. A study of Delaware beachgoers found that 45% of respondents would likely take a tour boat to see an offshore wind facility (Lilley et al. 2010). A 2019 study examined potential impacts from the Block Island Wind Farm on the vacation rental market in Block Island, Rhode Island. The study observed that Block Island vacation rental rates increased in the summer relative to other Southern New England tourist destinations and concluded that offshore wind farms may attract tourists (Carr-Harris and Lang 2019).

Land based viewers will have limited visibility of the WTGs when weather conditions allow. However, at distances at or greater than 38 km (24 mi) for the WTGs and viewed within the context of the ocean that includes the vast expanse of water, extended beach views and dunes, as well as the sights and sounds of breaking surf and wind, Vineyard Mid-Atlantic would likely be considered visually subordinate to the wider landscape. Vineyard Mid-Atlantic will be virtually undetectable from the eastern and southern portions of the VSA. A summary of impact levels is provided in Section 8.2.1 and summarized in Table 30.

All offshore cables will be submerged and will not be visible. The onshore cables are expected to be installed entirely underground and will not be visible (except for at-grade manholes). The onshore substation sites will have a perimeter access fence. Vegetative buffers for visual screening and sound attenuation walls may also be installed, if needed.

Although the specific location and design of the onshore substations have not yet been determined, potential programmatic mitigation measures may be incorporated into the final design. The Vineyard Mid-Atlantic SLVIA will be further updated to include a more detailed assessment of the mitigation measures for onshore substations once site control has been obtained and a specific design of onshore substation electrical equipment and associated elements has been determined.

Programmatic mitigation measures may include:

- Screening/Landscaping – To the degree practicable and where existing vegetation exists, onshore substation site development will maintain perimeter vegetation for visual screening. Where onshore substation components may be visible from offsite vantage points, vegetative buffers (e.g., supplemental plantings and other landscape elements) may be installed to minimize offsite visibility to the extent possible.

- Color Treatment - The design of the onshore substation will consider the color of materials used for buildings, fences, and specular steel structures to minimize visual contrast. Neutral colors that tend to blend with the vernacular materials in the area can minimize the color contrast presented by the onshore substation. The Proponent will consider use of a black vinyl coating on chain-link fencing as an alternative to standard galvanized steel to reduce color contrast.

- Low Profile - The height of the electrical equipment and lightning masts within the onshore substation site must be designed to ensure the safe operation of the onshore substation and cannot be lowered. The design of the onshore substation will specify the lowest profile components practicable considering the engineering requirements of the selected design type.

- Downsizing and Alternate Technologies - The onshore substation will be designed to occupy the smallest footprint and vertical height practicable considering all electrical and safety requirements, feasible technologies, and the space available at the selected onshore substation site.

- Non-specular Materials - Where applicable and practicable, the onshore substation will utilize non-specular conductors and dulled galvanized metal materials to minimize glare.

- Lighting – Onshore substation site lighting will be designed and installed using best practice sustainable outdoor lighting specifications to minimize impact to natural night skies and light trespass and glare impact on offsite properties. During operations, the majority of the lights will only be used on an as-needed basis (e.g., if equipment inspection is needed at night). For security reasons, a few lights will typically be illuminated on dusk-to-dawn sensors and a few lights will likely be controlled by motion sensors. Outdoor lighting at the onshore substation sites will typically be equipped with light shields to prevent light from encroaching into adjacent areas. The Proponent will ensure that the lighting scheme complies with local requirements.

- Maintenance - The onshore substation components and site will be maintained to ensure a clean and orderly appearance.

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Appendix A

VIEWSHED MAPS

Seascape, Landscape and Visual Impact Assessment

Legend

- Wind Turbine Generator (WTG)/Electrical Service Platform (ESP) Positions
- Contingent WTG/ESP Positions*
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Lease Area OCS-A 544
- Lease Area OCS-A 512
- Other Lease Areas
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Theoretical Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

*Vineyard Mid-Atlantic will not develop these contingent WTG/ESP positions if the final Empire Wind 2 layout includes WTGs at immediately adjacent positions within Lease Area OCS-A 0512.

0 5 10 20 mi

0 5 10 20 km

Scale: 1:800,000

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Figure A-1

Zone of Theoretical Visibility (ZTV) Map (1:800,000 scale)

(excludes screening by intervening vegetation and structures)

Seascape, Landscape and Visual Impact Assessment

- Wind Turbine Generator (WTG)/Electrical Service Platform (ESP) Positions
- Contingent WTG/ESP Positions*
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Lease Area OCS-A 544
- Lease Area OCS-A 512
- Other Lease Areas
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

*Vineyard Mid-Atlantic will not develop these contingent WTG/ESP positions if the final Empire Wind 2 layout includes WTGs at immediately adjacent positions within Lease Area OCS-A 0512.

0 5 10 20 mi
0 5 10 20 km

Scale: 1:800,000

Figure A-2
Zone of Likely Visibility (ZLV) Map (1:800,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

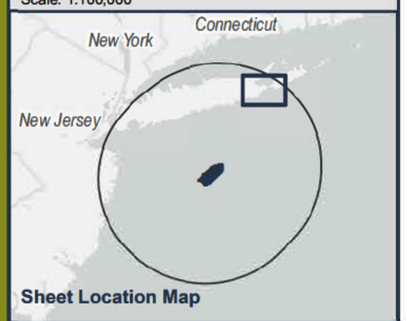
Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

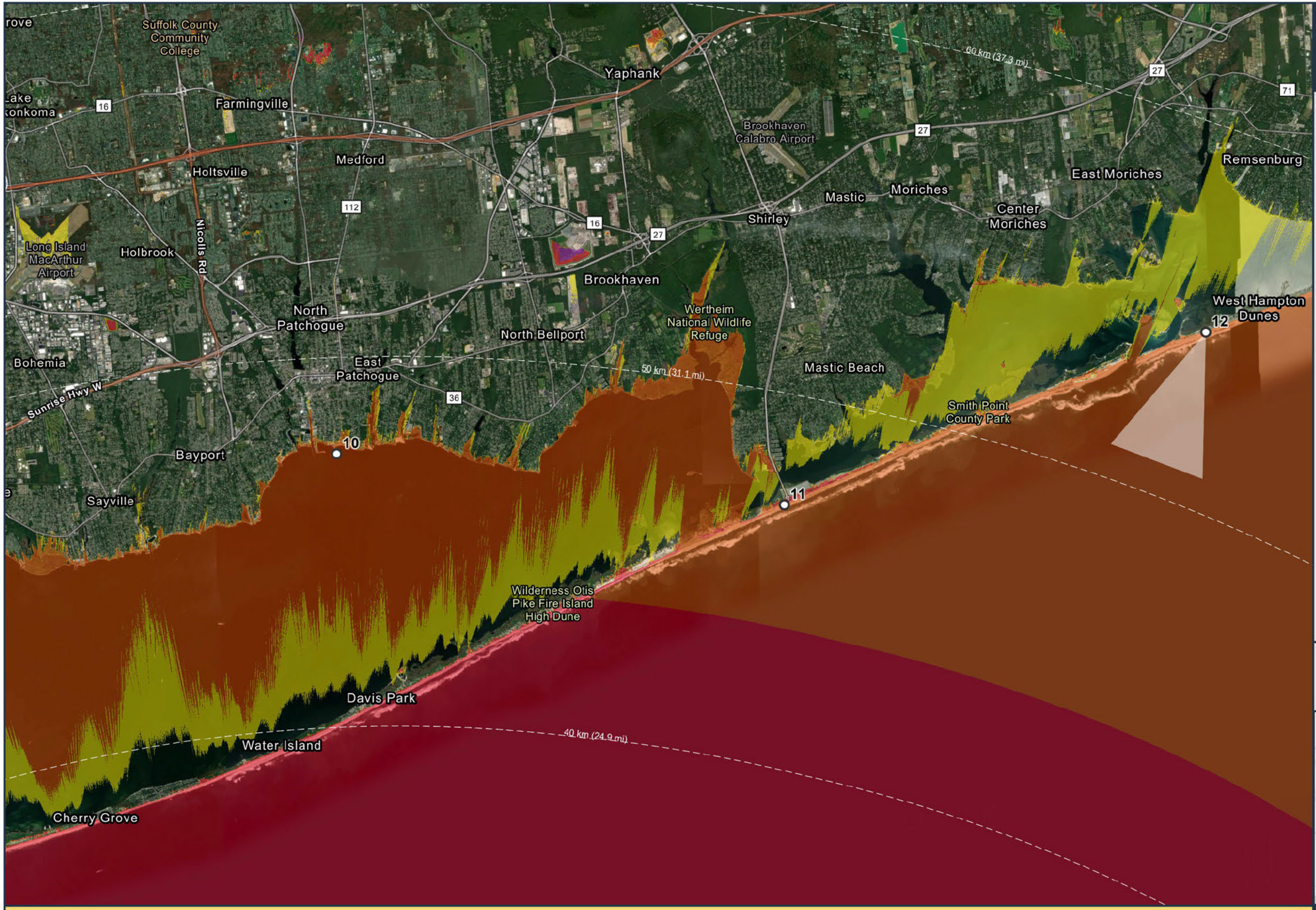
0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000



Sheet Location Map

Figure A-3
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

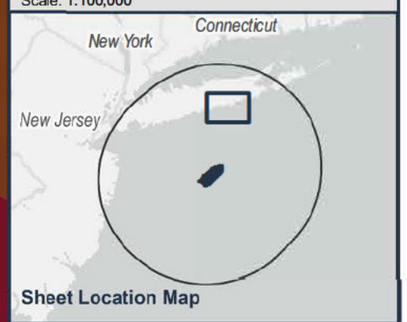
Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

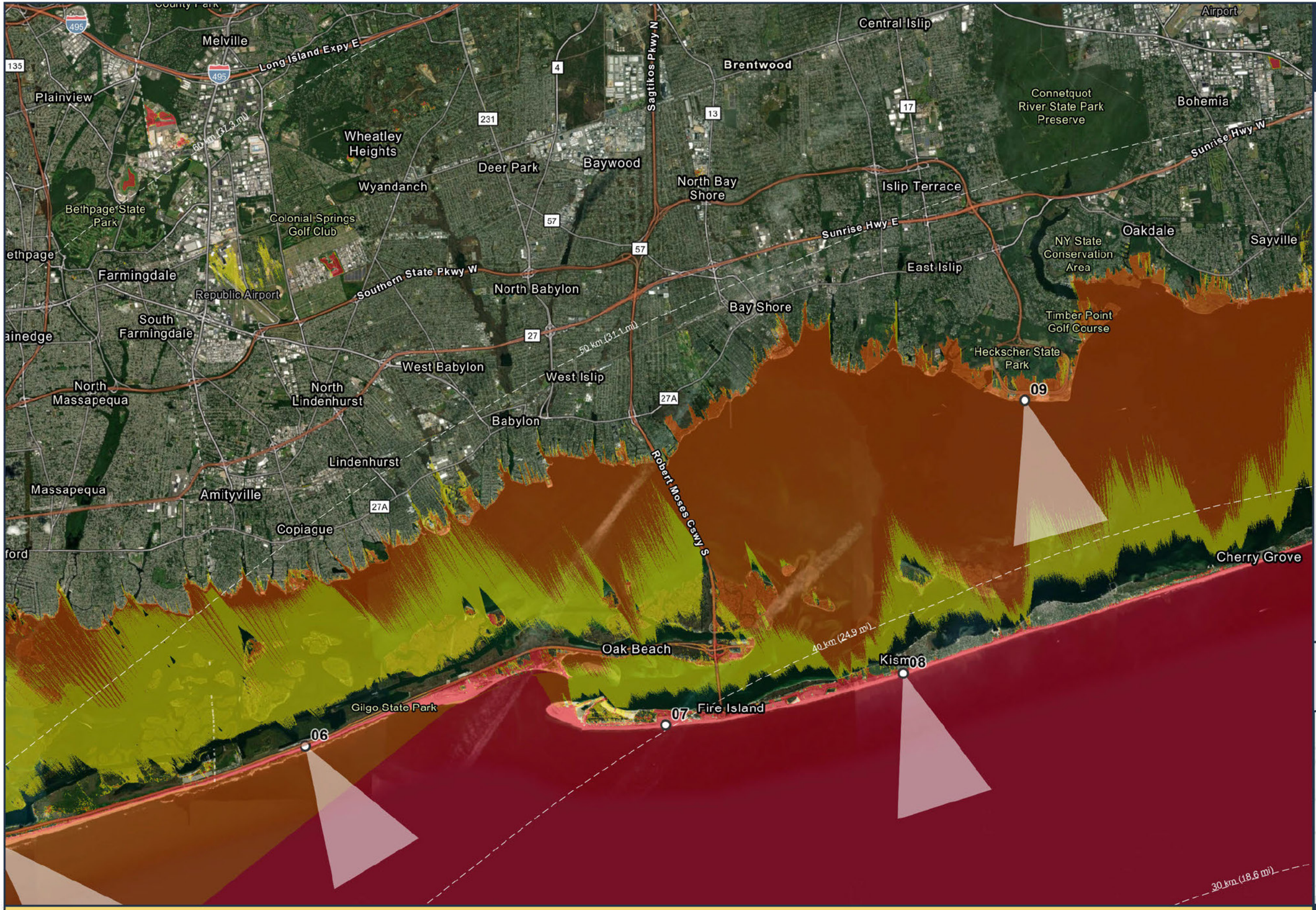
0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000



Sheet Location Map

Figure A-4
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000

Sheet Location Map

Figure A-5
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

0 0.5 1 2 mi

0 1 2 4 km

Scale: 1:100,000

Sheet Location Map

Figure A-6
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

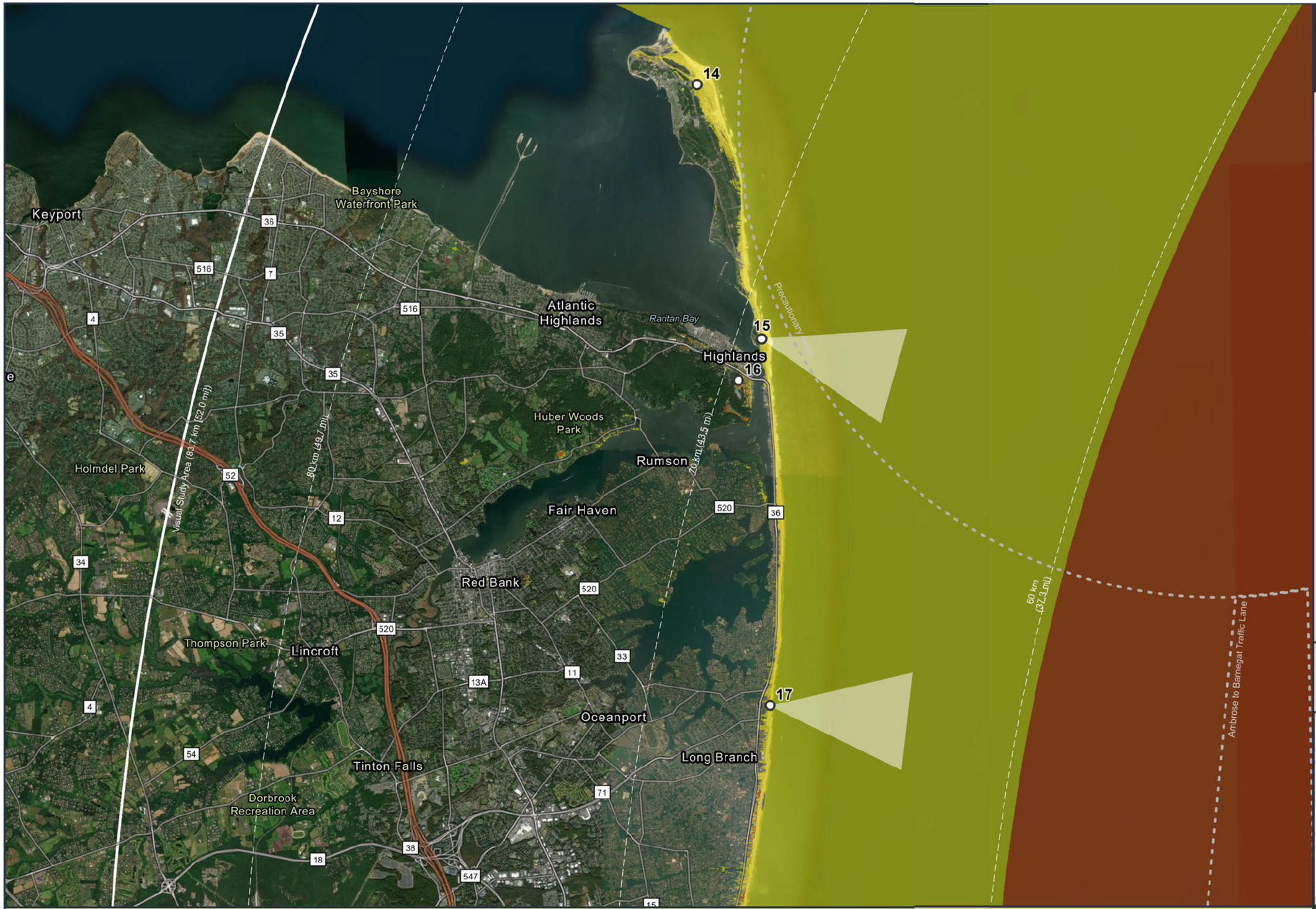
- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000

Sheet Location Map

Figure A-7
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

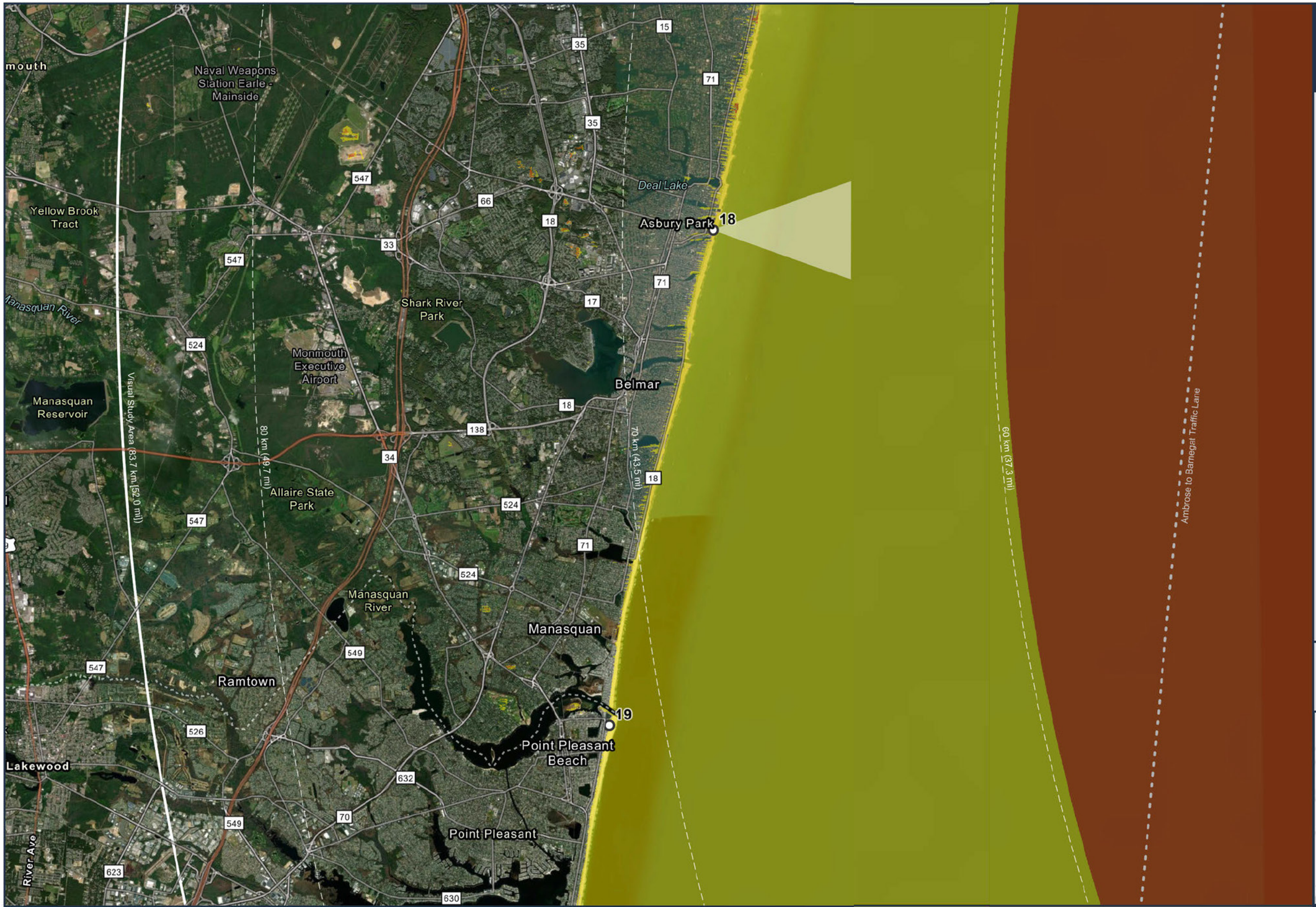
Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000

Figure A-8
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

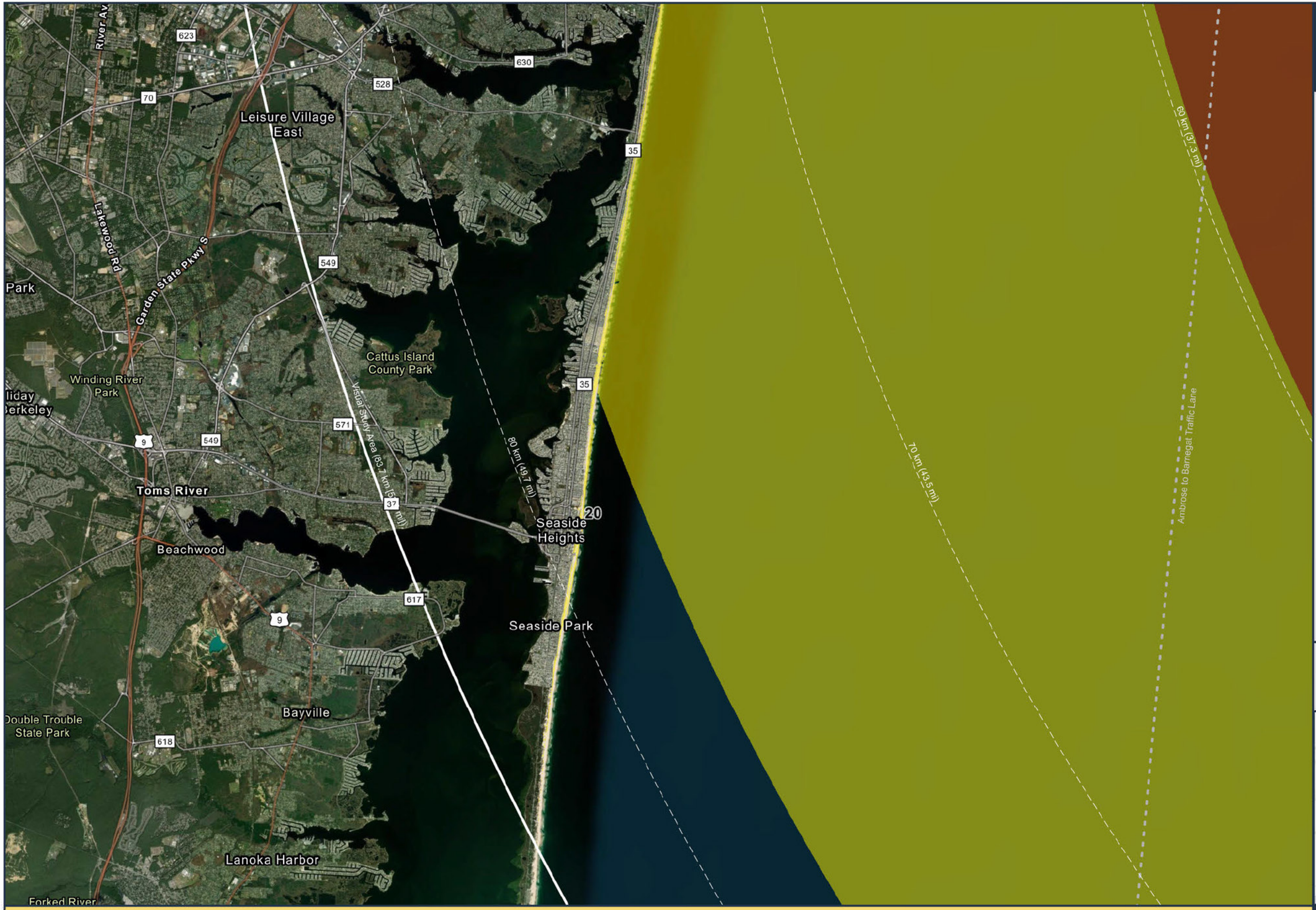
Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000

Figure A-9
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

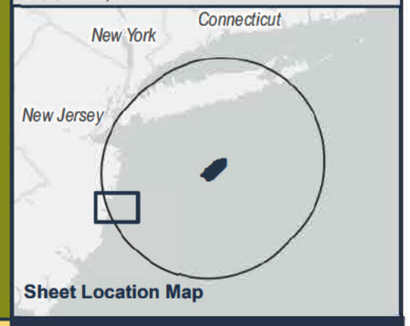
Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000



Sheet Location Map

Figure A-10
Zone of Likely Visibility (ZLV) Map (1:100,000 scale)
(includes screening by intervening vegetation and structures)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Appendix B

SEASCAPE/LANDSCAPE/OCEAN CHARACTER MAPS

Seascape, Landscape and Visual Impact Assessment

Legend

- Wind Turbine Generator (WTG)/Electrical Service Platform (ESP) Positions
- Contingent WTG/ESP Positions*
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Lease Area OCS-A 544
- Lease Area OCS-A 0512
- Other Lease Areas
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

- Nearshore Ocean
- Oceanside Beach
- Oceanside Recreation
- Oceanside Residential/Commercial
- Oceanside Urban
- Seascape Residential
- Seascape Urban
- Bayside Waterbodies
- Bayside Natural Wetland
- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
- Bayside Industrial
- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

- Inland Natural Area
- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

Ocean Character Areas (OCA)

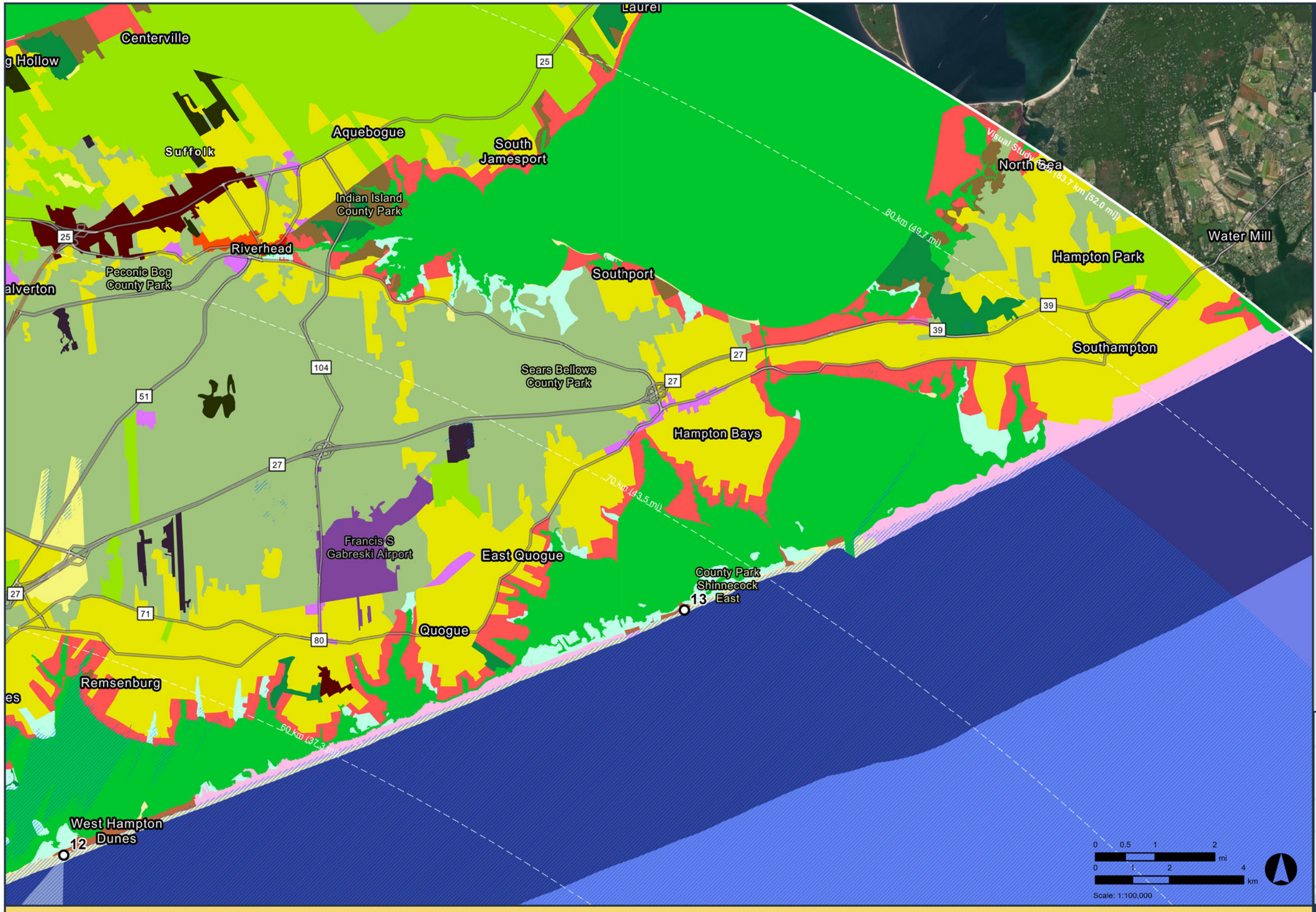
- Open Ocean

*Vineyard Mid-Atlantic will not develop these contingent WTG/ESP positions if the final Empire Wind 2 layout includes WTGs at immediately adjacent positions within Lease Area OCS-A 0512.

0 5 10 20 mi
0 5 10 20 km
Scale: 1:800,000

Figure B-1
Seascape, Landscape, and Ocean Character Areas (1:800,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Zone of Likely Visibility
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

- Nearshore Ocean
- Oceanside Beach
- Oceanside Recreation
- Oceanside Residential/Commercial
- Oceanside Urban
- Seascape Residential
- Seascape Urban
- Bayside Waterbodies
- Bayside Natural Wetland
- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
- Bayside Industrial
- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

- Inland Natural Area
- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

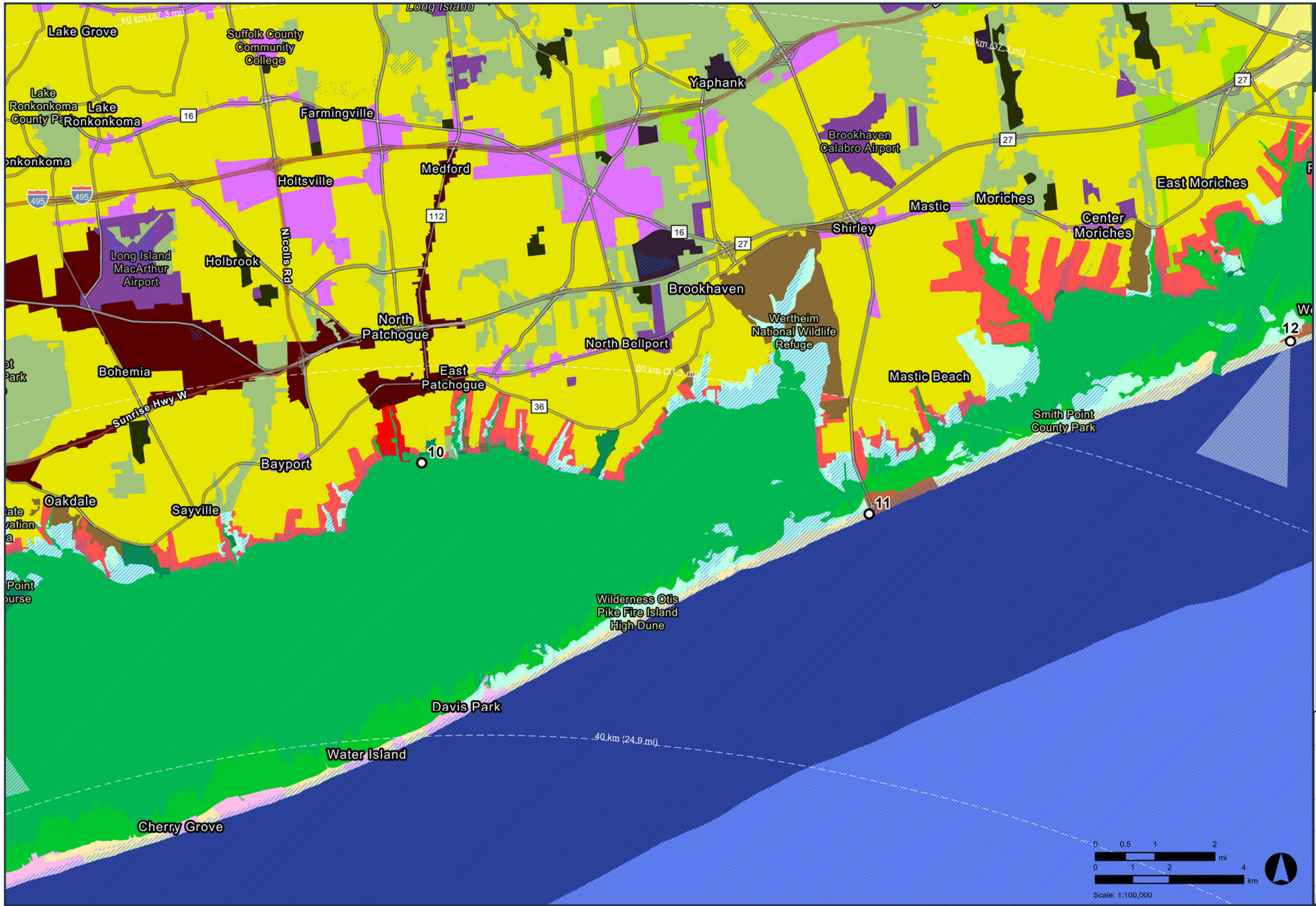
Ocean Character Area (OCA)

- Open Ocean

Sheet Location Map

Figure B-2
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Zone of Likely Visibility
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

- Nearshore Ocean
- Oceanside Beach
- Oceanside Recreation
- Oceanside Residential/Commercial
- Oceanside Urban
- Seascape Residential
- Seascape Urban
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- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
- Bayside Industrial
- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

- Inland Natural Area
- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

Ocean Character Area (OCA)

- Open Ocean

Figure B-3
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Zone of Likely Visibility
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

- Nearshore Ocean
- Oceanside Beach
- Oceanside Recreation
- Oceanside Residential/Commercial
- Oceanside Urban
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- Seascape Urban
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- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
- Bayside Industrial
- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

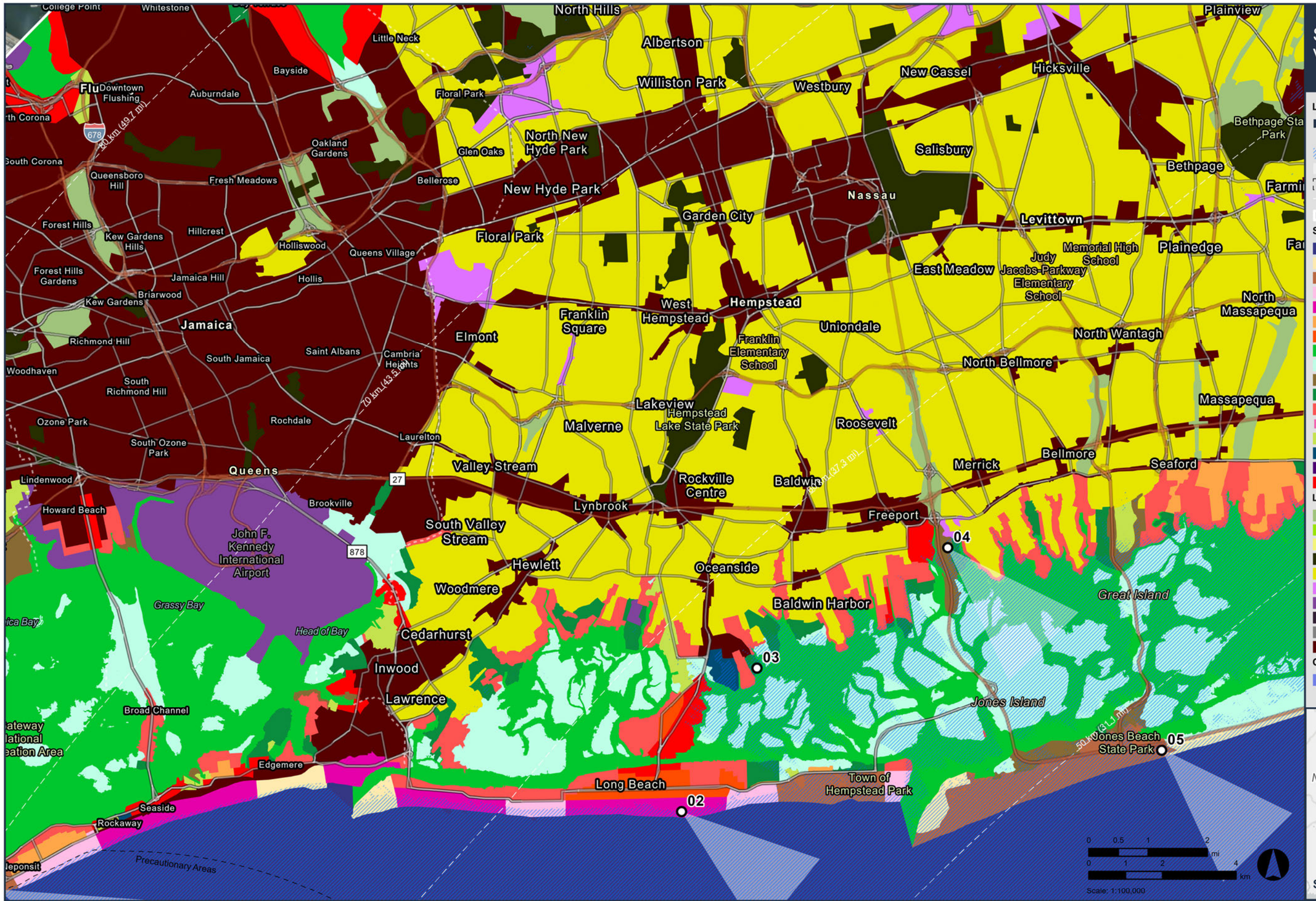
- Inland Natural Area
- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

Ocean Character Area (OCA)

- Open Ocean

Figure B-4
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Zone of Likely Visibility
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

- Nearshore Ocean
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- Oceanside Recreation
- Oceanside Residential/Commercial
- Oceanside Urban
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- Seascape Urban
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- Bayside Natural Wetland
- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
- Bayside Industrial
- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

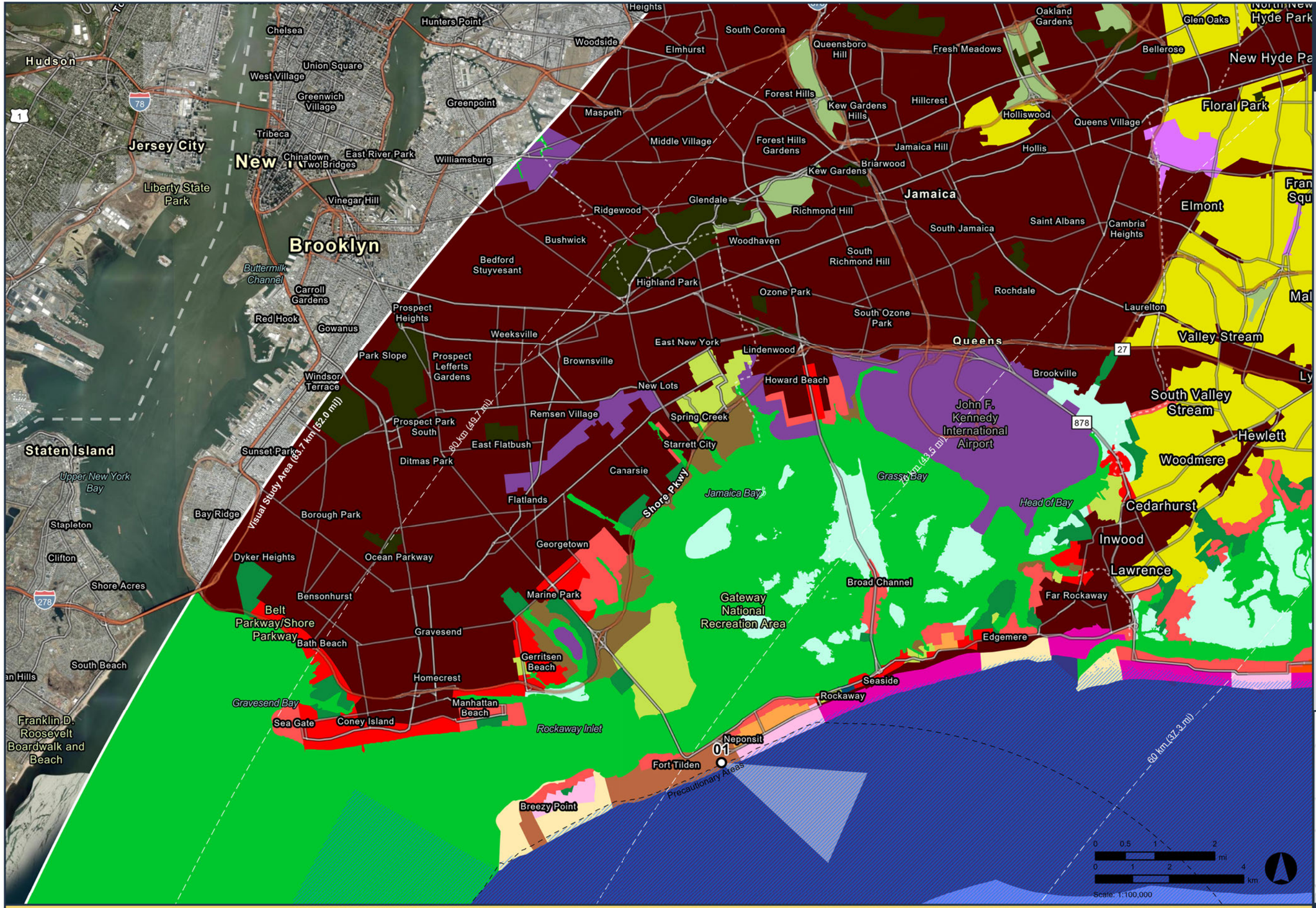
- Inland Natural Area
- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

Ocean Character Area (OCA)

- Open Ocean

Figure B-5
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Zone of Likely Visibility
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

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- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
- Bayside Industrial
- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

- Inland Natural Area
- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

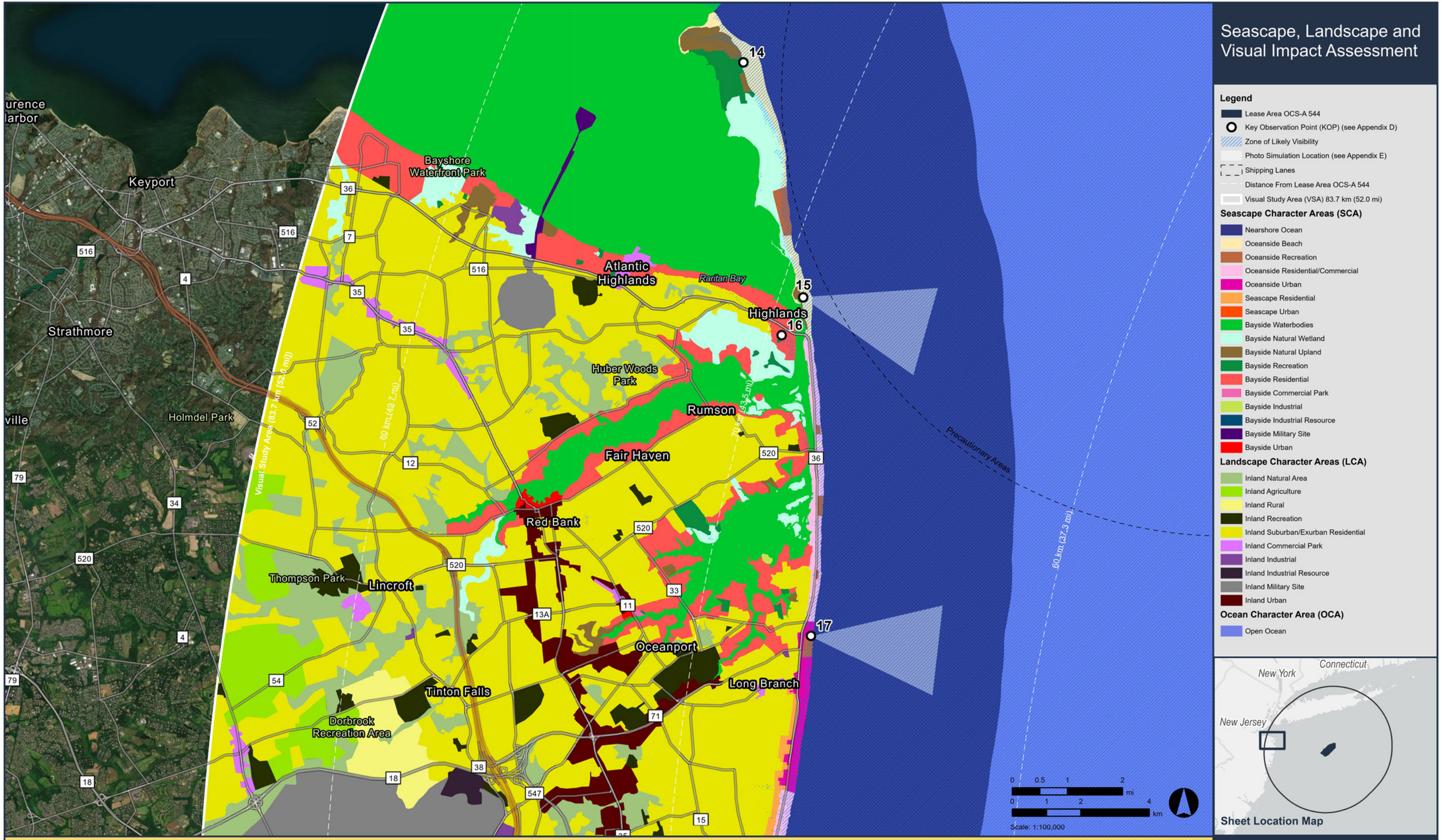
Ocean Character Area (OCA)

- Open Ocean

Figure B-6
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment



Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Zone of Likely Visibility
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

- Nearshore Ocean
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- Oceanside Recreation
- Oceanside Residential/Commercial
- Oceanside Urban
- Seascape Residential
- Seascape Urban
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- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
- Bayside Industrial
- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

- Inland Natural Area
- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

Ocean Character Area (OCA)

- Open Ocean

Figure B-7
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

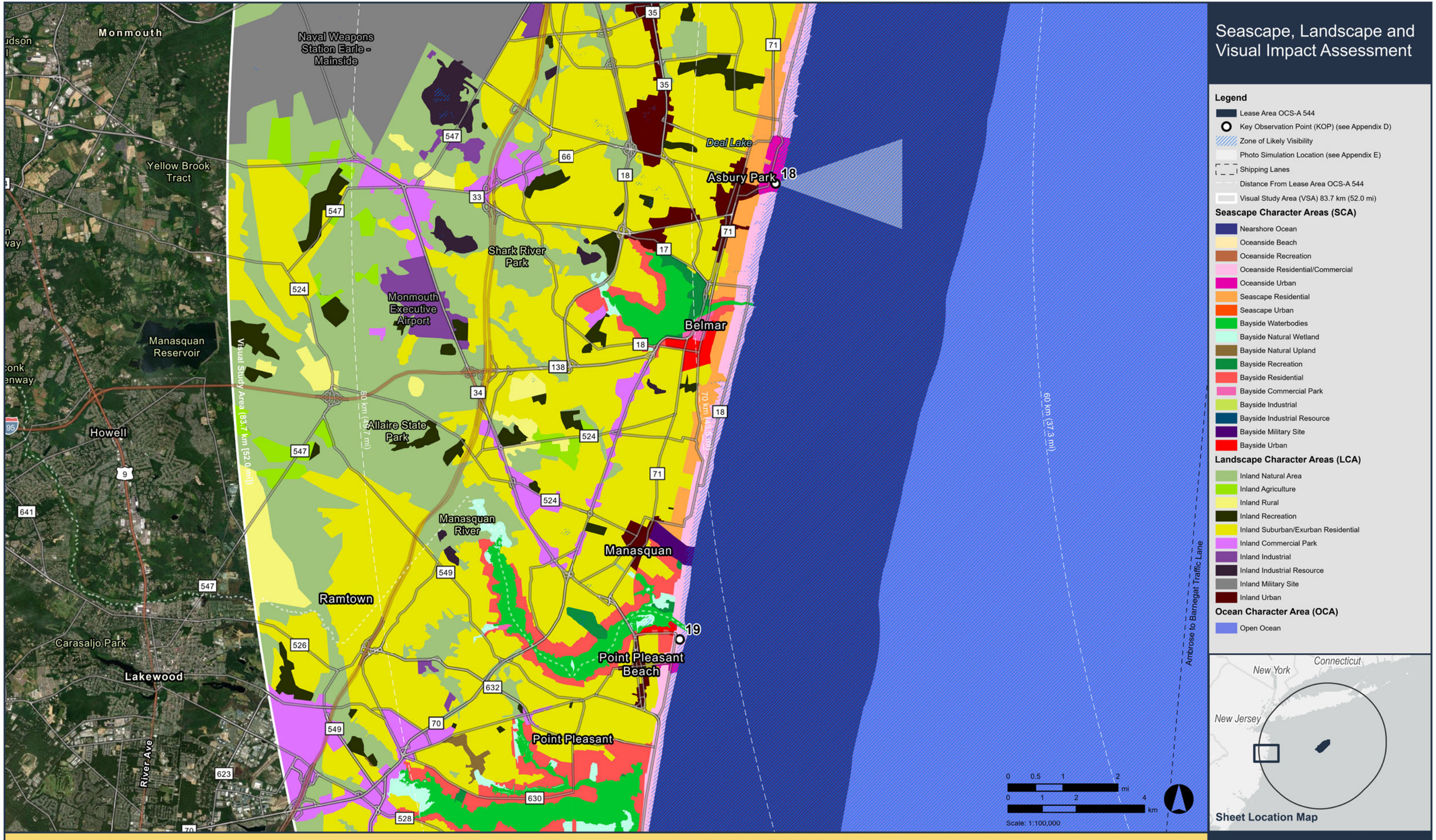
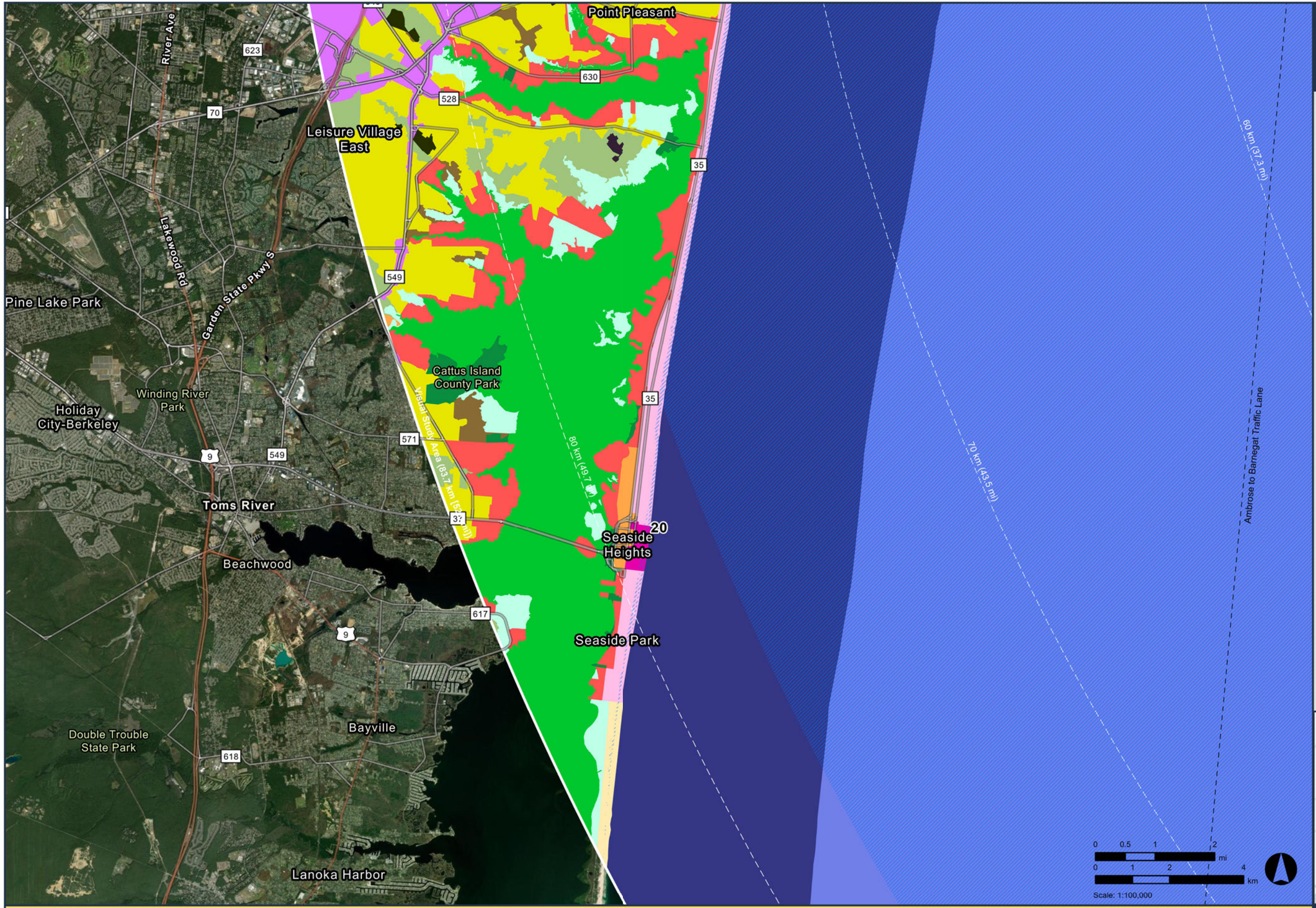


Figure B-8
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Zone of Likely Visibility
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Seascape Character Areas (SCA)

- Nearshore Ocean
- Oceanside Beach
- Oceanside Recreation
- Oceanside Residential/Commercial
- Oceanside Urban
- Seascape Residential
- Seascape Urban
- Bayside Waterbodies
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- Bayside Natural Upland
- Bayside Recreation
- Bayside Residential
- Bayside Commercial Park
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- Bayside Industrial Resource
- Bayside Military Site
- Bayside Urban

Landscape Character Areas (LCA)

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- Inland Agriculture
- Inland Rural
- Inland Recreation
- Inland Suburban/Exurban Residential
- Inland Commercial Park
- Inland Industrial
- Inland Industrial Resource
- Inland Military Site
- Inland Urban

Ocean Character Area (OCA)

- Open Ocean

Figure B-9
Seascape, Landscape, and Ocean Character Areas (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Appendix C

VISUALLY SENSITIVE RESOURCES (VSRs)

Seascape, Landscape and Visual Impact Assessment

Legend

- Wind Turbine Generator (WTG)/Electrical Service Platform (ESP) Positions
- Contingent WTG/ESP Positions*
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Lease Area OCS-A 0544
- Lease Area OCS-A 0512
- Other Lease Areas
- Shipping Lanes
- Distance From Lease Area OCS-A 0544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

Visually Sensitive Resources

- National Historic Landmark
- National Historic Site
- National Register of Historic Places
- State Fishing and Waterway Access
- Boardwalk Arcade
- Boardwalk/Oceanfront Trail
- State Bike Routes
- State Scenic Byway
- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

**Vineyard Mid-Atlantic will not develop these contingent WTG/ESP positions if the final Empire Wind 2 layout includes WTGs at immediately adjacent positions within Lease Area OCS-A 0512.*

0 5 10 20 mi

0 5 10 20 km

Scale: 1:800,000

Figure C-1

Visually Sensitive Resources (1:800,000 scale)

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

Visually Sensitive Resources

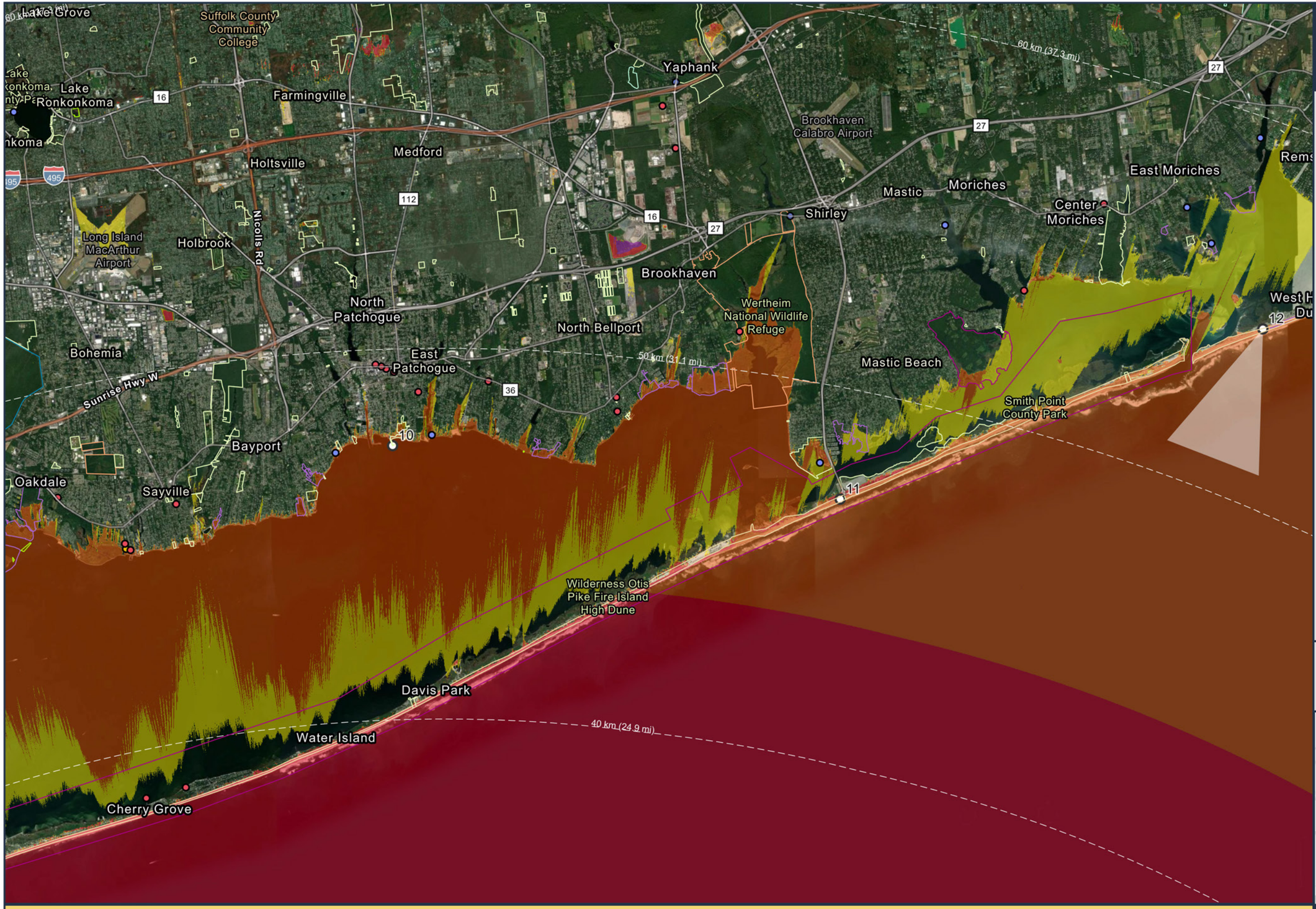
- National Historic Landmark
- National Historic Site
- National Register of Historic Places
- State Fishing and Waterway Access
- Boardwalk Arcade
- Boardwalk/Oceanfront Trail
- State Bike Routes
- State Scenic Byway
- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000

Figure C-2
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment



Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
- Area of Mid-Tower Visibility (102 m [335 ft] above MLLW)
- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

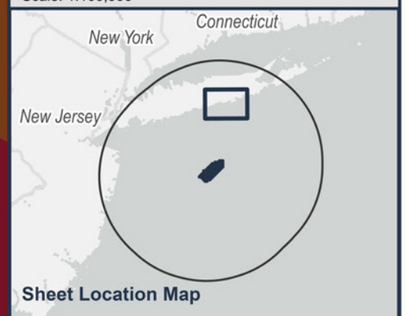
Visually Sensitive Resources

- National Historic Landmark
- National Historic Site
- National Register of Historic Places
- State Fishing and Waterway Access
- Boardwalk Arcade
- Boardwalk/Oceanfront Trail
- State Bike Routes
- State Scenic Byway
- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi

0 1 2 4 km

Scale: 1:100,000



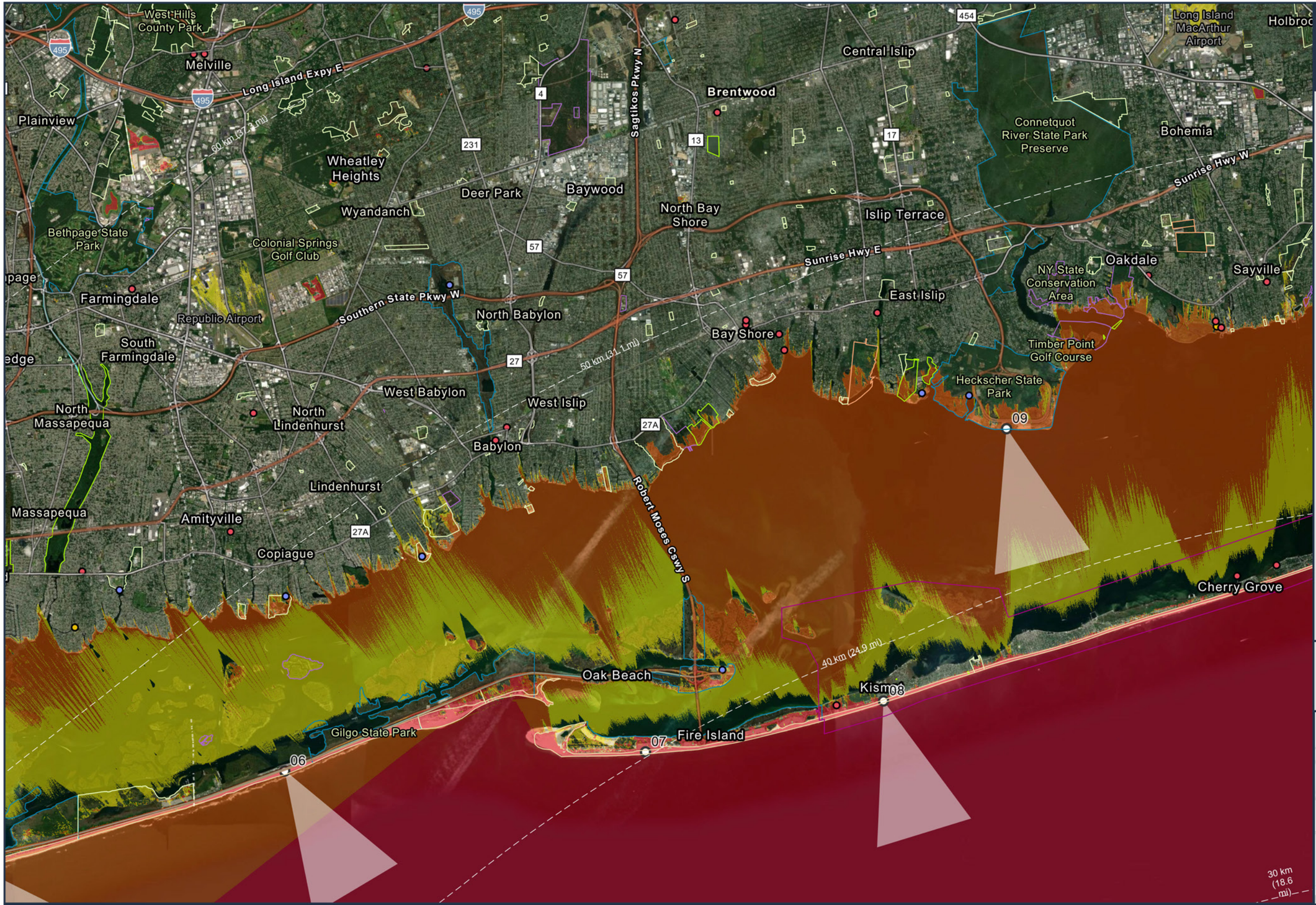
Sheet Location Map

Figure C-3
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment



Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

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Visually Sensitive Resources

- National Historic Landmark
- National Historic Site
- National Register of Historic Places
- State Fishing and Waterway Access
- Boardwalk Arcade
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- State Scenic Byway
- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi

0 1 2 4 km

Scale: 1:100,000

Sheet Location Map

Figure C-4
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

Zone of Likely Visibility

- Area of Top of Foundation Platform Visibility (35 m [115 ft] above Mean Lower Low Water [MLLW])
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- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
- Area of Blade Tip Visibility (355 m [1,165 ft] above MLLW)

Visually Sensitive Resources

- National Historic Landmark
- National Historic Site
- National Register of Historic Places
- State Fishing and Waterway Access
- Boardwalk Arcade
- Boardwalk/Oceanfront Trail
- State Bike Routes
- State Scenic Byway
- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi

0 1 2 4 km

Scale: 1:100,000

Sheet Location Map

Figure C-4
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
- Shipping Lanes
- Distance From Lease Area OCS-A 544
- Visual Study Area (VSA) 83.7 km (52.0 mi)

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- Area of Nacelle Top Visibility (203.5 m [668 ft] above MLLW)
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Visually Sensitive Resources

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- National Register of Historic Places
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- Boardwalk/Oceanfront Trail
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- State Scenic Byway
- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi

0 1 2 4 km

Scale: 1:100,000

Sheet Location Map

Figure C-5
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
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Visually Sensitive Resources

- National Historic Landmark
- National Historic Site
- National Register of Historic Places
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- State Scenic Byway
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- Municipal Parks
- National Recreation Area
- National Seashore
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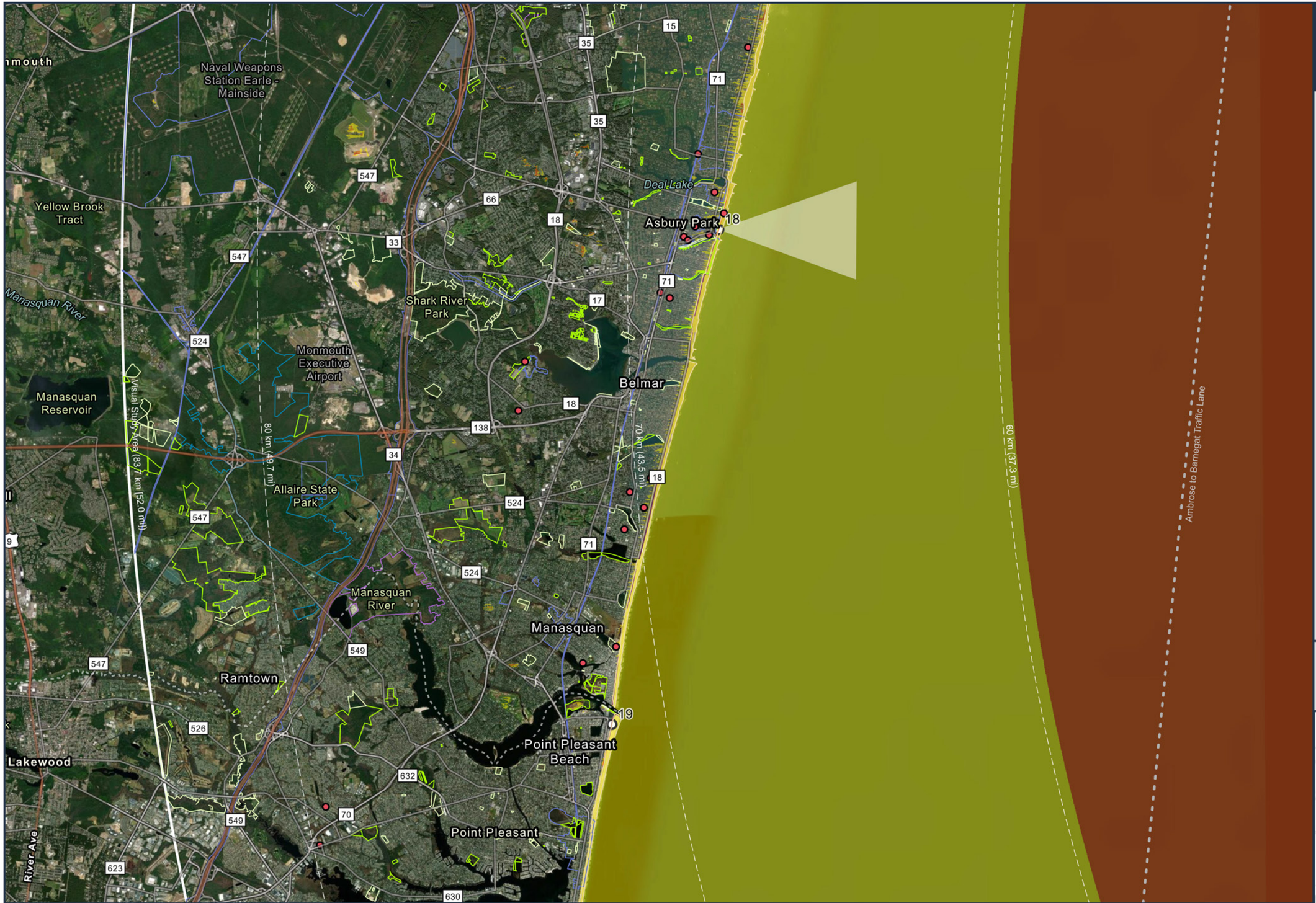
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000

Sheet Location Map

Figure C-6
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
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- State Scenic Byway
- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi

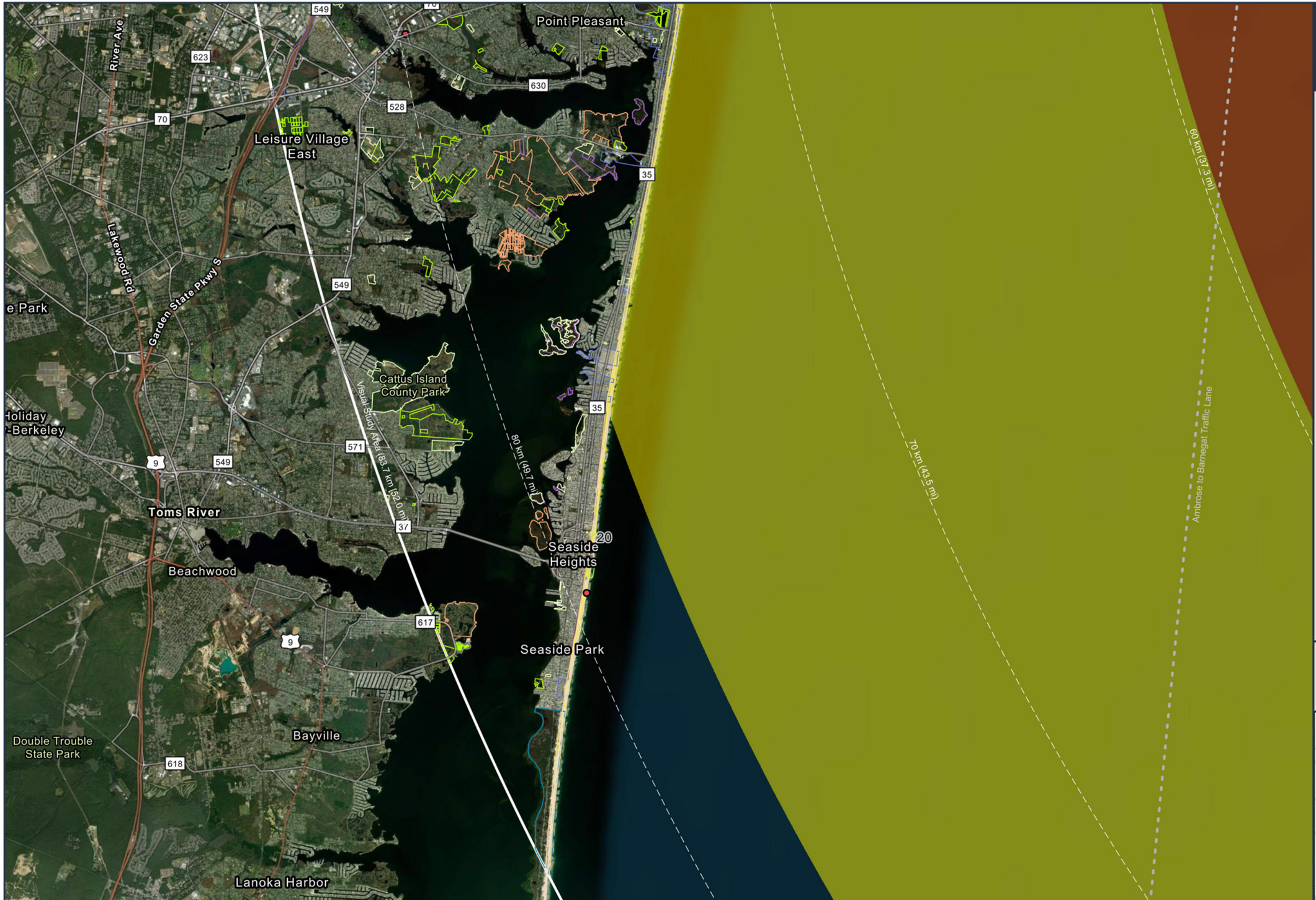
0 1 2 4 km

Scale: 1:100,000

Figure C-7
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE



Seascape, Landscape and Visual Impact Assessment

Legend

- Lease Area OCS-A 544
- Key Observation Point (KOP) (see Appendix D)
- Photo Simulation Location (see Appendix E)
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- Municipal Nature and Public Open Space
- Municipal Parks
- National Recreation Area
- National Seashore
- National Wildlife Refuge
- Ocean Beach
- State Forest
- State Historic Sites
- State Nature and Historic Preserve Areas
- State Parks

0 0.5 1 2 mi
0 1 2 4 km
Scale: 1:100,000

Sheet Location Map

Figure C-9
Visually Sensitive Resources (1:100,000 scale)

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Appendix D

KEY OBSERVATION POINT (KOP) PHOTO LOG

Existing Condition (124° x 27°± panorama view)

Photo Location Map

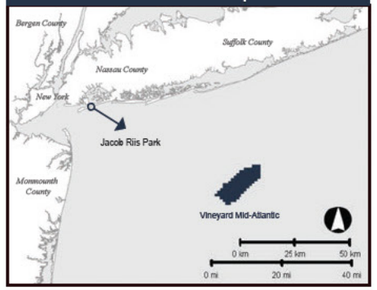


Photo Data

Date/Time:	23-May-2023 / 17:20
Light Conditions:	Front Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	44° 33' 57.79" N
Longitude:	73° 52' 08.87" W
Elevation (+/-):	4.9 m (16 ft)
Nearest WTG:	69.3 km (43 0 mi)
Farthest WTG:	82.7 km (51.4 mi)
A 0544 Horiz. Field-of-View:	16°
Vertical Field-of-View:	0.09°

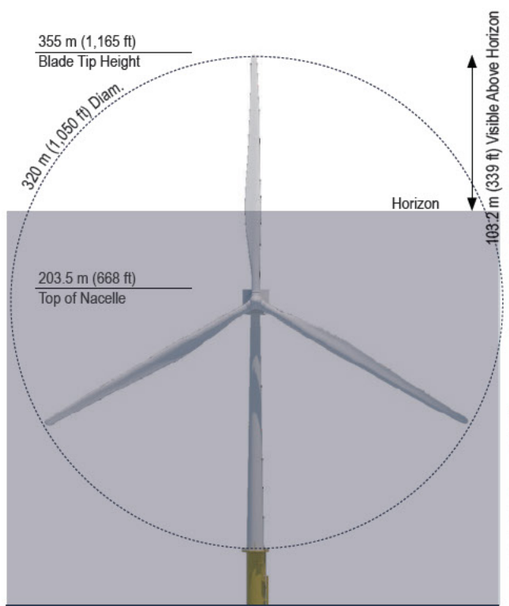
Meteorological Data

Temperature:	60°F
Humidity:	58%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Oceanside Recreation
Resource Type:	National Recreation Area Municipal Park/Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors

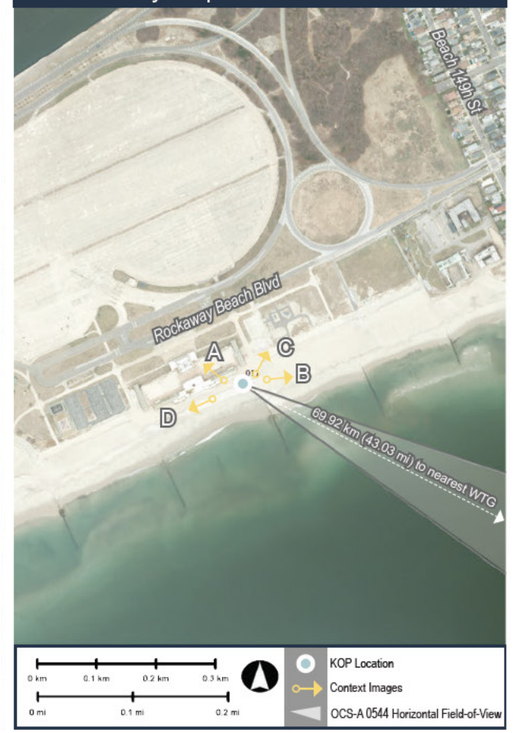
Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map



View Compass

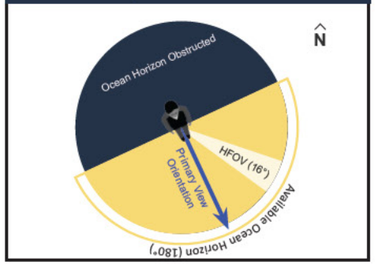


Figure D1
KOP 01: Jacob Riis Park - Gateway National Recreation Area
Borough of Queens, New York City, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

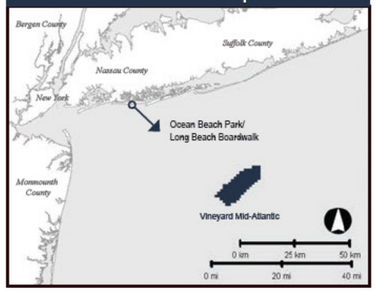


Photo Data

Date/Time:	03-Nov-2022 / 12:40
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 34' 58.36" N
Longitude:	73° 38' 58.54" W
Elevation (+/-):	6.4 m (21 ft)
Nearest WTG:	56.3 km (35 mi)
Farthest WTG:	67.0 km (41.6 mi)
A 0544 Horiz. Field-of-View:	21°
Vertical Field-of-View:	0.21°

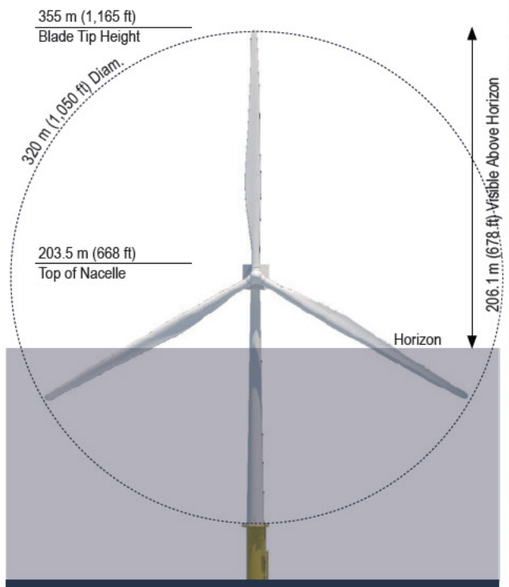
Meteorological Data

Temperature:	65°F
Humidity:	56%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Oceanside Urban
Resource Type:	Public Boardwalk Ocean Beach
Use Type:	Passive Recreation/Relaxation
Viewer Types:	Local residentis/workers Recreation oriented visitors

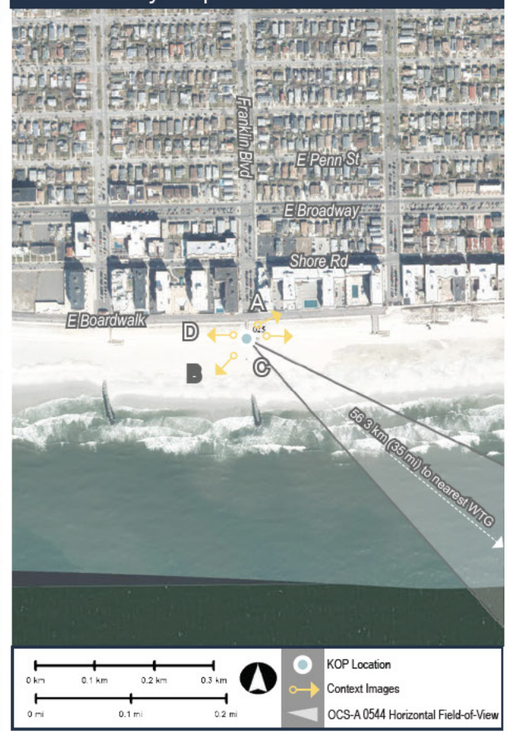
Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map



View Compass

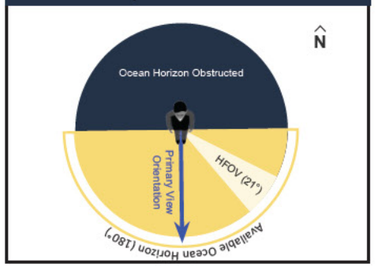


Figure D2
KOP 02: Ocean Beach Park/Long Beach Boardwalk
City of Long Beach, Nassau County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

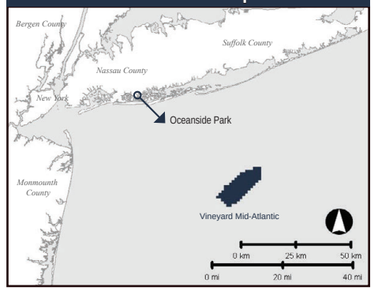


Photo Data

Date/Time:	24-May-2023 / 16:45
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 37' 04.03" N
Longitude:	73° 37' 28.86" W
Elevation (+/-):	4.3 m (14 ft)
Nearest WTG:	57.5 km (35.7 mi)
Farthest WTG:	67.3 km (41.8 mi)
A 0544 Horiz. Field-of-View:	19°
Vertical Field-of-View:	0.23°

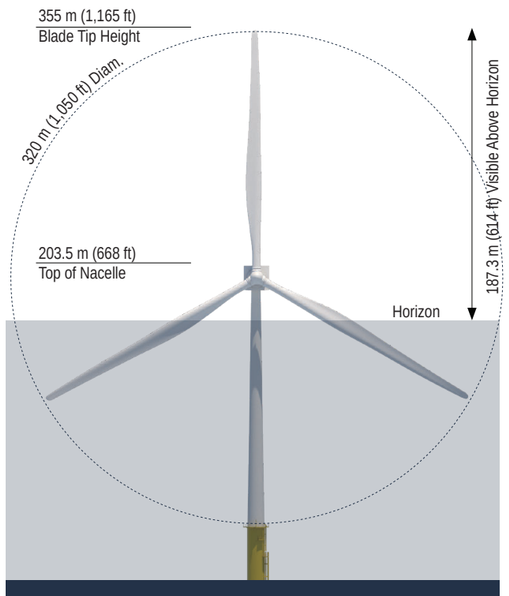
Meteorological Data

Temperature:	63°F
Humidity:	54%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Bayside Recreation
Resource Type:	Public Park Play Fields
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors

Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

View Compass

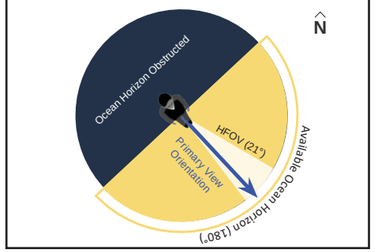


Figure D3
KOP 03: Oceanside Park
Town of Hempstead, Nassau County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

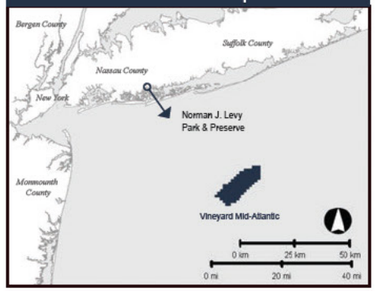


Photo Data

Date/Time:	24-May-2023 / 15:55
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 38' 47.12" N
Longitude:	73° 33' 46.22" W
Elevation (+/-):	35.7 m (117 ft)
Nearest WTG:	56.2 km (35.1 mi)
Farthest WTG:	65.0 km (40.4 mi)
A 0544 Horiz. Field-of-View:	22°
Vertical Field-of-View:	0.28°

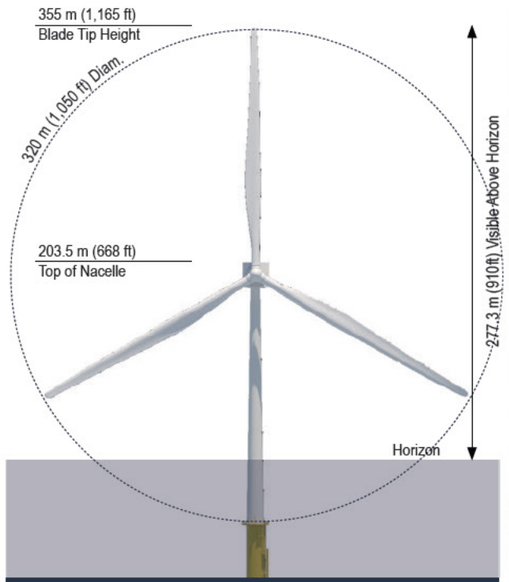
Meteorological Data

Temperature:	66°F
Humidity:	43%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

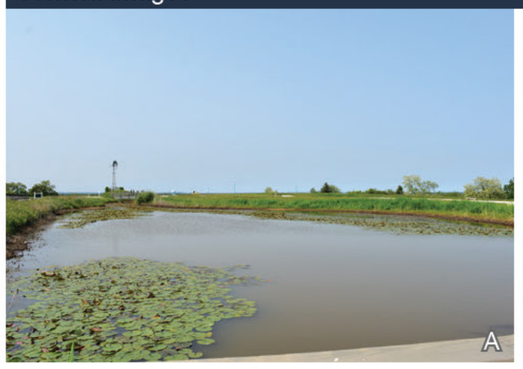
SCA/LCA:	Bayside Natural Upland
Resource Type:	County Park, Scenic Overlook Conservation Area
Use Type:	Passive Recreation/Relaxation Scenic enjoyment
Viewer Types:	Recreation oriented visitors Scenery oriented visitors

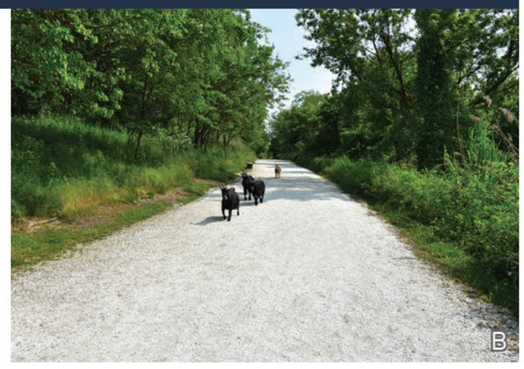
Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images





KOP Vicinity Map

View Compass

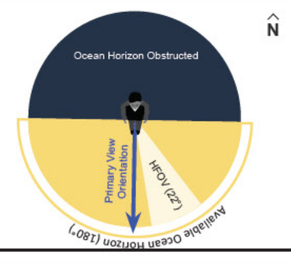


Figure D4
KOP 04: Norman J. Levy Park & Preserve
Town of Hempstead, Nassau County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

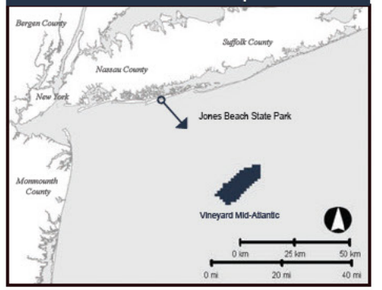


Photo Data

Date/Time:	23-May-2023 / 18:50
Light Conditions:	Back Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 35' 45.52" N
Longitude:	73° 29' 43.01" W
Elevation (+/-):	5.2 m (17 ft)
Nearest WTG:	48.8 km (30 3 mi)
Farthest WTG:	57.5 km (35.7 mi)
A 0544 Horiz. Field-of-View:	25°
Vertical Field-of-View:	0.29°

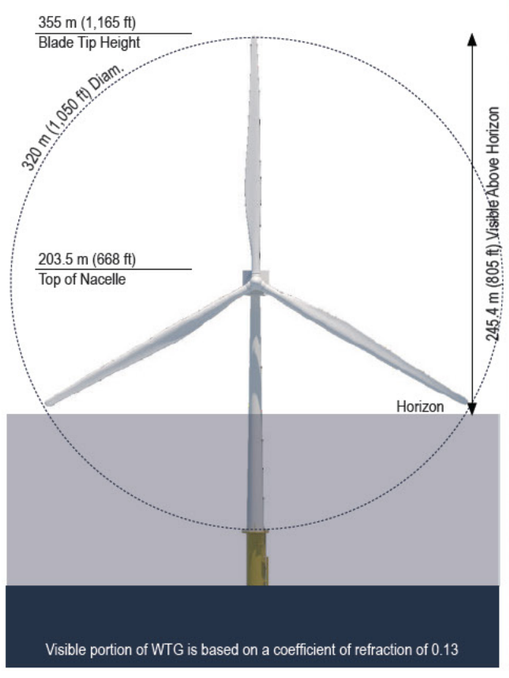
Meteorological Data

Temperature:	59°F
Humidity:	48%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

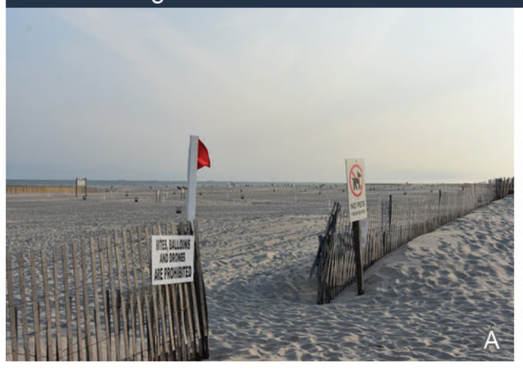
SCA/LCA:	Oceanside Recreation
Resource Type:	State Park Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors Scenery oriented visitors

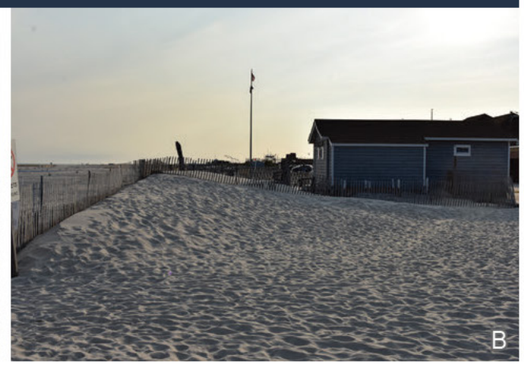
Visible Portion of Closest WTG



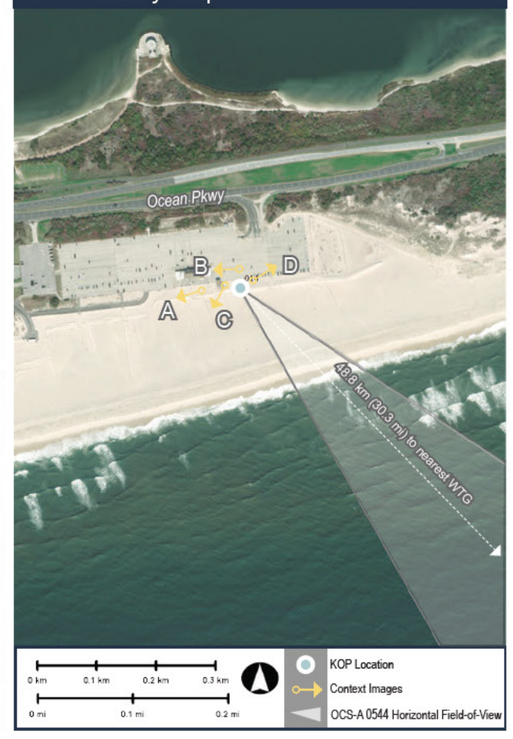
Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images





KOP Vicinity Map



View Compass

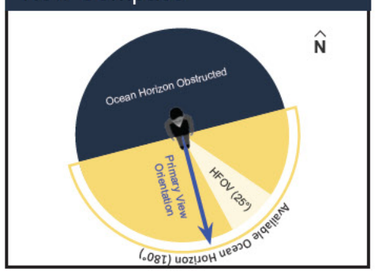


Figure D5
KOP 05: Jones Beach State Park (Field 6)
Town of Hempstead, Nassau County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

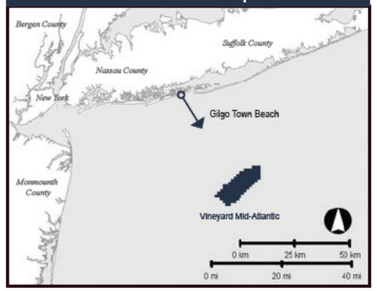


Photo Data

Date/Time:	24-May-2023 / 8:15
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 37' 04.72" N
Longitude:	73° 23' 41.67" W
Elevation (+/-):	7.6 m (25 ft)
Nearest WTG:	45.4 km (28 2 mi)
Farthest WTG:	55.3 km (34.4 mi)
A 0544 Horiz. Field-of-View:	27°
Vertical Field-of-View:	0.34°

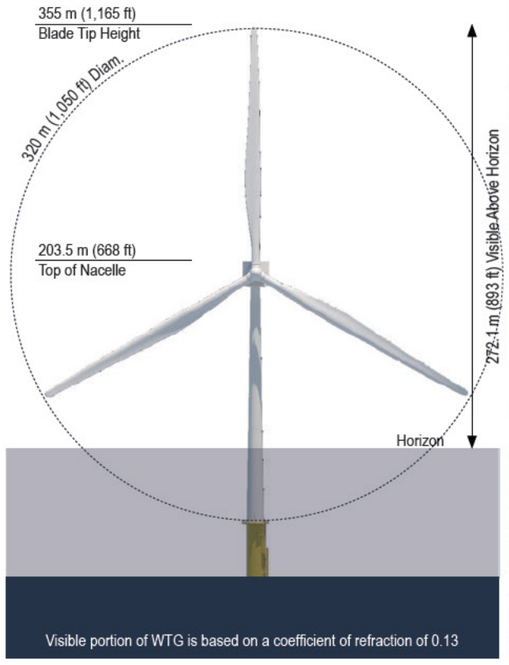
Meteorological Data

Temperature:	56°F
Humidity:	64%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

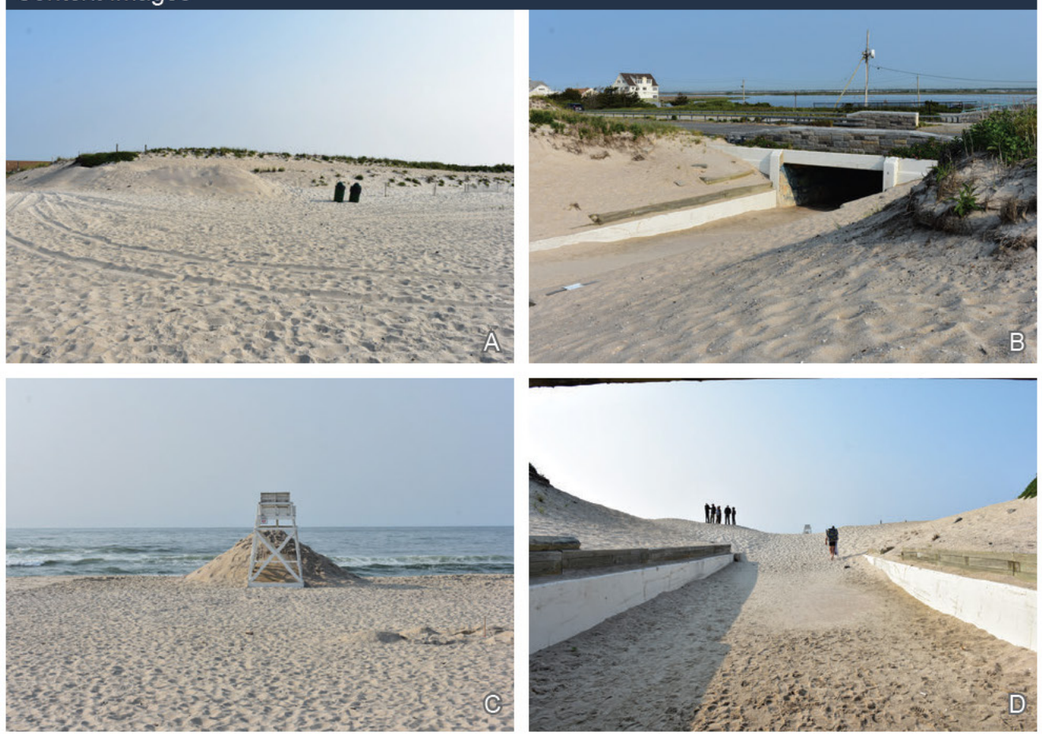
SCA/LCA:	Oceanside Residential/Commercial
Resource Type:	Municipal Park Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors Scenery oriented visitors

Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images



KOP Vicinity Map

View Compass

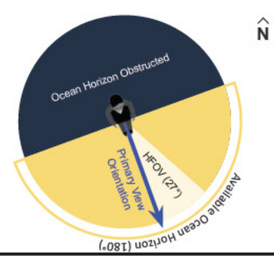


Figure D6
KOP 06: Gilgo Town Beach
Town of Babylon, Suffolk Coutny, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

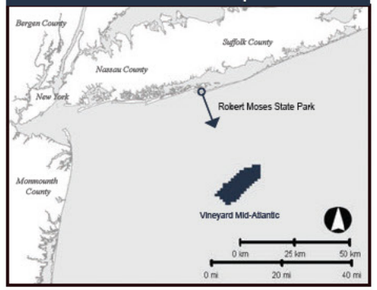


Photo Data

Date/Time:	24-May-2023 / 10:05
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 37' 17.27" N
Longitude:	73° 16' 46.91" W
Elevation (+/-):	4.9 m (16 ft)
Nearest WTG:	40.2 km (25 mi)
Farthest WTG:	52.1 km (32 3 mi)
A 0544 Horiz. Field-of-View:	30°
Vertical Field-of-View:	0.41°

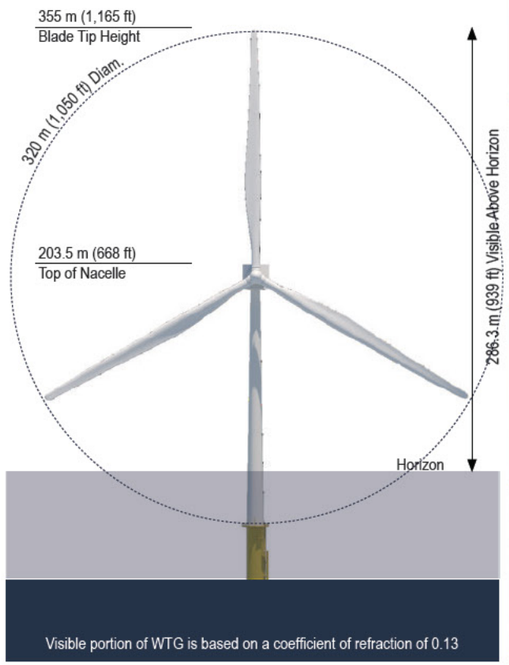
Meteorological Data

Temperature:	62°F
Humidity:	50%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Oceanside Recreation
Resource Type:	State Park Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors Scenery oriented visitors

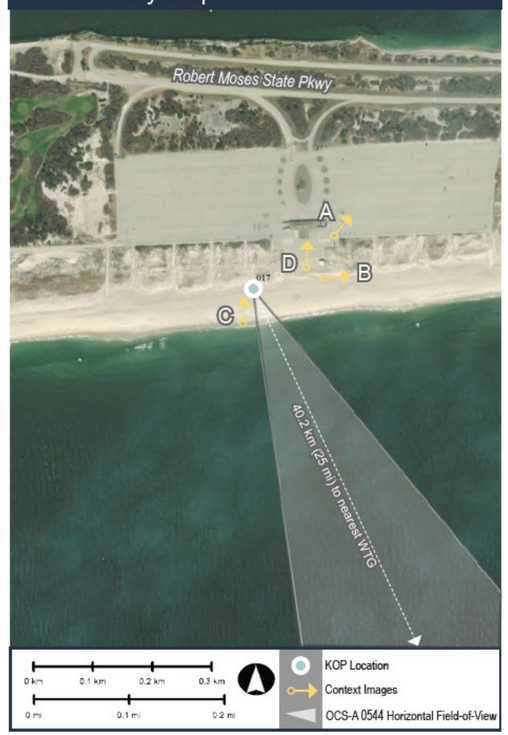
Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map



View Compass

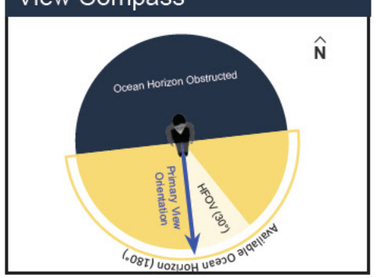


Figure D7
KOP 07: Robert Moses State Park (Field 2)
Town of Islip, Suffolk County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

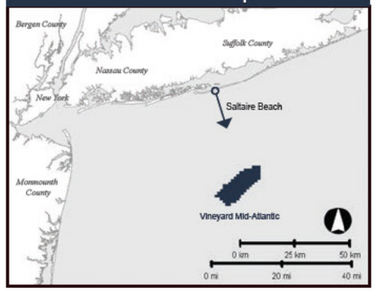


Photo Data

Date/Time:	24-May-2023 / 9:15
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 37' 58.88" N
Longitude:	73° 12' 12.65" W
Elevation (+/-):	4.0 m (13 ft)
Nearest WTG:	38.8 km (24.1 mi)
Farthest WTG:	52.2 km (32.4 mi)
A 0544 Horiz. Field-of-View:	30°
Vertical Field-of-View:	0.43°

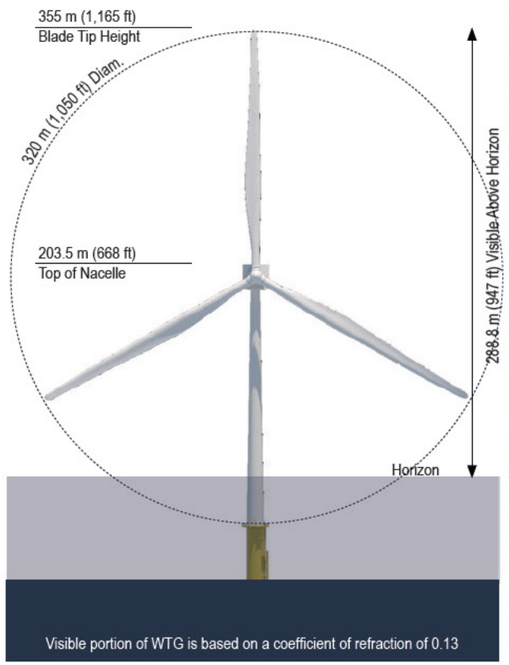
Meteorological Data

Temperature:	56°F
Humidity:	53%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Oceanside Residential/Commercial
Resource Type:	National Seashore Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Seasonal Residents/Vacationers Recreation oriented visitors

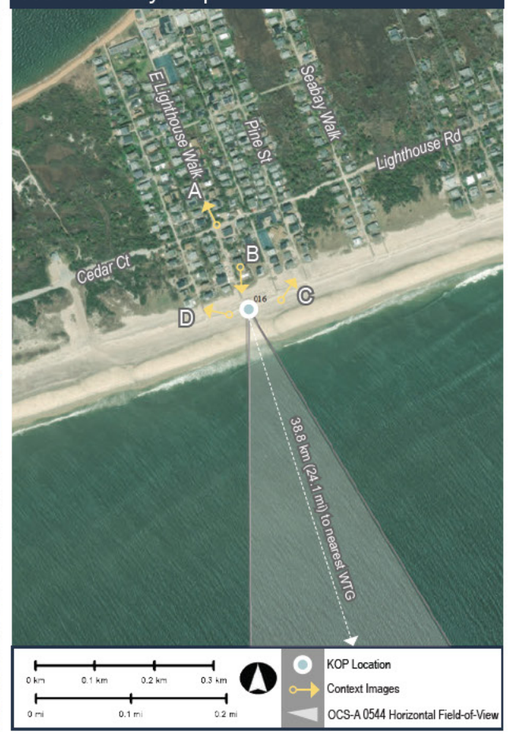
Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map



View Compass

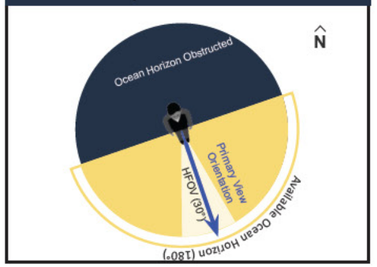


Figure D8
KOP 08: Saltaire Beach (Fire Island National Seashore)
Fire Island, Town of Islip, Suffolk County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

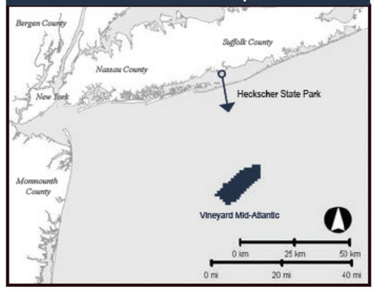


Photo Data

Date/Time:	24-May-2023 / 14:35
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 41' 55.38" N
Longitude:	73° 09' 46.57" W
Elevation (+/-):	3.0 m (10 ft)
Nearest WTG:	44.2 km (27 5 mi)
Farthest WTG:	59.9 km (37 2 mi)
A 0544 Horiz. Field-of-View:	24°
Vertical Field-of-View:	0.33°

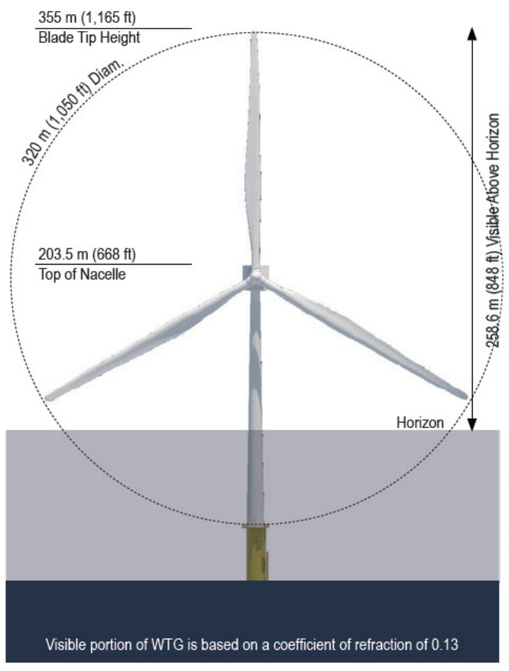
Meteorological Data

Temperature:	68°F
Humidity:	43%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Bayside Recreation
Resource Type:	State Park Bay Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors Scenery oriented visitors

Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

View Compass

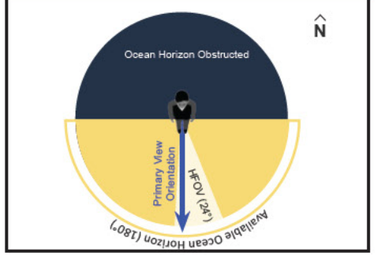


Figure D9
KOP 09: Heckscher State Park
Town of Islip, Suffolk County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

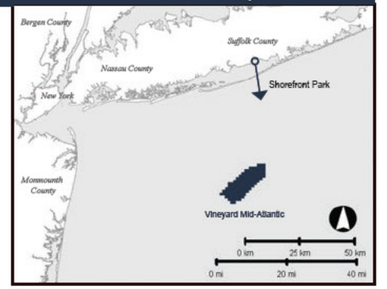


Photo Data

Date/Time:	24-May-2023 / 13:50
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 44' 48.25" N
Longitude:	73° 00' 34.28" W
Elevation (+/-):	3.0 m (10 ft)
Nearest WTG:	47.4 km (29.4 mi)
Farthest WTG:	65.4 km (40.6 mi)
A 0544 Horiz. Field-of-View:	19°
Vertical Field-of-View:	0.29°

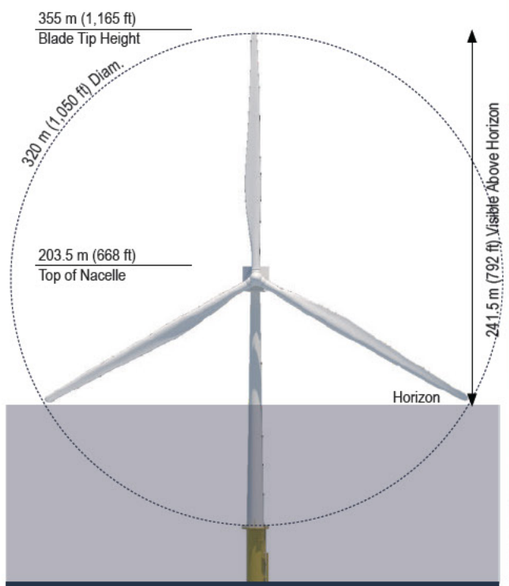
Meteorological Data

Temperature:	68°F
Humidity:	26%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Bayside Recreation
Resource Type:	Municipal Park Scenic Overlook
Use Type:	Passive Recreation/Relaxation
Viewer Types:	Local Residents/Workers Recreation oriented visitors

Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

View Compass

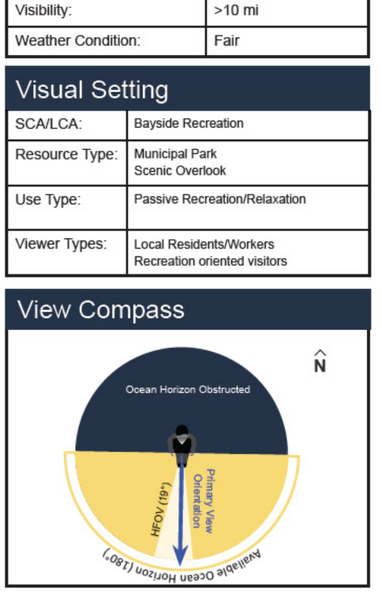


Figure D10
KOP 10: Shorefront Park
Village of Patchogue, Suffolk County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

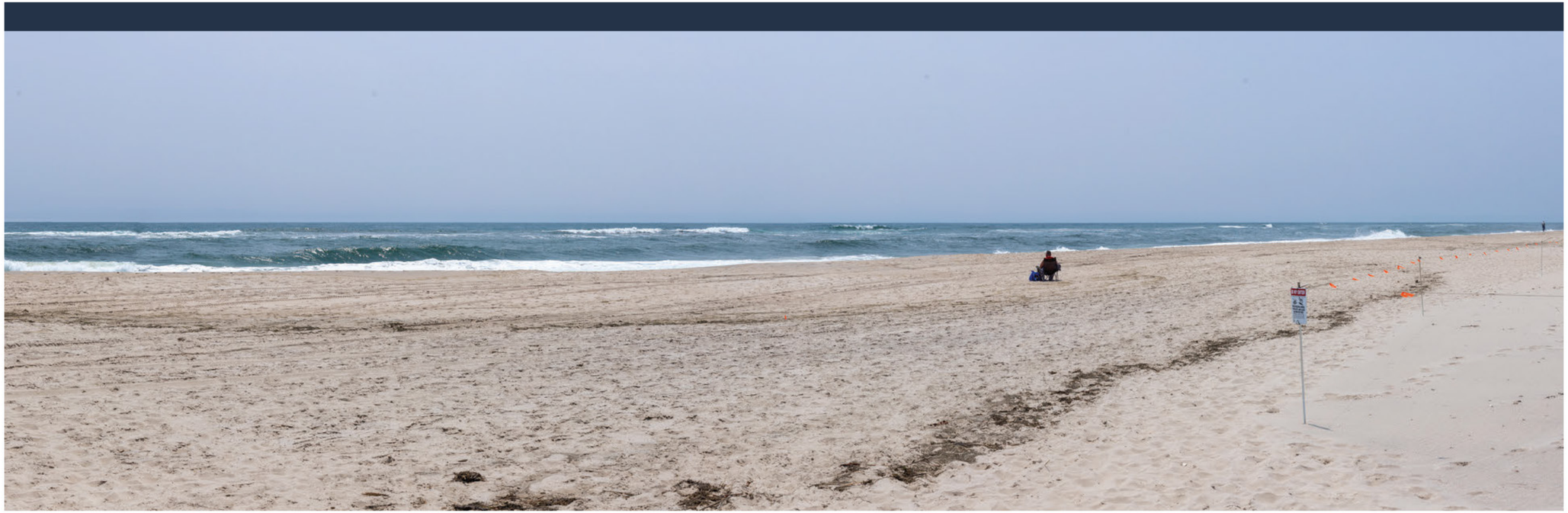


Photo Location Map

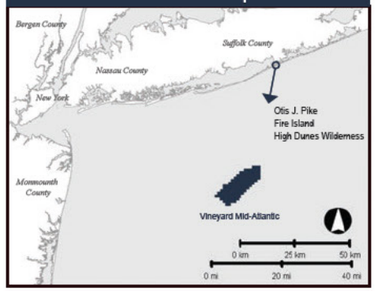


Photo Data

Date/Time:	24-May-2023 / 13:10
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 43' 54.46" N
Longitude:	72° 52' 00.35" W
Elevation (+/-):	3.7 m (12 ft)
Nearest WTG:	47.1 km (29 3 mi)
Farthest WTG:	67.1 km (41.7 mi)
A 0544 Horiz. Field-of-View:	17°
Vertical Field-of-View:	0.30°

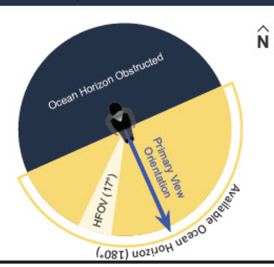
Meteorological Data

Temperature:	67°F
Humidity:	36%
Visibility:	>10 mi
Weather Condition:	Fair

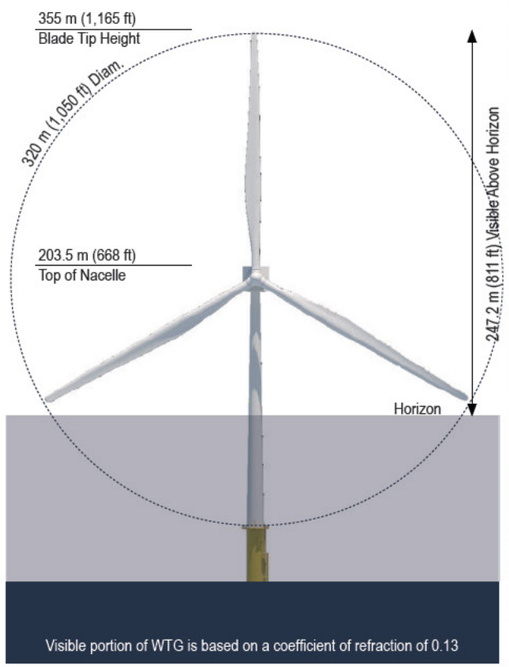
Visual Setting

SCA/LCA:	Oceanside Beach
Resource Type:	National Seashore Ocean Beach
Use Type:	Active/Passive Recreation Scenery Oriented Visitors
Viewer Types:	Recreation oriented visitors Scenery/heritage oriented visitors

View Compass



Visible Portion of Closest WTG



Context Images

KOP Vicinity Map

Figure D11
KOP 11: Otis J. Pike Fire Island Dune Wilderness - Fire Island National Seashore
Town of Brookhaven, Suffolk County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

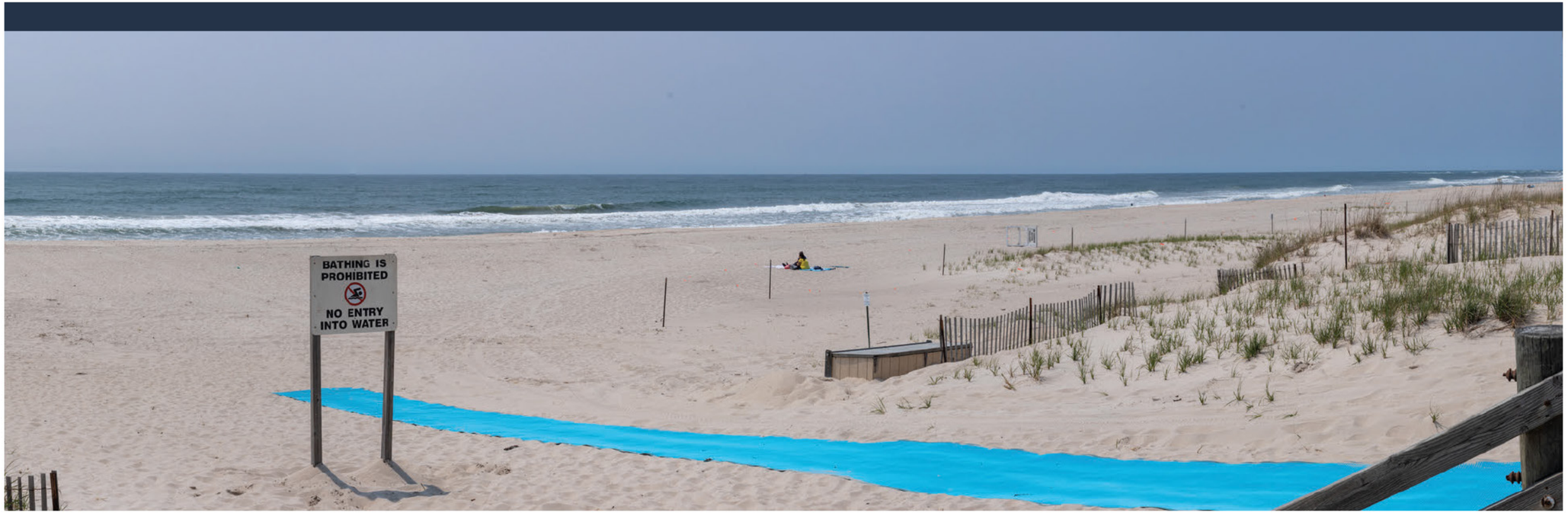


Photo Location Map

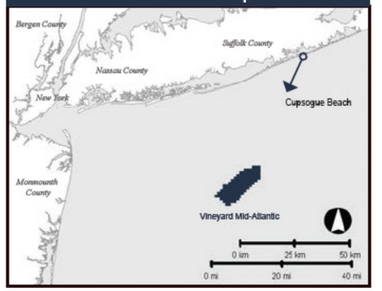


Photo Data

Date/Time:	24-May-2023 / 12:00
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 46' 16.24" N
Longitude:	72° 43' 50.16" W
Elevation (+/-):	7.3 m (24 ft)
Nearest WTG:	54.7 km (34 0 mi)
Farthest WTG:	76.0 km (47 3 mi)
A 0544 Horiz. Field-of-View:	13°
Vertical Field-of-View:	0.23°

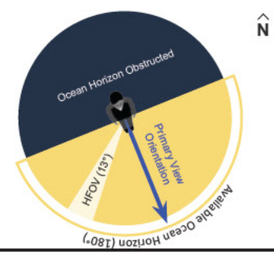
Meteorological Data

Temperature:	67°F
Humidity:	45%
Visibility:	>10 mi
Weather Condition:	Fair

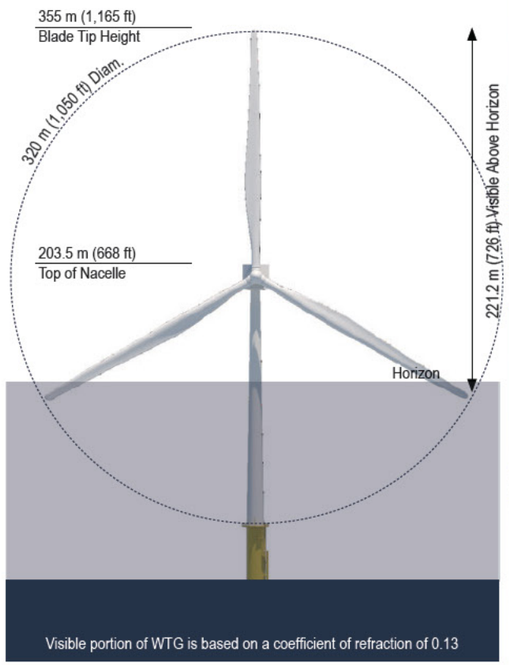
Visual Setting

SCA/LCA:	Oceanside Beach
Resource Type:	Municipal Park Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors Scenery oriented visitors

View Compass



Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

Figure D12

KOP 12: Cupsogue Beach County Park
Village of Westhampton Beach, Suffolk County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

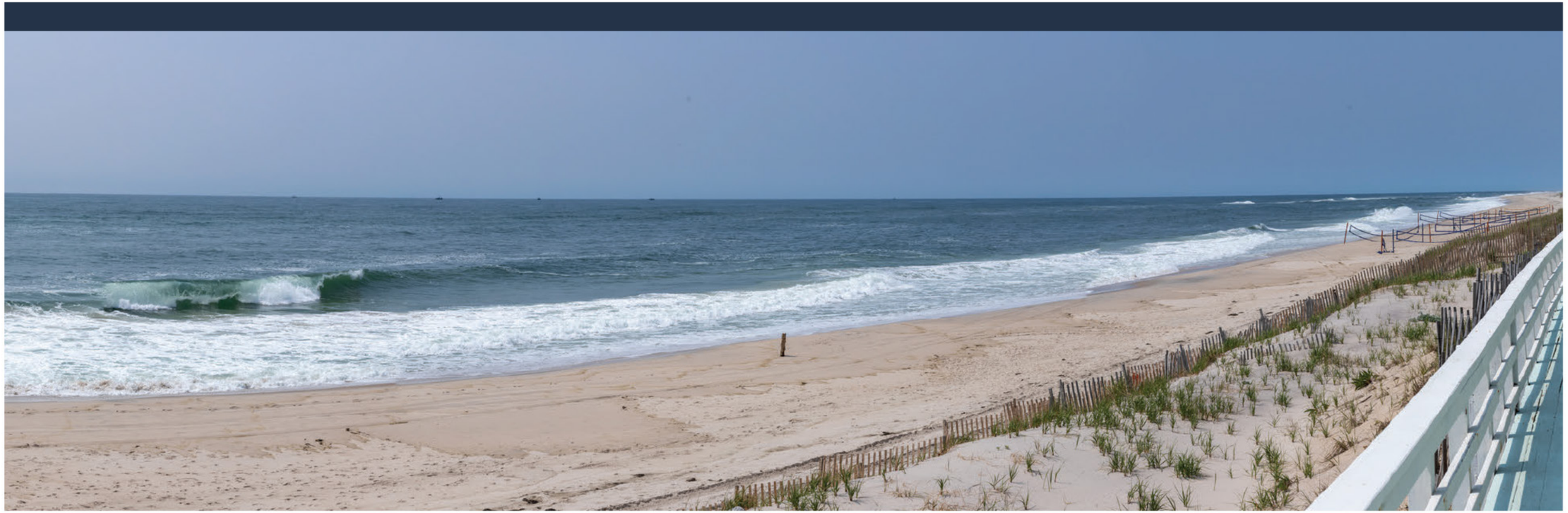


Photo Location Map

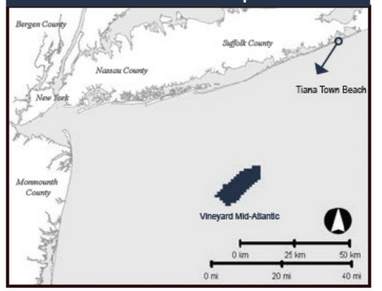


Photo Data

Date/Time:	24-May-2023 / 11:25
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 49' 36.13" N
Longitude:	72° 31' 47.25" W
Elevation (+/-):	8.2 m (27 ft)
Nearest WTG:	68.1 km (42 3 mi)
Farthest WTG:	90.5 km (56 2 mi)
A 0544 Horiz. Field-of-View:	9°
Vertical Field-of-View:	0.11°

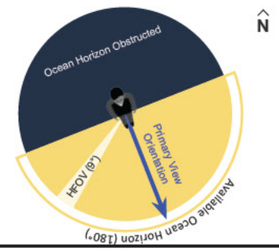
Meteorological Data

Temperature:	67°F
Humidity:	40%
Visibility:	>10 mi
Weather Condition:	Fair

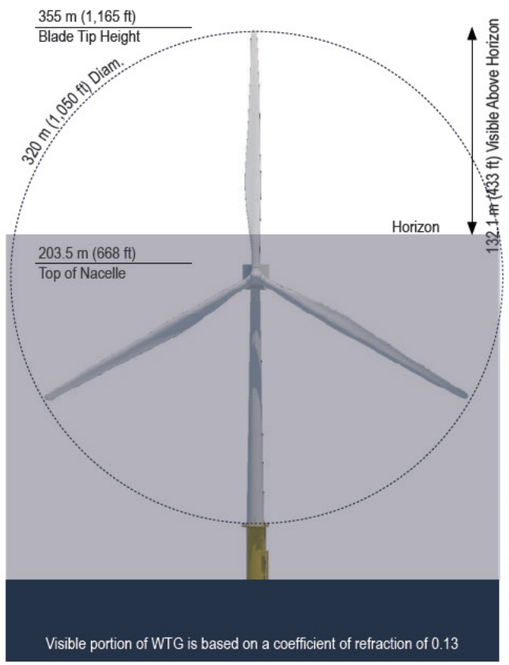
Visual Setting

SCA/LCA:	Oceanside Beach
Resource Type:	Municipal Park Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relaxation
Viewer Types:	Recreation oriented visitors Scenery oriented visitors

View Compass

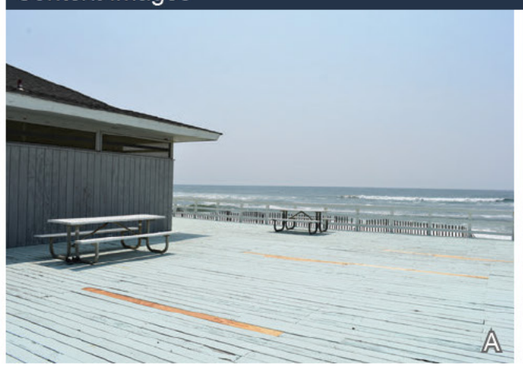


Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images



KOP Vicinity Map

Figure D13
KOP 13: Tiana Town Beach
Town of Southampton, Suffolk County, NY

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Photo Location Map

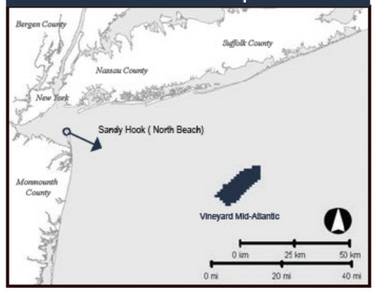


Photo Data

Date/Time:	23-May-2023 / 15:15
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 28' 04.53" N
Longitude:	73° 59' 50.82" W
Elevation (+/-):	7.9 m (26 ft)
Nearest WTG:	73.9 km (45.6 mi)
Farthest WTG:	89.7 km (55.7 mi)
A 0544 Horiz. Field-of-View:	14°
Vertical Field-of-View:	0.07°

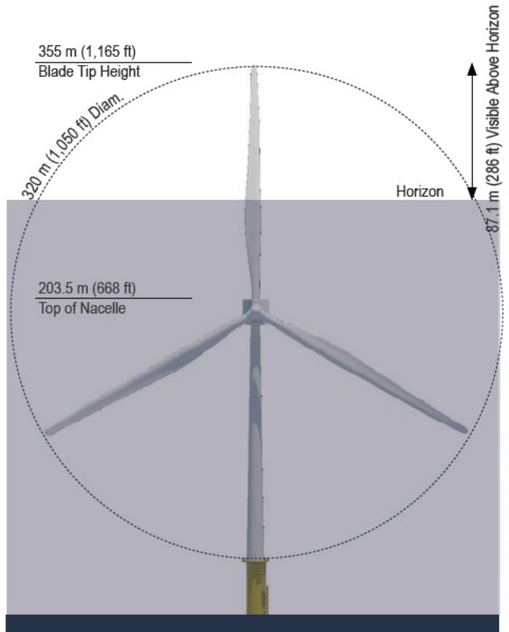
Meteorological Data

Temperature:	61°F
Humidity:	62%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Oceanside Beach
Resource Type:	National Recreation Area Ocean Beach
Use Type:	Active/Passive Recreation Scenic/Cultural Tourism
Viewer Types:	Recreation oriented visitors Scenery/heritage oriented visitors

Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

View Compass

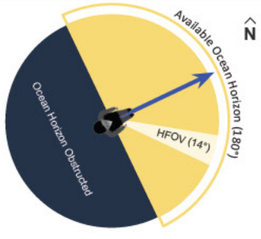


Figure D14
KOP 14: Sandy Hook (North Beach) - Gateway National Recreation Area
Township of Middletown, Monmouth County, NJ

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

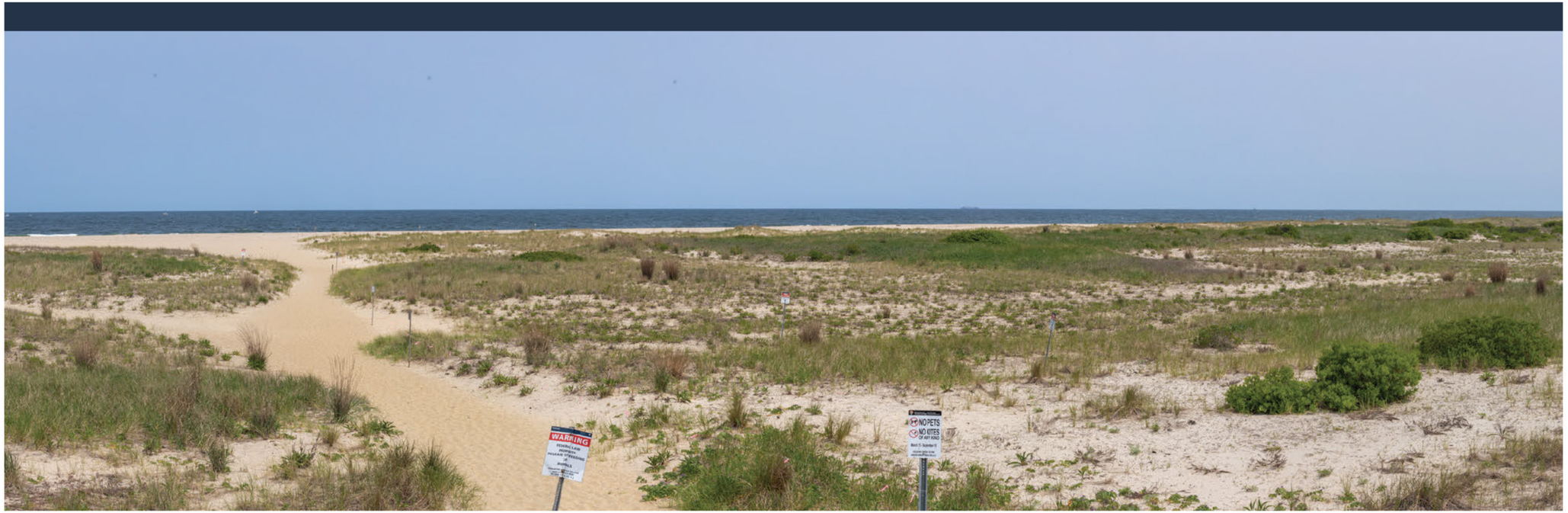


Photo Location Map

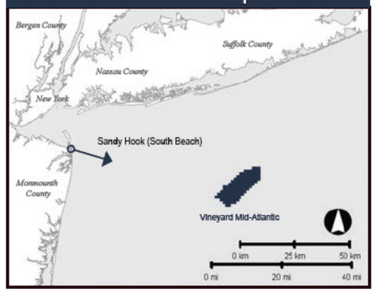


Photo Data

Date/Time:	23-May-2023 / 14:50
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 24' 21.47" N
Longitude:	73° 58' 40.06" W
Elevation (+/-):	7.3 m (24 ft)
Nearest WTG:	69.4 km (43.1mi)
Farthest WTG:	86.5 km (53 8 mi)
A 0544 Horiz. Field-of-View:	14°
Vertical Field-of-View:	0.10°

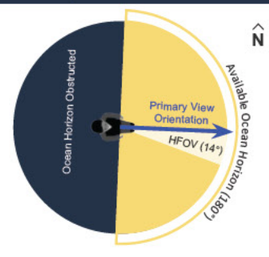
Meteorological Data

Temperature:	61°F
Humidity:	62%
Visibility:	>10 mi
Weather Condition:	Fair

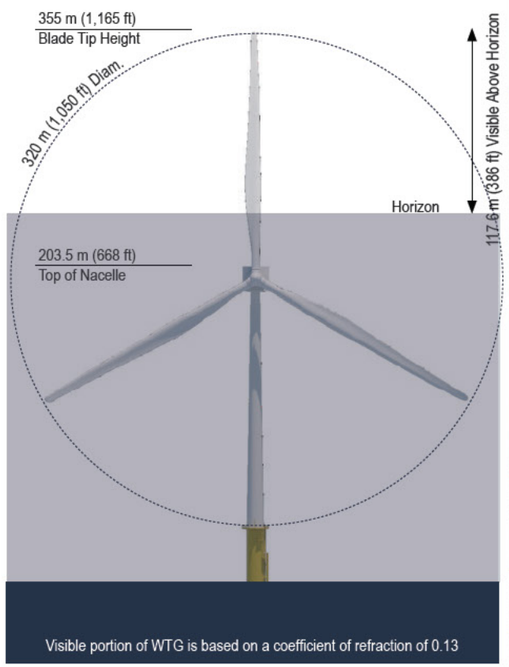
Visual Setting

SCA/LCA:	Oceanside Beach
Resource Type:	National Recreation Area Ocean Beach
Use Type:	Active/Passive Recreation Scenic/Cultural Tourism
Viewer Types:	Recreation oriented visitors Scenery/heritage oriented visitors

View Compass



Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

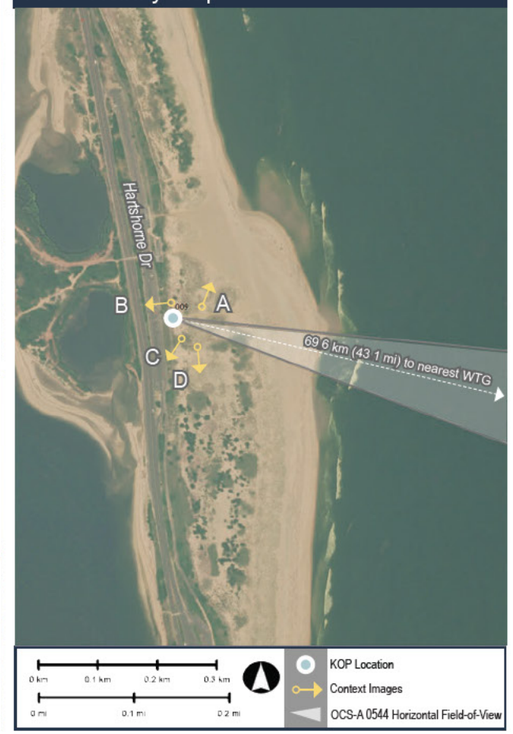


Figure D15

KOP 15: Sandy Hook National Recreation Area (South Beach)
Township of Middletown, Monmouth County, NJ

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Photo Location Map

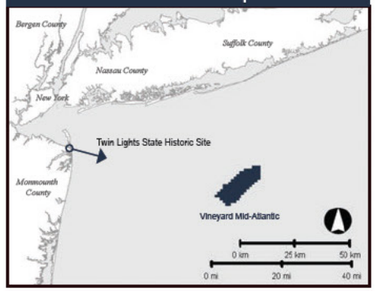


Photo Data

Date/Time:	23-May-2023 / 14:20
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 23' 45.51" N
Longitude:	73° 59' 07.28" W
Elevation (+/-):	63.7 m (209 ft)
Nearest WTG:	69.6 km (43 3 mi)
Farthest WTG:	87.0 km (54.1 mi)
A 0544 Horiz. Field-of-View:	14°
Vertical Field-of-View:	0.21°

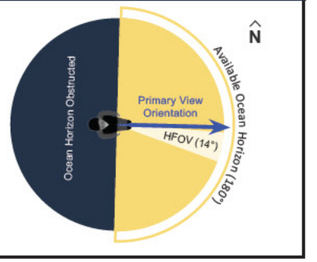
Meteorological Data

Temperature:	61°F
Humidity:	62%
Visibility:	>10 mi
Weather Condition:	Fair

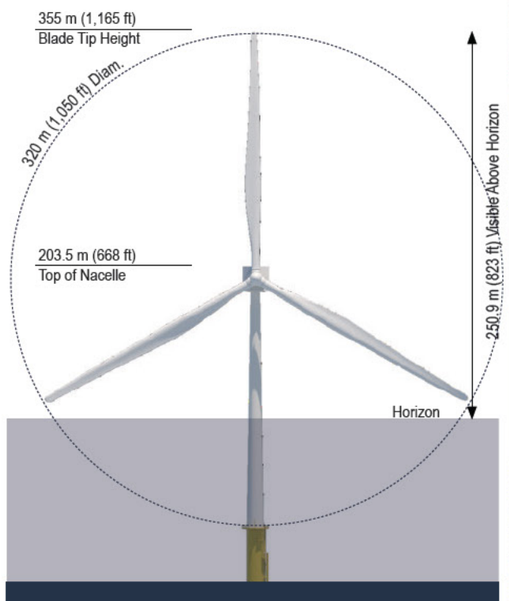
Visual Setting

SCA/LCA:	Bayside Recreation
Resource Type:	State Historic Site Scenic Overlook
Use Type:	Scenic/Cultural Tourism Passive Recreation/Relaxation
Viewer Types:	Heritage oriented visitors Sceniery oriented visitors

View Compass



Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

Figure D16
KOP 16: Twin Lights State Historic Site
Borough of Highlands, Monmouth County, NJ

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Existing Condition (124° x 27°± panorama view)

Photo Location Map

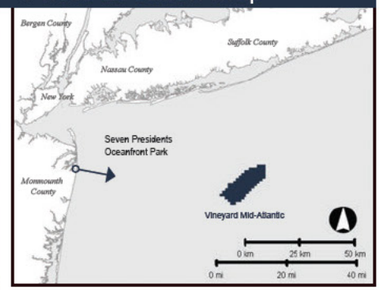


Photo Data

Date/Time:	23-May-2023 / 13:40
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 19' 00.74" N
Longitude:	73° 58' 35.31" W
Elevation (+/-):	5.2 m (17 ft)
Nearest WTG:	66.7 km (41 5mi)
Farthest WTG:	85.2 km (53 0 mi)
A 0544 Horiz. Field-of-View:	14°
Vertical Field-of-View:	0.10°

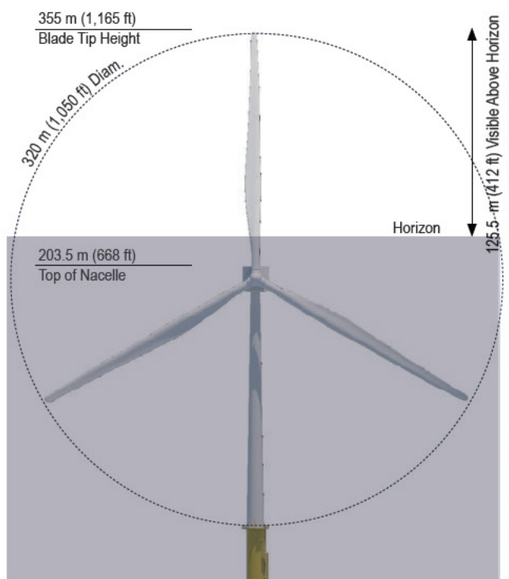
Meteorological Data

Temperature:	62°F
Humidity:	60%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

SCA/LCA:	Oceanside Recreation
Resource Type:	Municipal Park Ocean Beach
Use Type:	Active Recreation Passive Recreation/Relazation
Viewer Types:	Recreation oriented visitors Local residents/workers

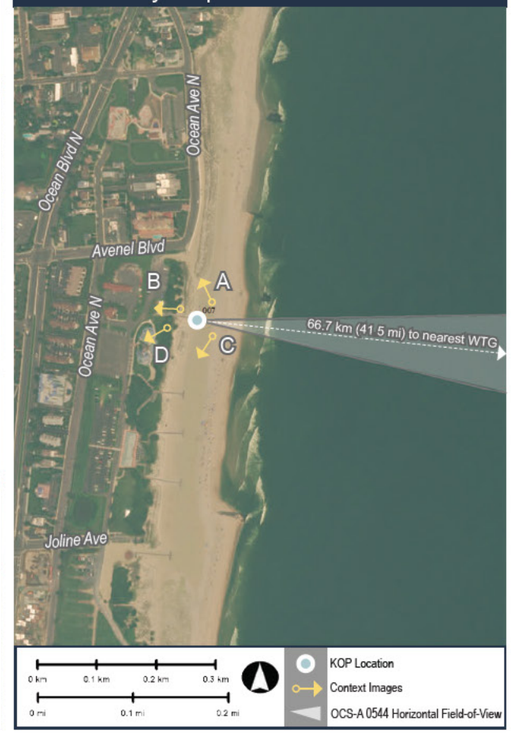
Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map



View Compass

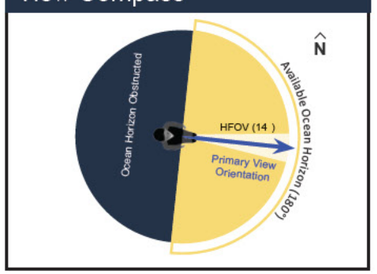
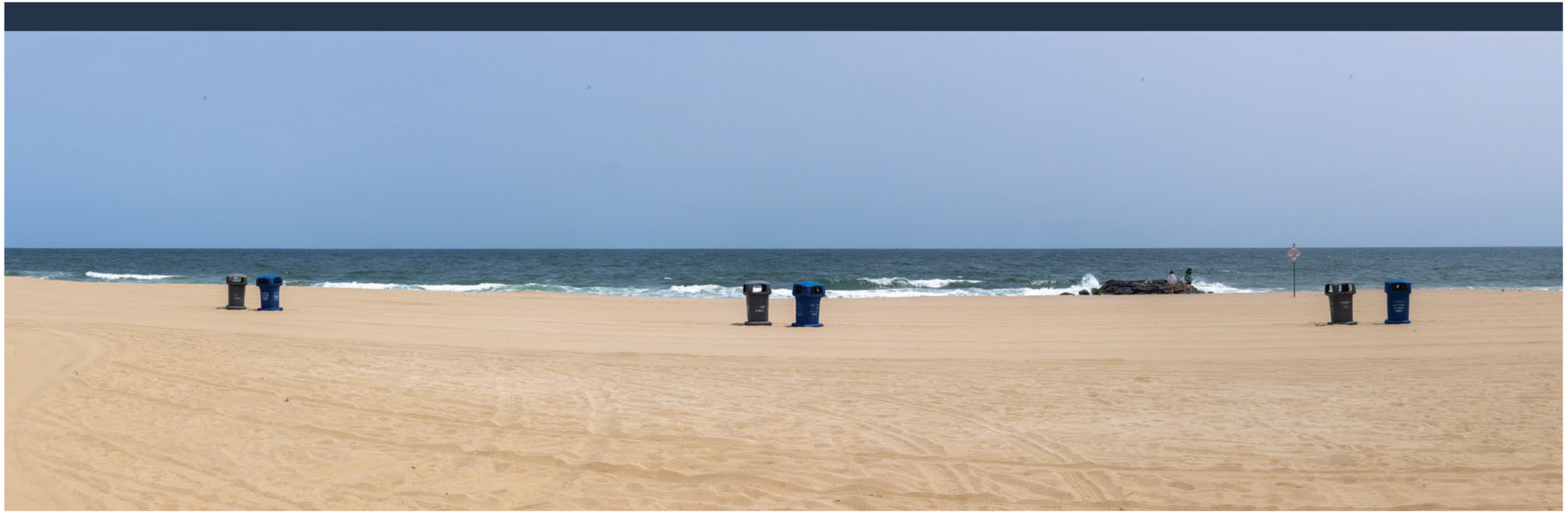


Figure D17
KOP 17: Seven Presidents Oceanfront Park
City of Long Branch, Monmouth County, NJ

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



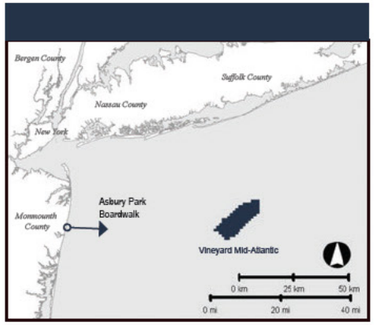


Photo Data

Date/Time:	23-May-2023 / 12:50
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 13' 08.51" N
Longitude:	74° 00' 00.52" W
Elevation (+/-):	5.8 m (19 ft)
Nearest WTG:	67.6 km (42 0 mi)
Farthest WTG:	88.0 km (54.7 mi)
A 0544 Horiz. Field-of-View:	12°
Vertical Field-of-View:	0.10°

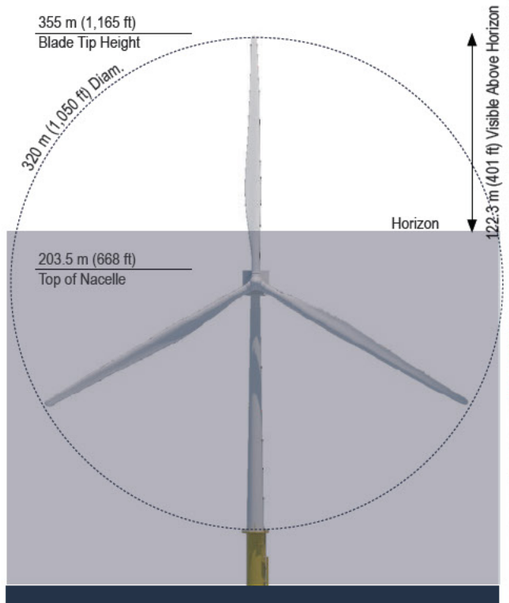
Meteorological Data

Temperature:	64°F
Humidity:	56%
Visibility:	>10 mi
Weather Condition:	Fair

Visual Setting

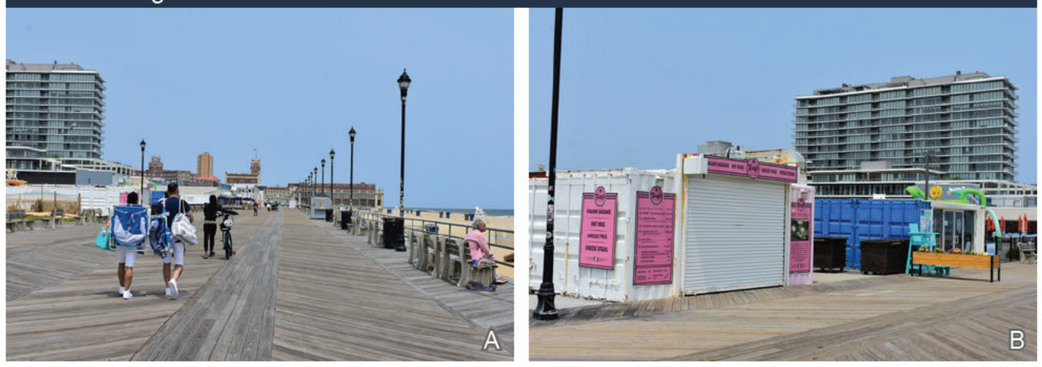
SCA/LCA:	Oceanside Urban
Resource Type:	Public Boardwalk/Arcade Ocean Beach
Use Type:	Family Entertainment Passive Recreation/Relaxation
Viewer Types:	Entertainment oriented vistors Vacationers

Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images



KOP Vicinity Map

View Compass

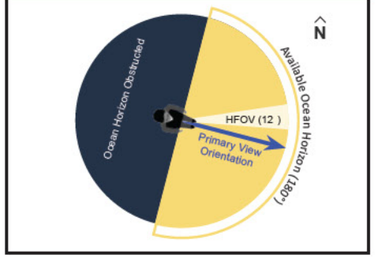


Figure D18
KOP 18: Asbury Park Boardwalk
City of Asbury Park, Monmouth County, NJ

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

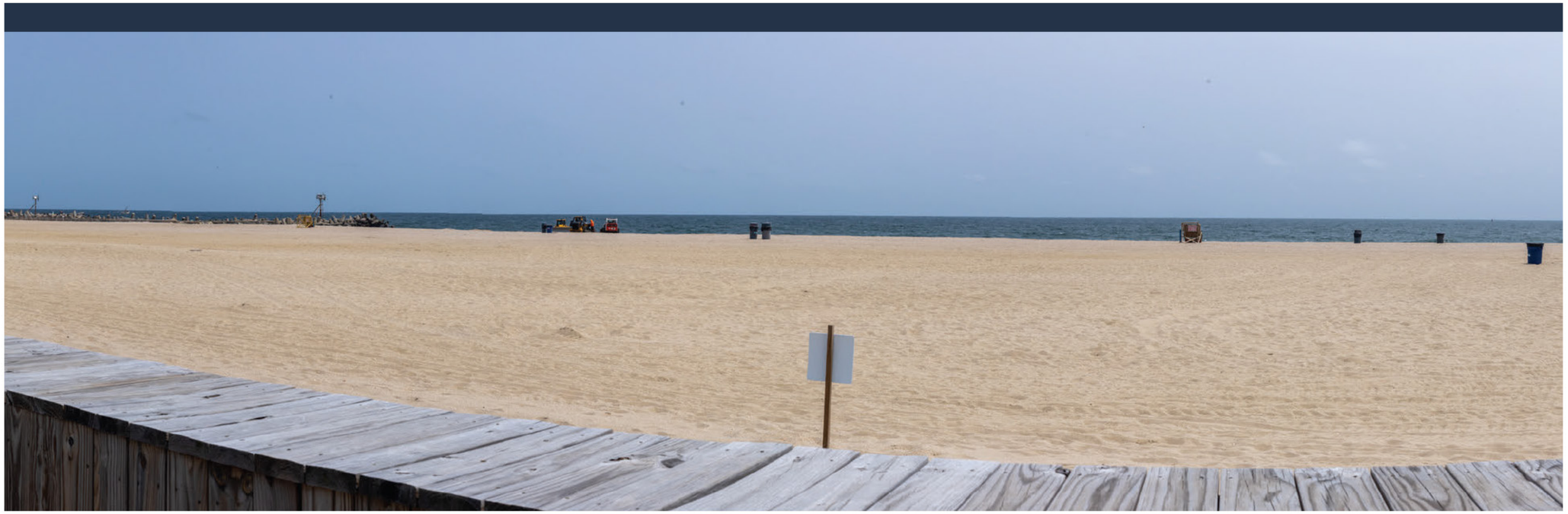


Photo Location Map

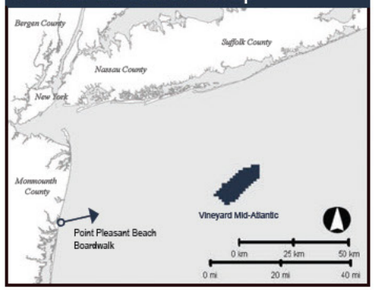


Photo Data

Date/Time:	23-May-2023 / 12:10
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	40° 05' 55.84" N
Longitude:	74° 02' 05.55" W
Elevation (+/-):	6.1 m (20 ft)
Nearest WTG:	71.5 km (44.4 mi)
Farthest WTG:	93.5 km (58.1 mi)
A 0544 Horiz. Field-of-View:	10°
Vertical Field-of-View:	0.07°

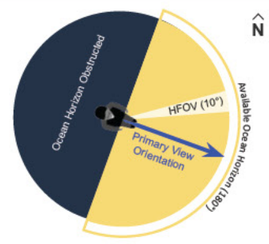
Meteorological Data

Temperature:	64°F
Humidity:	60%
Visibility:	>10 mi
Weather Condition:	Fair

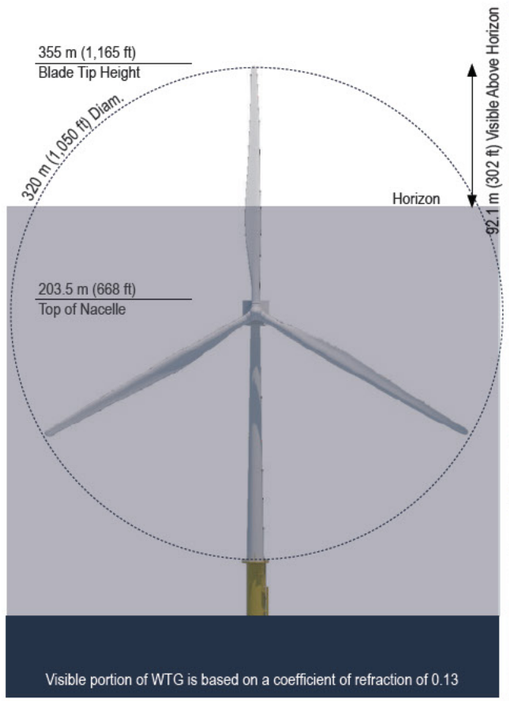
Visual Setting

SCA/LCA:	Oceanside Residential/Commercial
Resource Type:	Public Boardwalk Ocean Beach
Use Type:	Family Entertainment Passive Recreation/Relaxation
Viewer Types:	Entertainment oriented vistors Seasonal residents/vacationers

View Compass



Visible Portion of Closest WTG



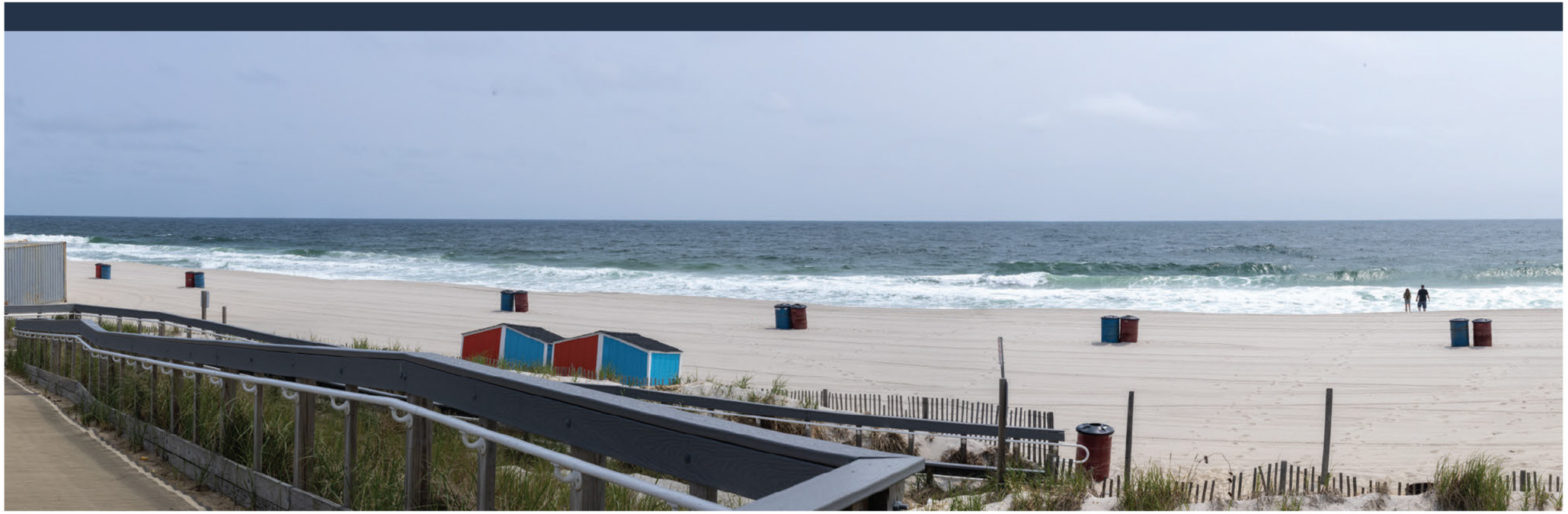
Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

Figure D19
KOP 19: Point Pleasant Beach Boardwalk
Borough of Point Pleasant Beach, Ocean County, NJ

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE



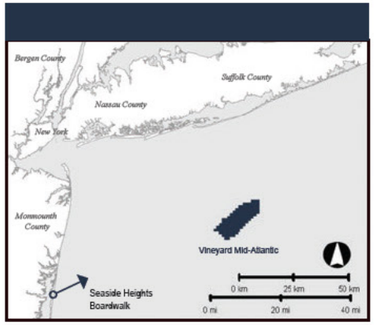


Photo Data

Date/Time:	23-May-2023 / 11:20
Light Conditions:	Side Light
Camera:	Canon 6D Mark II
Focal Length:	50mm (full frame)

KOP Location

Latitude:	39° 56' 41.05" N
Longitude:	74° 04' 10.57" W
Elevation (+/-):	7.6 m (25 ft)
Nearest WTG:	79.0 km (49.1 mi)
Farthest WTG:	102.1 km (63.4 mi)
A 0544 Horiz. Field-of-View:	9°
Vertical Field-of-View:	0.03°

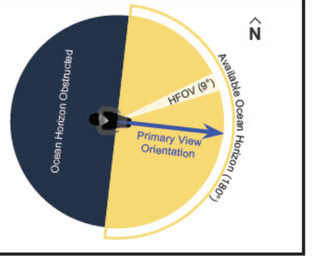
Meteorological Data

Temperature:	64°F
Humidity:	60%
Visibility:	>10 m
Weather Condition:	Fair

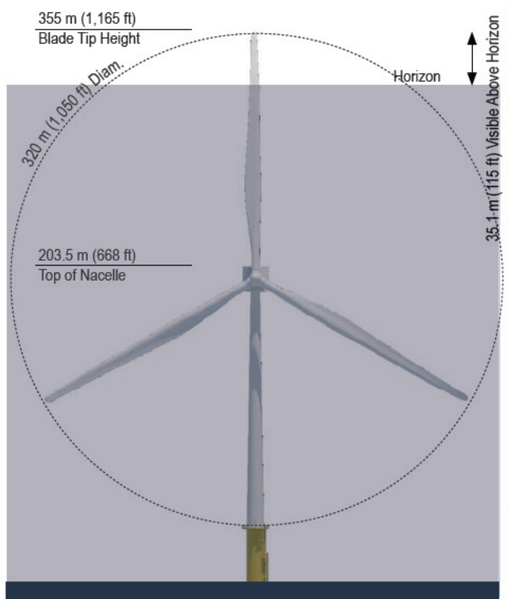
Visual Setting

SCA/LCA:	Oceanside Urban
Resource Type:	Public Boardwalk/Arcade Ocean Beach
Use Type:	Family Entertainment Passive Recreation/Relaxation
Viewer Types:	Entertainment oriented vistors Seasonal residents/vacationers

View Compass



Visible Portion of Closest WTG



Visible portion of WTG is based on a coefficient of refraction of 0.13

Context Images

KOP Vicinity Map

Figure D20
KOP 20: Seaside Heights Boardwalk
Borough of Seaside Heights, Ocean County, NJ

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Appendix E
PHOTO SIMULATIONS

Provided Under Separate Cover

Appendix F

PRELIMINARY VISUAL ASSESSMENT ONSHORE SUBSTATIONS

Appendix G

SEASCAPE/LANDSCAPE CHARACTER AREA PHOTO LOG


Seaside Heights, New Jersey


Saltaire, New York

Nearshore Ocean


Fire Island, New York


Babylon, New York

Oceanside Beach


Highlands, New Jersey

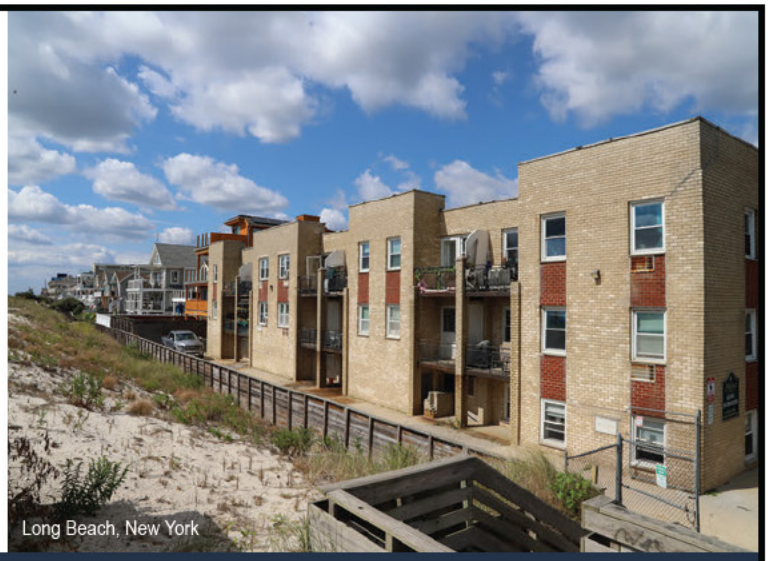

Highlands, New Jersey

Oceanside Recreation

Appendix G
Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE


Sea Girl, New Jersey

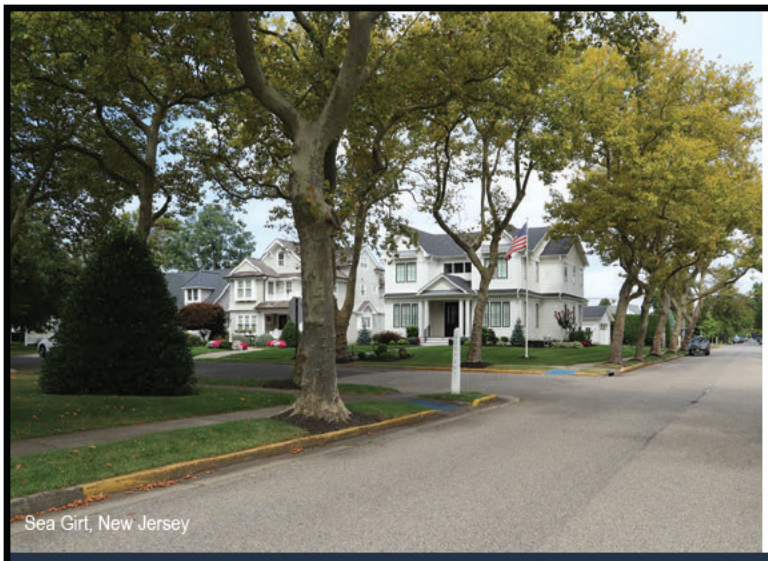

Long Beach, New York

Oceanside Residential/Commercial


Asbury Park, New Jersey


Seaside Heights, New Jersey

Oceanside Urban


Sea Girl, New Jersey


Belle Harbor, New York

Seascape Residential

Appendix G

Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Long Beach, New York

Island Park, New Jersey

Seascape Urban

Middletown Township, New Jersey

East Islip New York

Bayside Waterbodies

Lido Beach, New York

Port Monmouth, New Jersey

Bayside Natural Wetland

Appendix G

Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Bayside Natural Upland

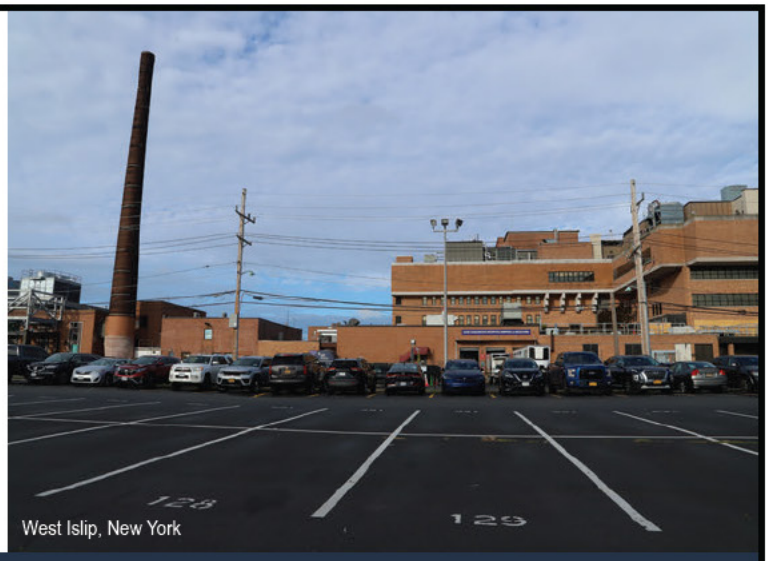
Bayside Recreation

Bayside Residential

Appendix G
Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC
VINEYARD OFFSHORE

Little SIlver, New Jersey



West Islip, New York

Bayside Commercial Park

Rockaway Park, New York

Lawrence, New York

Bayside Industrial

Oceanside, New York

Rockaway Park, New York

Bayside Industrial Resource

Appendix G

Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Sea Girt, New Jersey

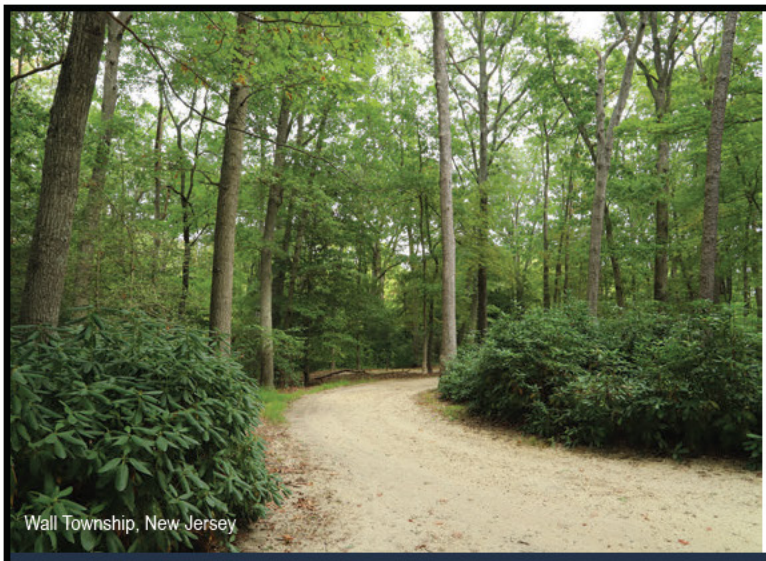
Sea Girt, New Jersey

Bayside Military Site

Sheepshead Bay, New York

Brighton Beach, New York

Bayside Urban



Wall Township, New Jersey

Wantagh, New York

Inland Natural Area

Appendix G

Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Brentwood, New York

Colts Neck, New Jersey

Inland Agriculture

Old Westbury, New York

Colts Neck, New Jersey

Inland Rural

Wall Township, New Jersey

West Hempstead, New York

Inland Recreation

Appendix G

Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

Lindenhurst, New York

Sea Girl, New Jersey

Inland Suburban/Exurban Residential

Colts Neck, New Jersey

Westbury, New York

Inland Commercial Park

Belford, New Jersey

Jamaica, New York

Inland Industrial

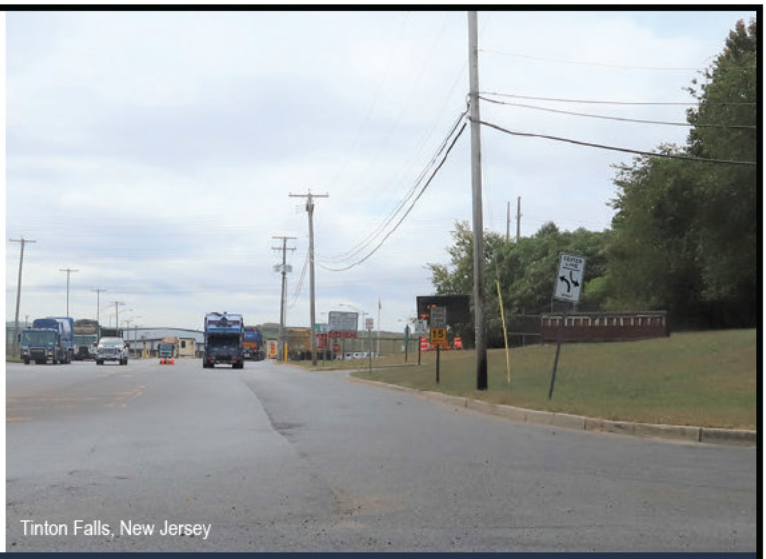
Appendix G

Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE

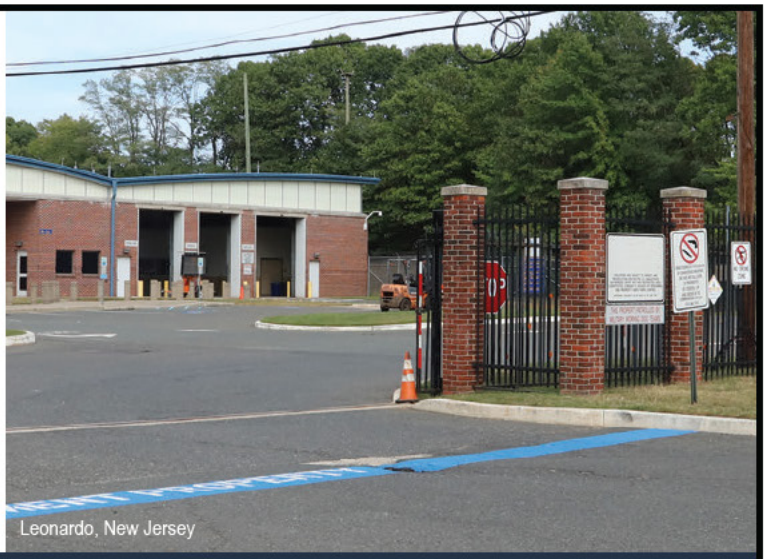
Tinton Falls, New Jersey



Tinton Falls, New Jersey

Inland Industrial Resource

Colts Neck, New Jersey



Leonardo, New Jersey

Inland Military Site

South Ozone Park, New York

Howard Beach, New York

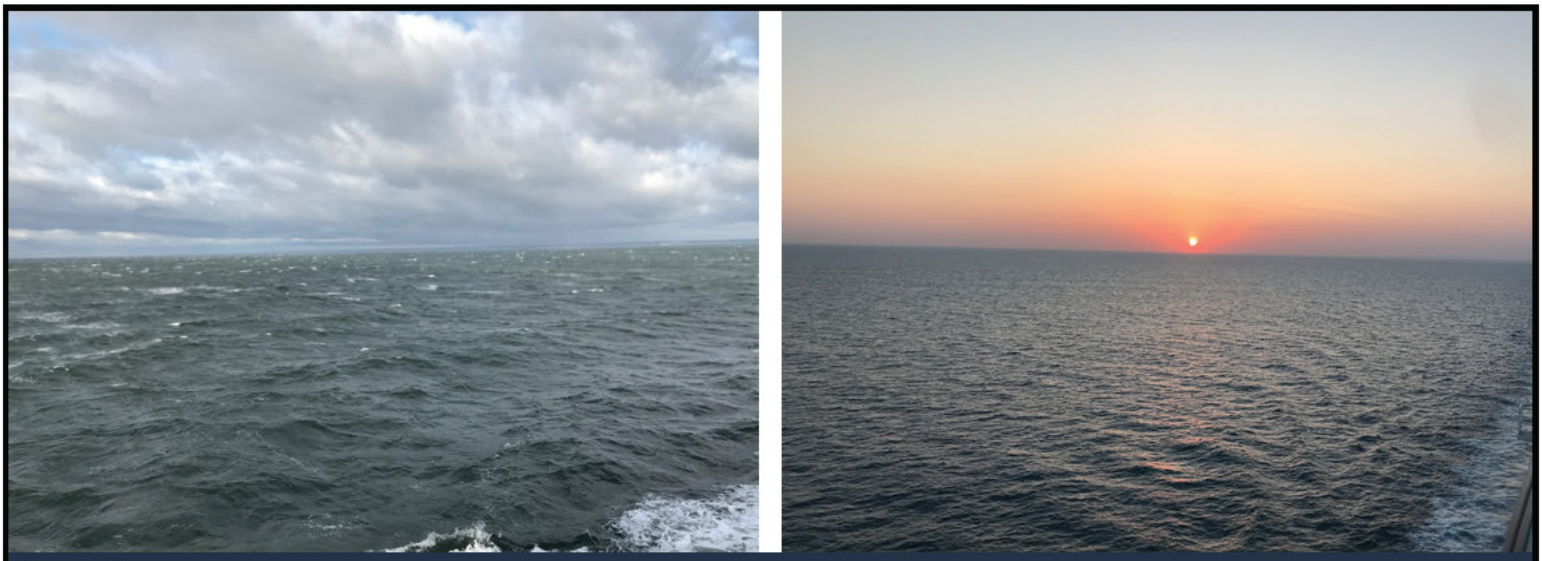
Inland Urban

Appendix G

Seascape-Landscape Character Area Photo Log

VINEYARD MID-ATLANTIC

VINEYARD OFFSHORE



Open Ocean