

AC02 Jim Whelan Boardwalk Hall

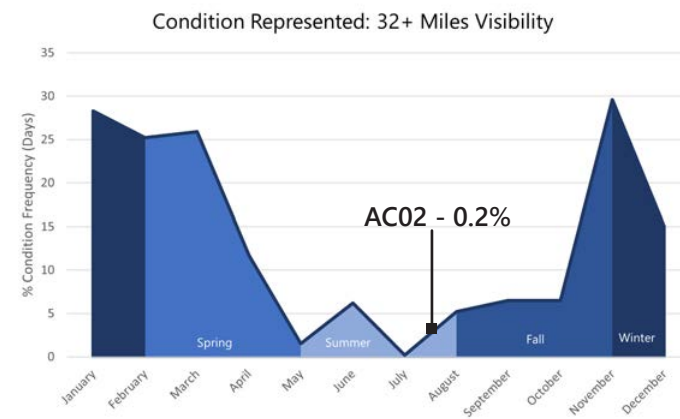
Atlantic City, Atlantic County, New Jersey

KOP Information

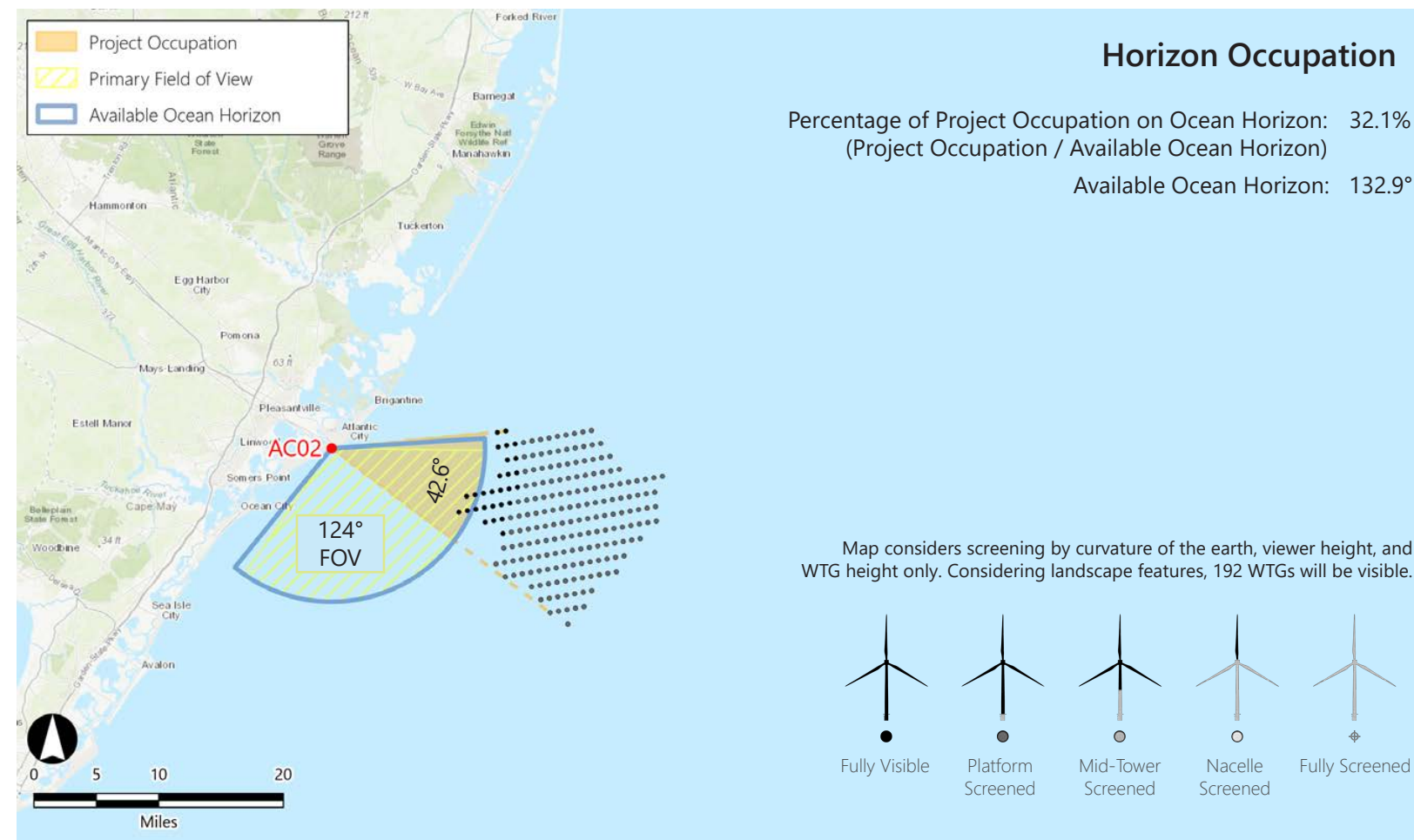
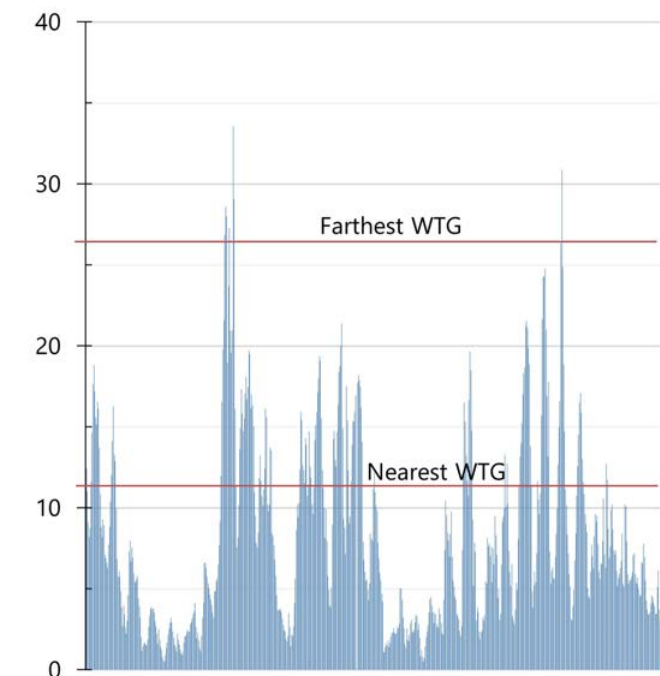
Primary Field of View: Southeast
 Distance to Closest WTG: 11.42 miles
 Camera Height: 8.91 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



July, 2019 - Hourly Visibility Distance



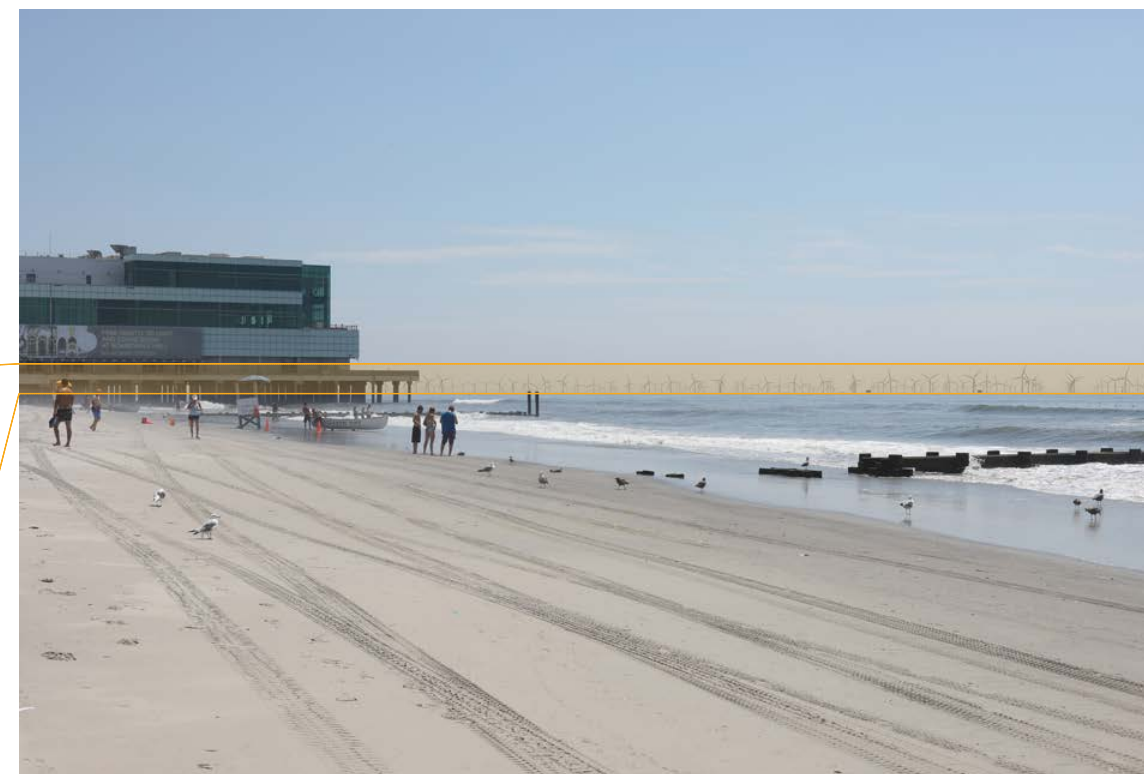
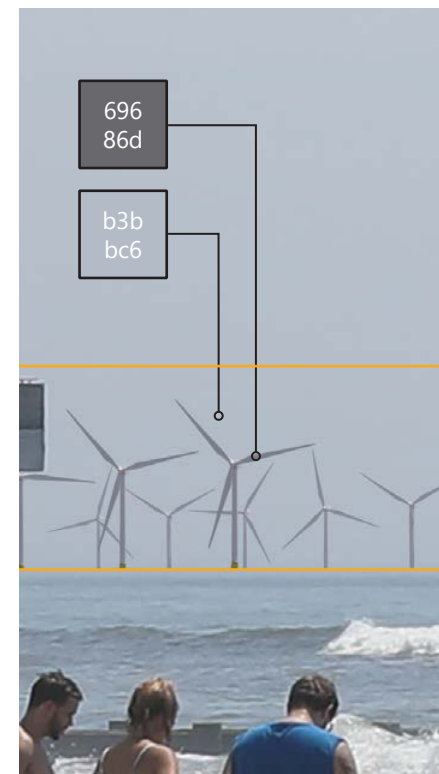
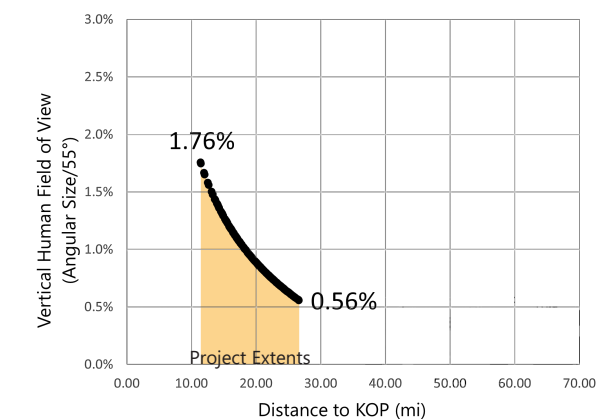
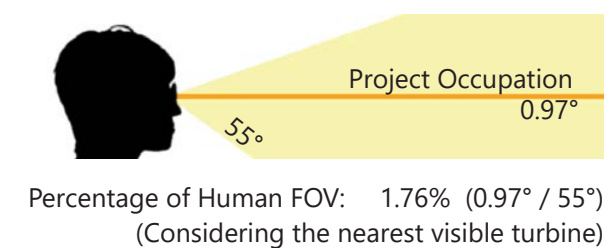
WTG Color Contrast

Color Contrast Rating: 2.85
 Turbine: [Dark Grey] }
 Background: [Light Grey] }
 Lighting Condition: Front lit
 Season: Summer
 Sky Condition: Partly Cloudy
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP AC04 illustrates the project from 10.54 miles in the backlit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.

Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: AC02 - Jim Whalen Boardwalk Hall (Atlantic City Convention Hall NHL)

Attachment E: Photosimulations; Page 117 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 18-mile Visibility



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: AC02 - Jim Whalen Boardwalk Hall (Atlantic City Convention Hall NHL)

Attachment E: Photosimulations; Page 118 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



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Photosimulation - 20-mile Visibility



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: AC02 - Jim Whalen Boardwalk Hall (Atlantic City Convention Hall NHL)

Attachment E: Photosimulations: Page 119 of 159

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Existing Conditions



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: AC02 - Jim Whalen Boardwalk Hall (Atlantic City Convention Hall NHL)

Attachment E: Photosimulations; Page 120 of 159

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Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: AC02 - Jim Whalen Boardwalk Hall (Atlantic City Convention Hall NHL)

Attachment E: Photosimulations; Page 121 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



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Photosimulation - 18-mile Visibility



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: AC02 - Jim Whalen Boardwalk Hall (Atlantic City Convention Hall NHL)

Attachment E: Photosimulations: Page 122 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



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Photosimulation - 20-mile Visibility



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: AC02 - Jim Whalen Boardwalk Hall (Atlantic City Convention Hall NHL)

Attachment E: Photosimulations: Page 123 of 159

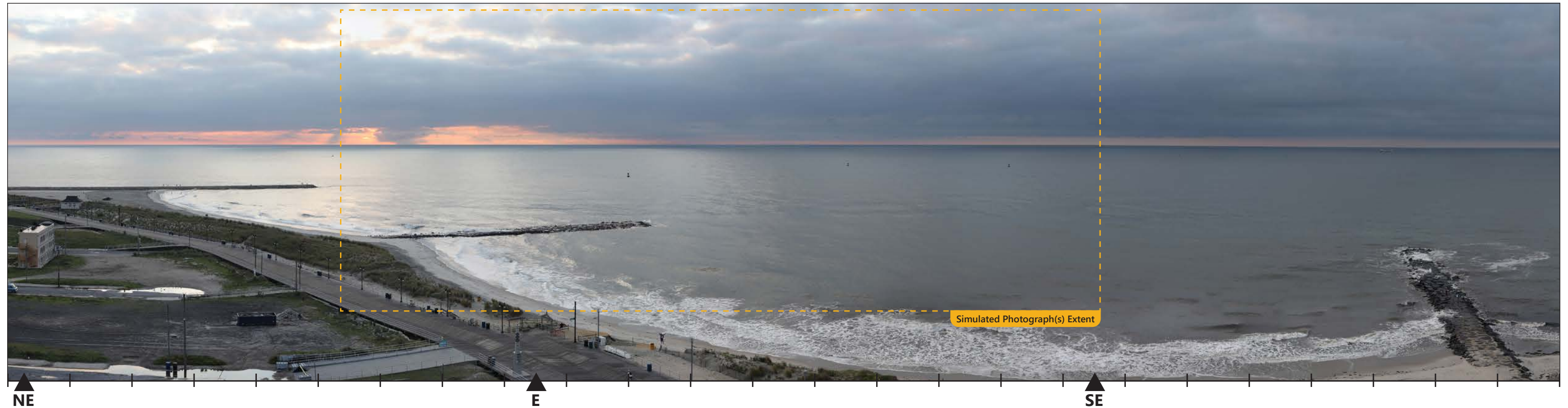
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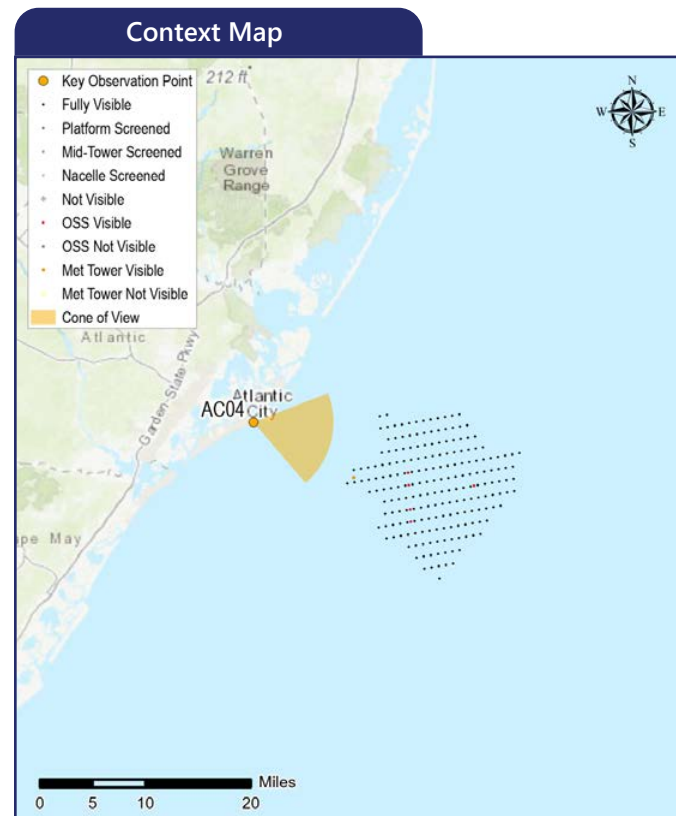
This scale is designed to insure the photosimulation images are printed at the intended size.

AC04 Ocean Casino Resort – Sky Garden

Atlantic City, Atlantic County, New Jersey



The image above is a +/- 124° panorama photograph from the Ocean Casino Resort - Sky Garden, panning clockwise from northeast (left) to south (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.36225°N, 74.41353°W
 Character Area: Atlantic City, Seascape (SCA)
 User Group: Residents/Tourists
 Direction of View: East-Southeast
 Distance to Nearest Visible Turbine: 10.54 miles
 Visually Sensitive Resource: Atlantic City Beach

Environmental Information

Date Taken: 08/18/2020
 Time: 6:31 AM
 Temperature: 70°F
 Humidity: 93%
 Visibility: 10 miles
 Wind Direction: Calm
 Wind Speed: 0 mph
 Conditions Observed: Mostly Cloudy

Photograph Information

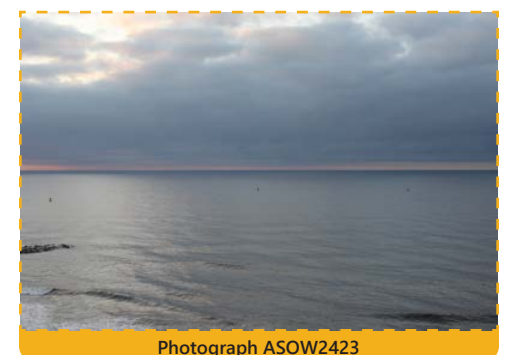
Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 117.26 feet AMSL

Notes

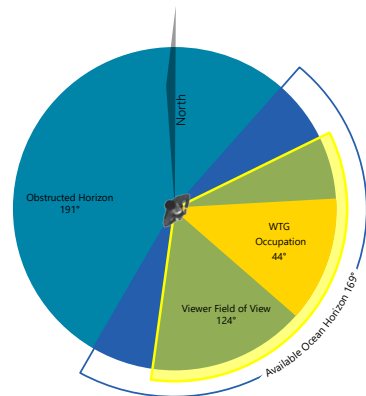
Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Night time photosimulations are digitally adjusted from daytime photographs.

Simulated Photograph(s)

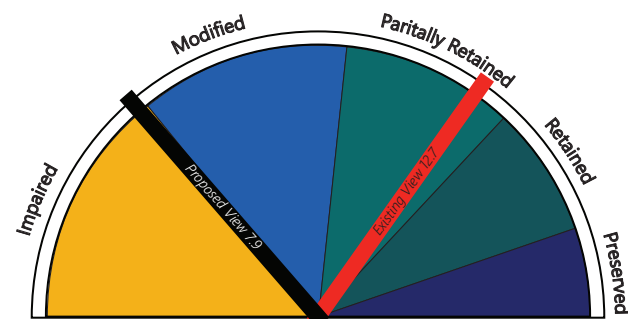


Field of View



Visual Impact Rating

Impact Rating Summary



-4.8. Significant

Visual Threshold Level (VTL)

6 An object/phenomenon with strong visual contrasts that is so large that it occupies most of the visual field, and views of it cannot be avoided except by turning one's head more than 45 degrees from a direct view of the object. The object/phenomenon is the major focus of visual attention, and its large apparent size is a major factor in its view dominance. In addition to size, contrasts in form, line, color, and texture, bright light sources and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject detracts noticeably from views of other landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Man-made stone jetty extending approximately 375' straight out from the coastline. Pedestrian accessible.
Order	There is an order in the expansive open water meeting the sky as the sunrise; coming back to land with cresting waves lapping at a sandy beach. The beach is backed by low grassy vegetation and an elevated wood boardwalk.
Visual Clutter	There are numerous built elements on land that do not relate strongly to one another, but generally act as a built field relative to the beach line and open water.
Movement	Pedestrians and waves are the biggest contributing factors of movement.
Duration & Frequency of View	Long-Term Repeated & Occasional
Atmospheric Conditions	Thick cloud layer at the horizon in the photo interrupts the pink-red sky from being fully visible.
Lighting Direction	Backlit
Scenic or Recreational Value	The boardwalk and concentration of site amenities signifies this place as a recreational resource that is highly utilized.; The Atlantic City Beach.

Compatibility and Contrast Rating Average

Ocean Casino Resort – Sky Deck			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	3.0	3.0	3.0
Landform	2.3	1.8	2.0
Vegetation	1.3	1.5	2.3
Land Use	2.3	2.5	2.3
User Activity	2.3	2.5	2.3

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 12.7
 Rating Panel Score Range: 10.0 - 16.0

This view is from the Sky Garden on the 11th floor of the Ocean Casino Resort in Atlantic City, New Jersey. The Sky Garden is a 3-acre landscaped patio overlooking the Atlantic Ocean. During the summer season, it is used by hotel guests and visitors for relaxing, drinking, and dining. The selected view to the east-southeast from this location provides an elevated perspective of the adjacent shoreline and ocean. The boardwalk and parking lots in the immediate foreground below give way to crescents of sandy beach separated by stone jetties/breakwaters. White surf and foam at the shoreline transition to a broad expanse of silver-grey ocean that darkens as it extends to the distant horizon. Beyond the immediate shoreline several channel marker buoys are the only interruptions on the smooth water sheet. The horizon is defined by an abrupt change in color where the dark ocean water meets the light orange sky at sunrise. Slightly above the horizon the sky transitions to heavy grey cloud cover which creates a dark shadow on the distant water surface near the horizon. The relative lack of people on the beach, dull early morning light, and smooth texture of the ocean give the view a soft, peaceful character.

The view from the Sky Garden offers an approximate 188 degree of unobstructed, undeveloped ocean which extends out to the horizon. To the left, right, and behind the viewer, 172 degrees of the view from this location is immediately obstructed by the presence of tall buildings and the horizon is entirely obscured. Ground level views from the immediate shoreline are likely to exhibit a similar panorama view of unobstructed horizon. However, views from the boardwalk will include a greater degree of obstructed horizon. In fact, in some locations on the boardwalk the ocean is completely obscured from view (as indicated by the viewshed analysis and field review). As such, this view from Atlantic City represents an elevated, open, and unobstructed view of the ocean under a high-contrast lighting condition.

Rating panel members indicated that, although viewed from an urbanized setting, the existing view is a relatively pristine, uninterrupted vista of the open ocean that will be experienced by visitors to the casino's Sky Garden over an extended period of time. The orange band of color in the sky and its contrast with the dark ocean, along with the general lack of competing landscape features, enhances the expansive feel of the view and draws the viewer's eye to the horizon. Rating panel scores for the existing conditions photographs ranged from 10.0 to 16.0 (average score = 12.7). The score for this view indicates that it is partially retained.

Proposed Conditions

Scenic Quality: Modified
 Rating Panel Score Average: 7.9
 Rating Panel Score Range: 6.7 - 10.0
 Impact Magnitude: 4.8 (Significant)

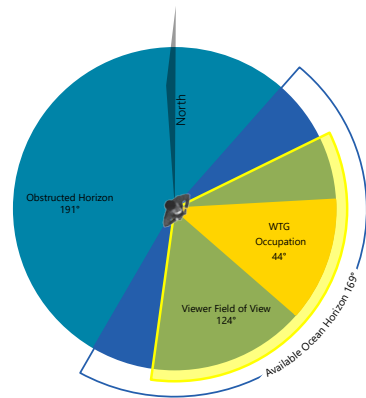
Viewshed analysis suggests that Project visibility from this general area will extend inland from the beach and boardwalk where large parking areas and open lots are present near the shoreline. Ground level views from more inland locations are blocked by intervening built structures. However, as demonstrated by the photosimulation from this KOP, elevated views from within buildings will be available in some areas that are indicated as being screened in the viewshed analysis.

With the proposed Project in place, the view is dominated by a large and highly visible array of WTGs that extend across a large portion of the ocean view to the east-southeast from this location. Of the 188 degrees of relatively unobstructed ocean horizon, the Project occupies approximately 44 degrees or 23 percent of the view (see Field of View Image, left). Project visibility is enhanced by the relative proximity of the WTGs (10.5 miles) and their back-lighting by the rising sun, which makes the WTGs appear dark against the sky. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 6.7 to 10.0 (average score = 7.9). These scores indicate an average reduction of 4.8 points in comparison to the existing view suggesting it becomes modified and significant visual impacts would result from the WTGs. Individual rating panel members indicated reductions that ranging from 1.7 to 9.3. Panel members indicated that the presence of the WTGs reduces the expansiveness of the view by creating a semi-transparent fence-like line across the horizon. This effect is accentuated by the perceived randomness of the WTG placement and the line-up/stacking of visible WTGs that creates darker denser forms and a sense of visual clutter. The movement of the rotor blades will also attract viewer attention and make the WTGs the focus of this view. However, the visibility and visual dominance of the WTGs is likely to be reduced under more hazy or foggy sky conditions, and later in the day when lighting conditions will reduce WTG contrast with the sky, and more viewers are likely to be present at the Sky Garden as compared to the sunrise view presented. With the Project in place, the view becomes modified.

The panel members assigned the Project visibility an average VTL of 6 from this KOP. The factors that influenced the VTL, include a lack of compatibility, severe scale contrast, and dominance present by the Project relative to the ocean (water resources). Additionally, the panel members indicated the scale contrast would be severe for the land use and user activities associated with this KOP.

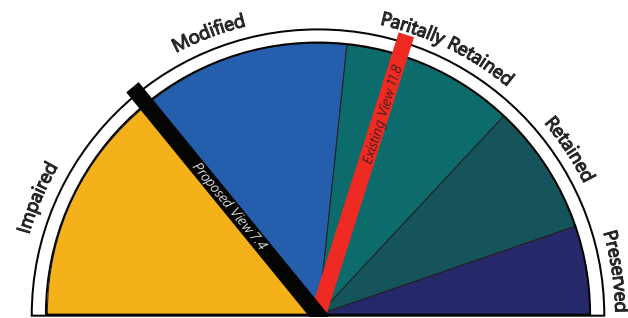
AC04 Ocean Casino Resort – Sky Garden (Night)

Field of View



Visual Impact Rating

Impact Rating Summary



-4.4. Significant

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements. (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Pedestrian lights along the boardwalk create a bright spot in an otherwise dark scene.; Street lamps and boardwalk promenade.
Order	The darkness reduces the layers to shades.
Visual Clutter	There are some lights and road in the foreground.
Movement	Pedestrian movement may be present.
Duration & Frequency of View	Long Term Repeated
Atmospheric Conditions	Clouds are barely visible in the night sky.; overcast and hazy conditions my diminish visibility.
Lighting Direction	Nighttime
Scenic or Recreational Value	The Atlantic City boardwalk is a recreation location families have been frequenting for generations, often going multiple times a year.; This is an oceanfront destination location for large amounts of people.

Compatibility and Contrast Rating Average

Ocean Casino Resort – Sky Deck - Night			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.3	2.3	2.3
Landform	1.8	1.8	2
Vegetation	0.8	0.8	0.8
Land Use	2.1	2	2.4
User Activity	2.3	2.3	2.3

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 11.8
 Rating Panel Score Range: 10.2 - 15.2

This nighttime view is from the Sky Garden on the 11th floor of the Ocean Casino Resort in Atlantic City, New Jersey. The existing view features a dully illuminated boardwalk in the foreground that provides a focal point in this otherwise dark view. Lights along the boardwalk also faintly illuminate the adjacent dunes and breaking waves at the shoreline, which could also serve to draw viewer attention. Beyond these foreground features, the ocean and sky are completely dark, and it is difficult to distinguish the horizon line. A few wispy clouds with a slight rosy hue stretch across the otherwise black, starless sky.

Rating panel scores for the existing conditions photographs ranged from 10.2 to 15.2 (average score = 11.8). The score for this KOP indicates that this view is partially retained.

Proposed Conditions

Scenic Quality: Impaired
 Rating Panel Score Average: 7.4
 Rating Panel Score Range: 5.2 - 9.5
 Impact Magnitude: 4.4 (Significant)

With the proposed Project in place, a band of small red lights has been added to the horizon along a substantial portion of the ocean view. The number and expanse of lights increase their visual prominence, and they become the focal point in this view, drawing the viewer's eye away from the visible foreground features. Panel reaction to the photosimulation was variable, with most members indicating that the lights on the WTG's are dominant new features that are incompatible with the existing landscape. However, one reviewer felt that the existing on shore lighting in this highly developed area (including other flashing lights) would compete for viewer attention and minimize the contrast presented by the lights of the proposed WTGs.

Rating panel members had a highly variable reaction to the nighttime impact resulting from the Project, with the VIA scores ranging from 5.2 to 9.5 (average score = 7.4). These scores indicate an average reduction of 4.4 points in comparison to the existing view suggesting significant visual impacts could result from the Project under the conditions presented. Individual rating panel members scores indicated reductions that ranged from 0.7 to 10.0. With the Project in place, the viewpoint rating panel score suggests that this KOP becomes impaired as a result of the AWOLs, when active at night.

In evaluating the nighttime view of the Project from this KOP, three panel members assigned the view a VTL score of 6, while the remaining member assigned it a score of 2 (average VTL of 5).

AC04 Ocean Casino Resort – Sky Garden

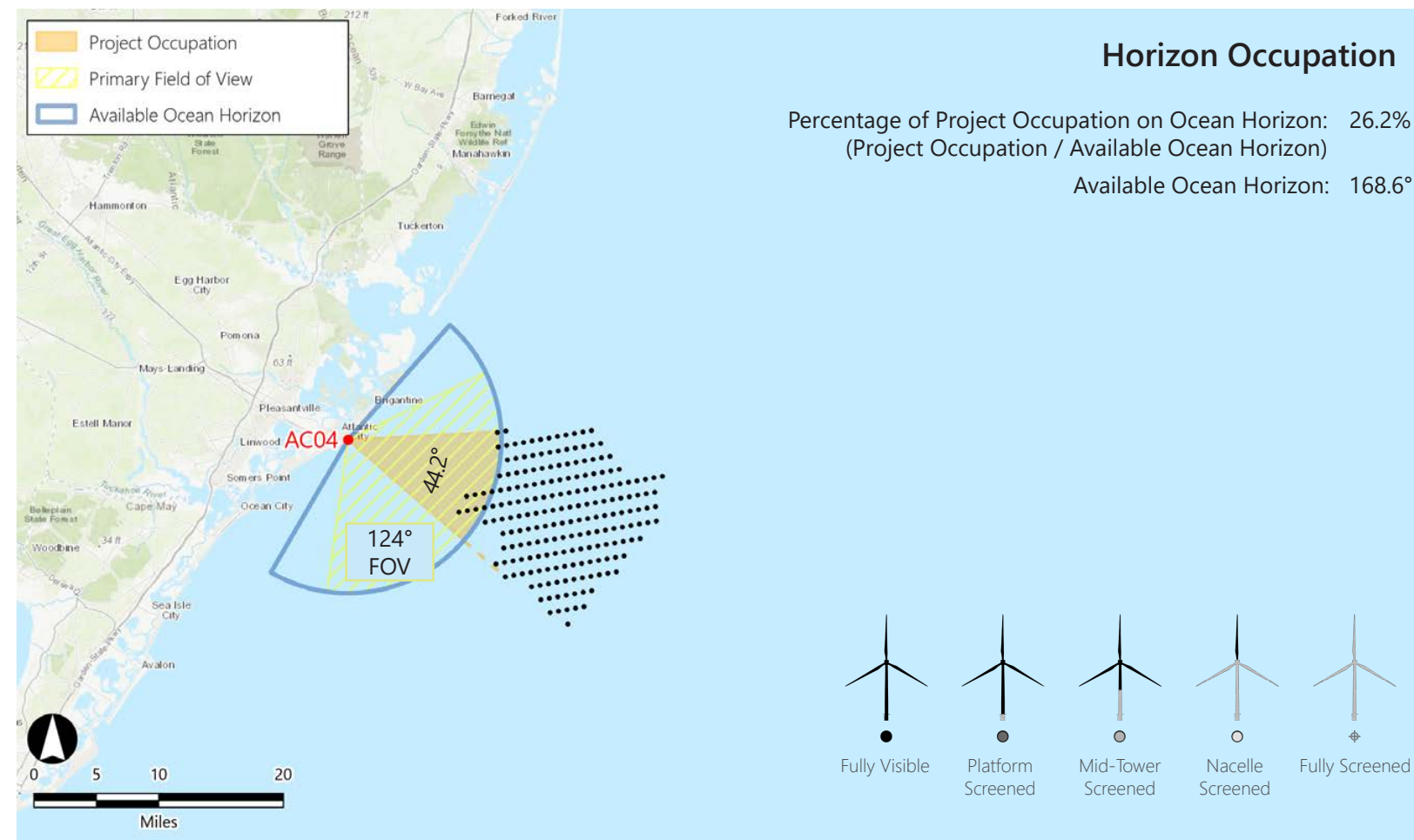
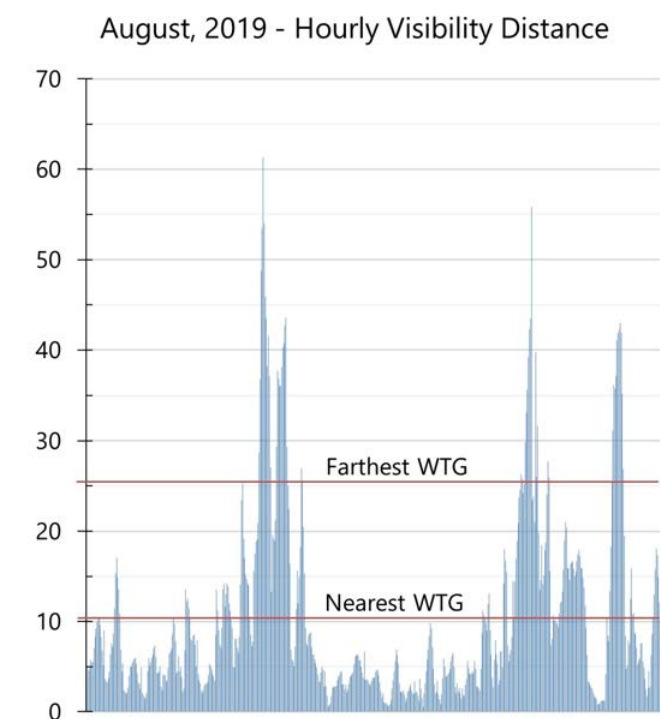
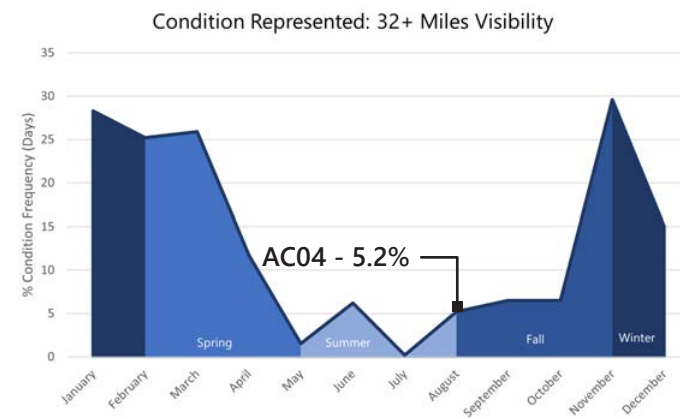
Atlantic City, Atlantic County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 10.54 miles
 Camera Height: 117.26 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

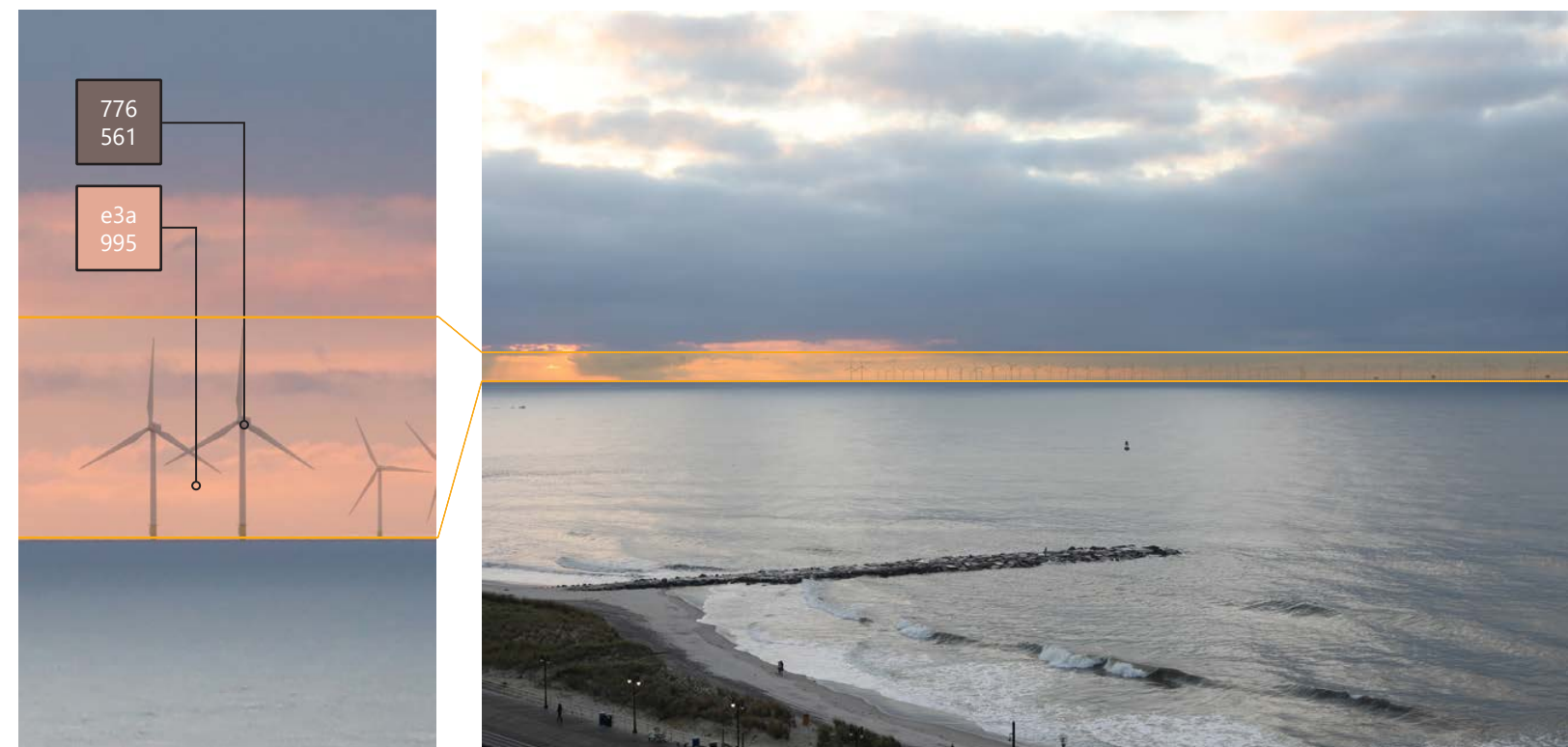
Color Contrast Rating: 2.71

Turbine (dark brown) / Background (light brown)

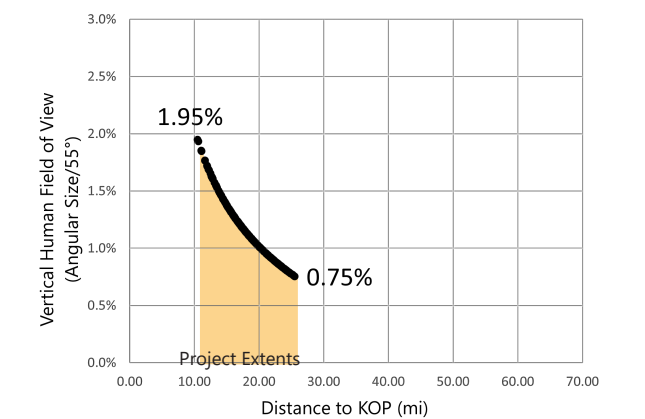
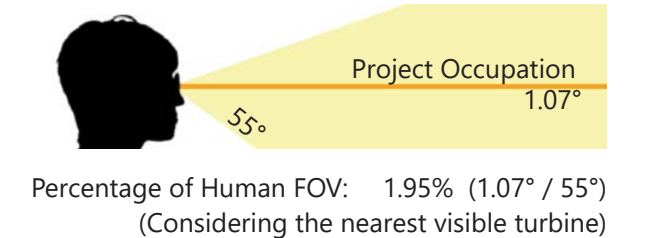
Lighting Condition: Back lit
 Season: Summer
 Sky Condition: Mostly Cloudy
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP AC02 illustrates the project from 11.42 miles in the front lit condition. This provides an indication of how the turbines may appear from this KOP during midday conditions.



Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



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Existing Conditions (Nighttime Rendering)



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Photo Rendering (Nighttime)



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Existing Conditions



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Photosimulation



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Existing Conditions (Nighttime Rendering)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



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Photo Rendering (Nighttime)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



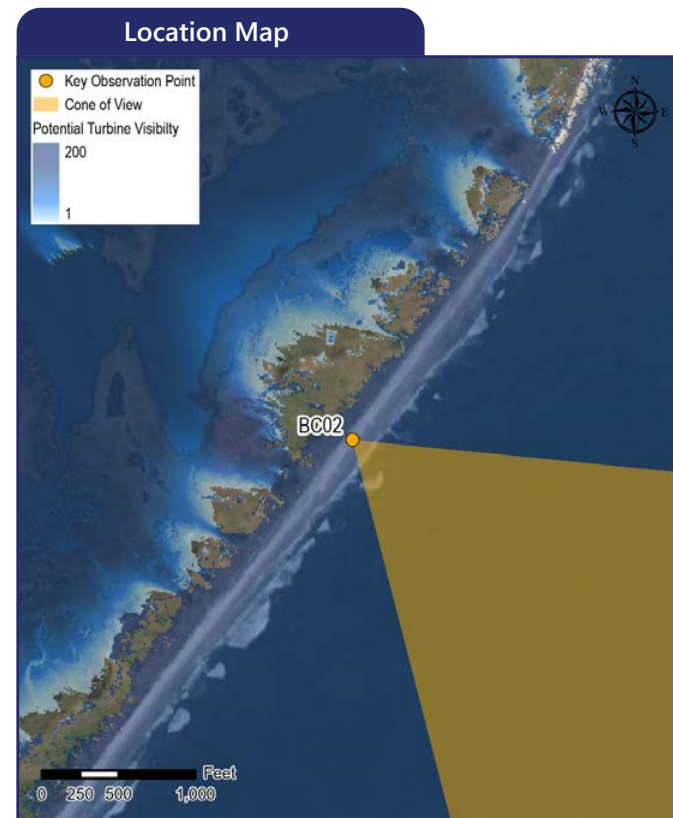
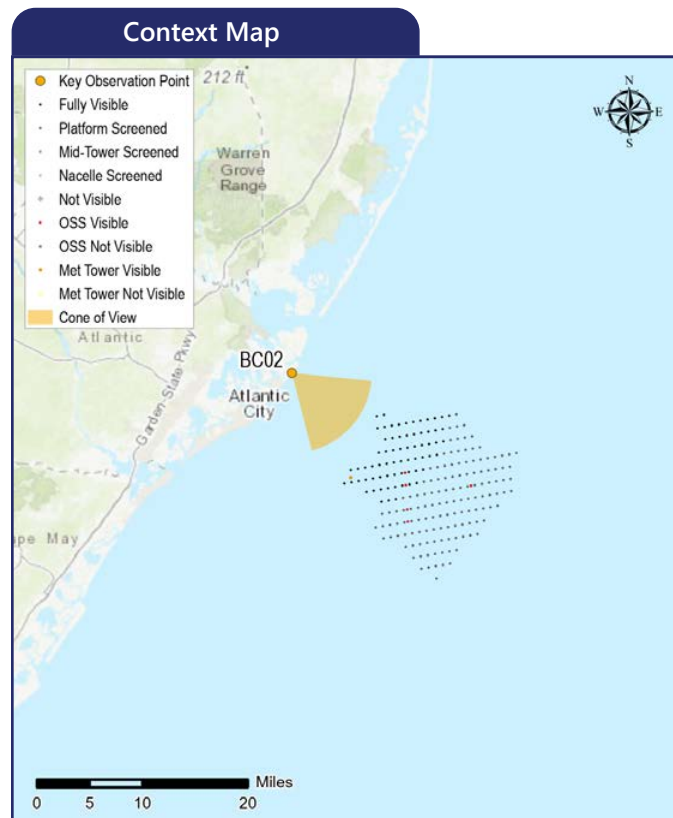
This scale is designed to insure the photosimulation images are printed at the intended size.

BC02 North Brigantine Natural Area

Brigantine City, Atlantic County, New Jersey



The image above is a +/- 124° panorama photograph from the North Brigantine Natural Area, panning clockwise from northeast-east (left) to south (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates:	39.42954°N, 74.33968°W
Character Area:	Undeveloped Beach, Seascape (SCA)
User Group:	Residents/Tourists, Fishermen
Direction of View:	Southeast
Distance to Nearest Visible Turbine:	9.03 miles
Visually Sensitive Resource:	North Brigantine State Natural Area

Environmental Information

Date Taken:	08/18/2020
Time:	12:00 PM
Temperature:	84°F
Humidity:	53%
Visibility:	10 miles
Wind Direction:	West-southwest
Wind Speed:	3 mph
Conditions Observed:	Fair

Photograph Information

Camera:	Canon EOS 5D Mark IV
Resolution:	30.4 Megapixels
Focal Length:	50mm
Camera Height:	11.06 feet AMSL

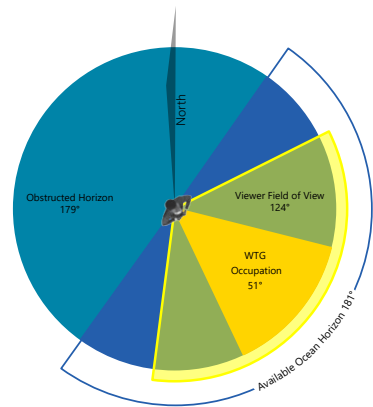
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)

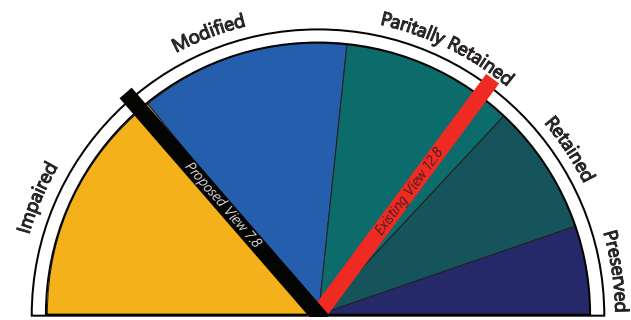


Field of View



Visual Impact Rating

Impact Rating Summary



-4.9. Significant

Visual Threshold Level (VTL)

6 An object/phenomenon with strong visual contrasts that is so large that it occupies most of the visual field, and views of it cannot be avoided except by turning one's head more than 45 degrees from a direct view of the object. The object/phenomenon is the major focus of visual attention, and its large apparent size is a major factor in its view dominance. In addition to size, contrasts in form, line, color, and texture, bright light sources and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject detracts noticeably from views of other landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	The crisp horizon line acts as a focal point in this view.
Order	The open water view which meets the horizon and skyline create a natural order.
Visual Clutter	No visual clutter observed.
Movement	Waves and wildlife likely to be the main source of movement.
Duration & Frequency of View	Short Term/Fleeting Occasional
Atmospheric Conditions	Sky and atmosphere are both clear, as evidenced by a distant sailboat; Hazy or overcast conditions would reduce visibility.
Lighting Direction	Backlit
Scenic or Recreational Value	The North Brigantine Natural Area is utilized for enjoyment of the natural landscape including fishing, beach combing, and swimming.

Compatibility and Contrast Rating Average

North Brigantine Natural Area			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	3.0	3.0	3.0
Landform	2.5	2.3	2.5
Vegetation	0.0	0.0	0.0
Land Use	2.5	2.8	2.3
User Activity	2.8	3.0	2.8

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 12.8
 Rating Panel Score Range: 13.8 - 11.2

This view is from the North Brigantine State Natural Area, between developed portions of the City of Brigantine, New Jersey and Brigantine Inlet. The North Brigantine Natural Area was acquired by the state in 1967 and is managed by the New Jersey Department of Environmental Protection. The purpose of the State's Natural Areas System is to protect and preserve ecologically significant lands and resources found on them, including endangered and threatened wildlife and important vegetative communities. The North Brigantine Natural area is part of the longest stretch of undeveloped barrier island beach along the New Jersey coast. It includes approximately 2.5 miles of undeveloped beach, along with coastal dunes, maritime forest and tidal marsh, that provide habitat for several rare species of birds and plants. It is used by the public for bird watching, walking, jogging, sunbathing, and surf fishing.

The view to the southeast from this location includes an undeveloped sandy beach at low tide. An expanse of relatively level exposed sand extends from the wrack line in the immediate foreground to a line of breaking waves in the middle ground. Shorebirds can be seen on the beach at the water's edge. Beyond the surf line, the dark blue grey ocean extends without interruption to the horizon line where it meets the light blue sky. The action and texture of the breaking waves in the middle ground contrast with the smoothness of the sand and sky. The existing view lacks any man-made features other than some old pilings at the water's edge outside the selected field of view (to the right). This, along with the lack of people on the beach, gives the view an undeveloped natural character.

Rating panel members indicated that the existing view is a relatively pristine water view with a clean simple organization of line in form, that lacks strong focal points. Waves and bird activity at the shoreline may draw some viewer attention, but the primary focus is the uninterrupted expanse of open ocean and the distant horizon line. The KOP feels secluded and conveys a sense of isolation and privacy. Rating panel scores for the existing conditions photographs ranged from 13.8 to 11.2 (average score = 12.8). The rating panel score for this KOP indicates that this view is partially retained.

Proposed Conditions

Scenic Quality: Modified
 Rating Panel Score Average: 7.8
 Rating Panel Score Range: 5.5 - 9.5
 Impact Magnitude: 4.9 (Significant)

Viewshed analysis suggests that Project visibility from this general area will be available along the beach, but partially blocked in the dunes behind it. Views again become available as one heads into the open salt marsh to the west (inland) of the dunes.

With the proposed Project in place, the view is dominated by a large and highly visible array of WTGs that extend across a large portion of the ocean view to the southeast from this location. Of the 232 degrees of relatively unobstructed ocean horizon, the Project occupies approximately 50 degrees or 22 percent of the view (see Field of View Image, left). Project visibility is enhanced by the relative proximity of the WTGs (9.03 miles) and lighting conditions that make the WTGs appear relatively dark against the light blue sky. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 5.5 to 9.5 (average score = 7.8). These scores indicate an average reduction of 4.9 points suggesting the view would become modified and significant visual impacts could result from the Projects. Individual rating panel members scores ranged from 1.7 to 7.0. Panel members indicated that the WTG's become dominant elements in the view. They reduce the view's sense of openness and add a large number of built features to what was previously an open, undeveloped ocean view. The presence of the WTGs tends to enclose the view, and adds substantial visual clutter. This effect is enhanced by the transition of the WTGs an orderly arrangement to stacked alignment when the viewer is looking down a row of aligned WTGs, making them appear disorderly. The movement of the rotor blades will also attract viewer attention and make the WTGs the focus of this view. Although the visibility and visual dominance of the WTGs is likely to be reduced under more hazy sky conditions, and when lighting conditions reduce WTG contrast with the sky, proximity of the WTGs will allow them to be visible under most clear sky conditions. With the Project in place, this KOP is modified.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present severe scale contrast with the ocean (water resources), land use, and user activity. The panel scores also indicate that the WTGs are not compatible with water resource, landform, land use, and user activity. The WTGs would become the dominant feature in the seascape when compared to the existing water resources, landform, and user activity. Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 6 from this KOP.

BC02 North Brigantine Natural Area

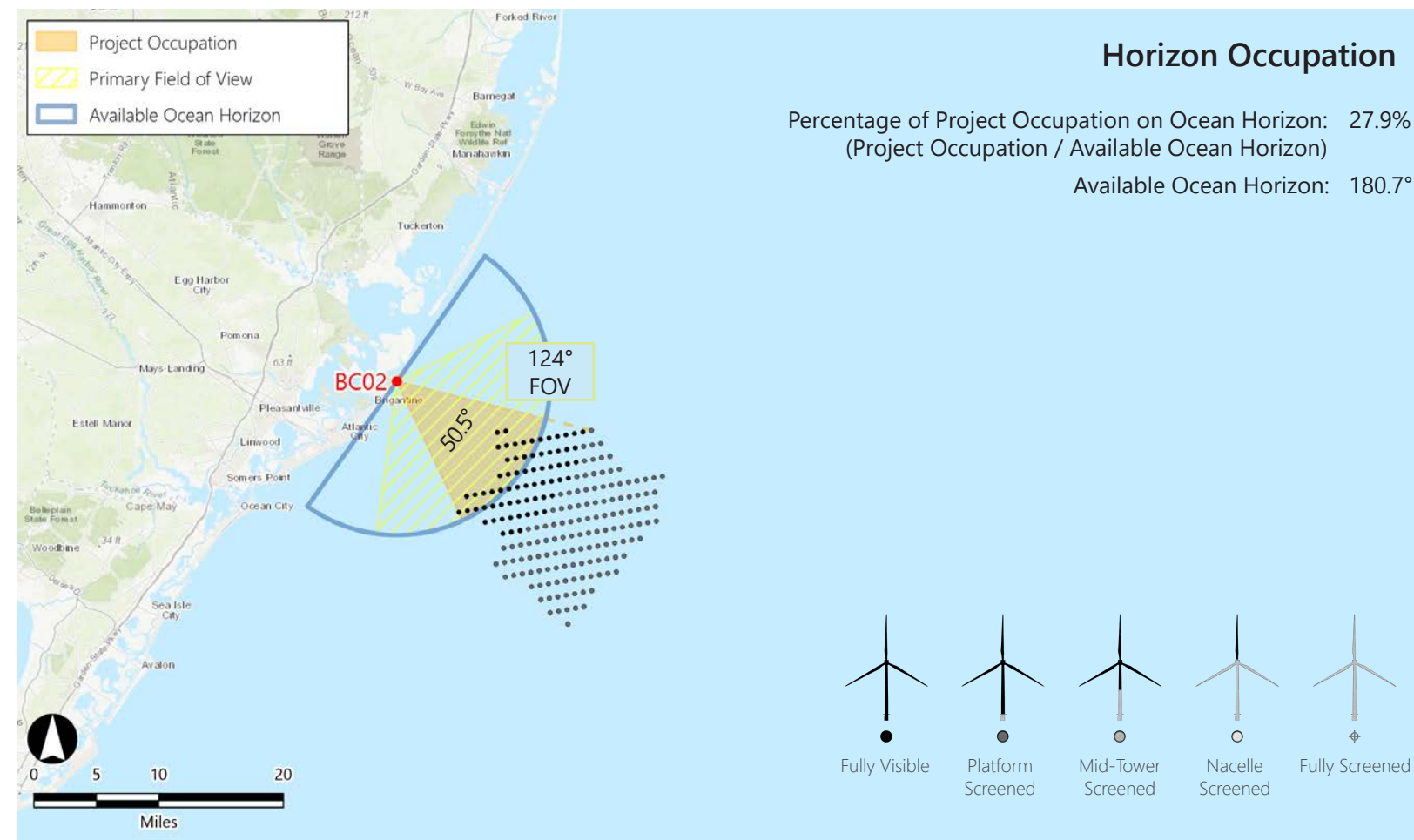
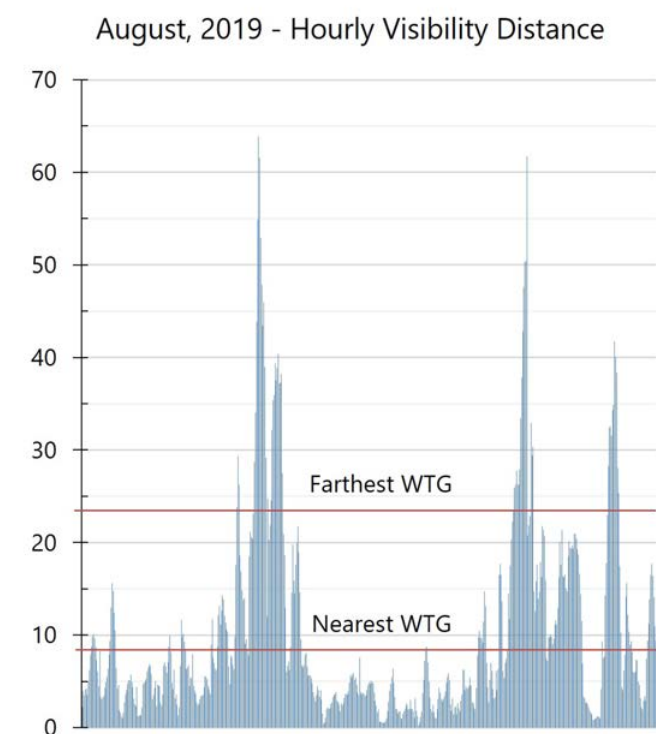
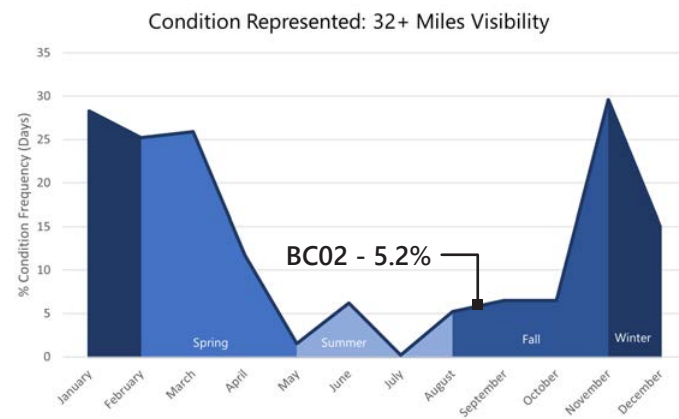
Brigantine City, Atlantic County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 9.03 miles
 Camera Height: 11.06 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



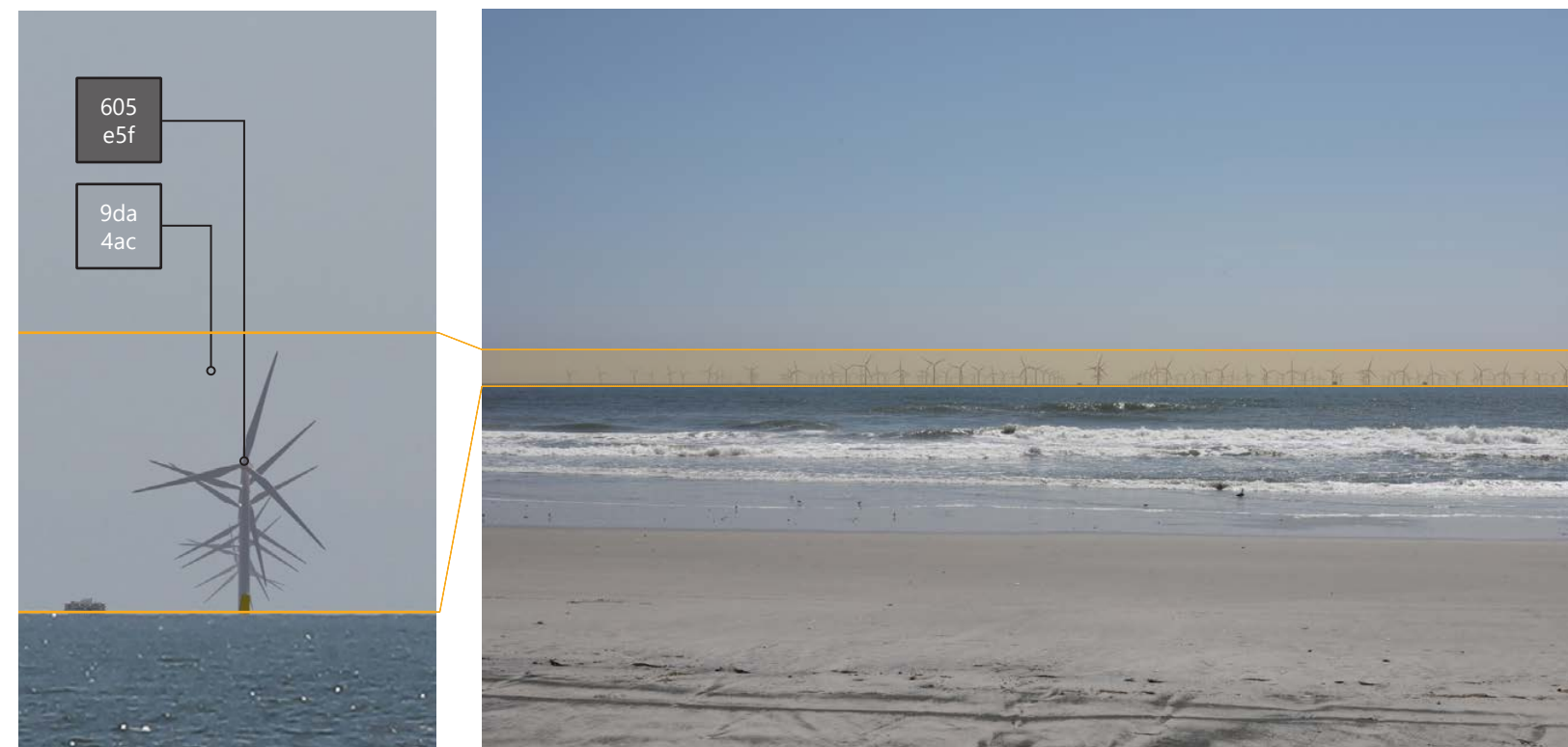
WTG Color Contrast

Color Contrast Rating: 2.55
 Turbine: [Dark Grey]
 Background: [Light Grey]

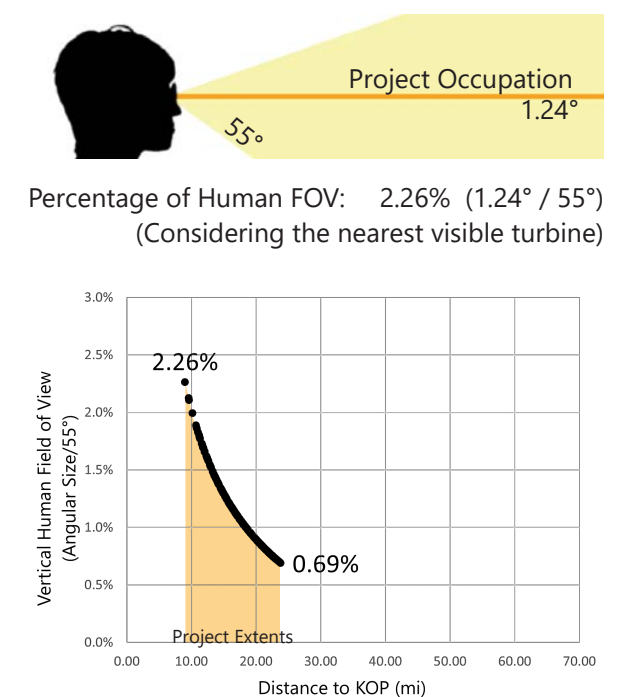
Lighting Condition: Side lit
 Season: Summer
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP LEHT02 illustrates the project from 11.91 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.



Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



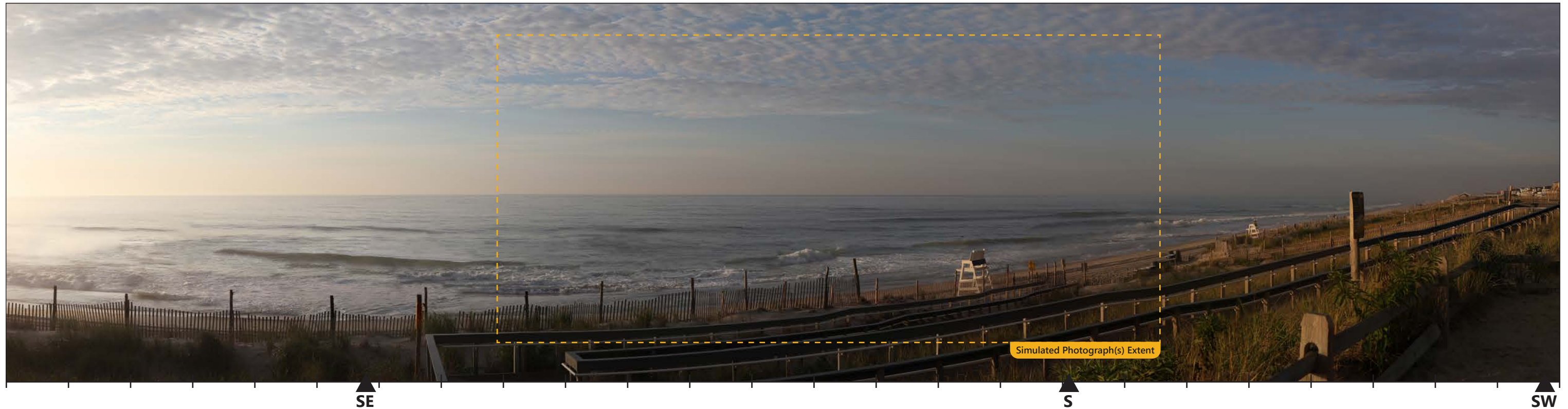
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

BHB01 Beach Haven Historic District

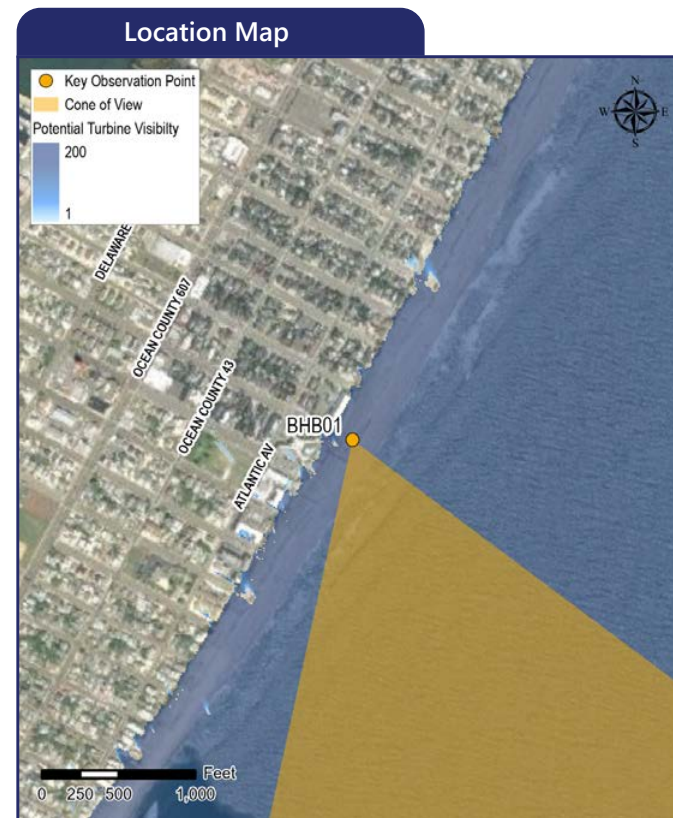
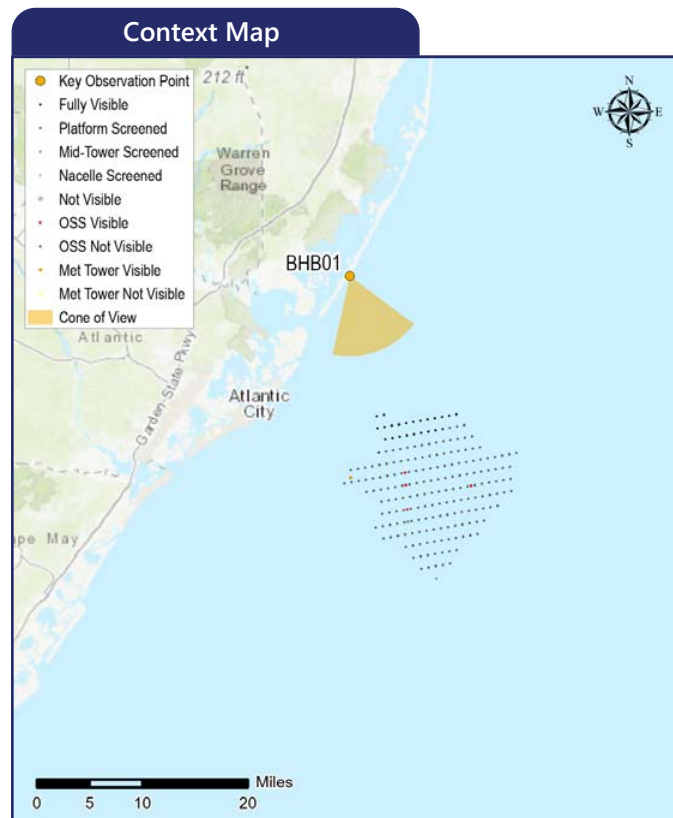
Beach Haven Borough, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Beach Haven Historic District, panning clockwise from east-southeast (left) to southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).

Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches. Night time photosimulations are digitally adjusted from daytime photographs.



Simulation Information

Coordinates: 39.56188°N, 74.23545°W
 Character Area: Residential Beachfront, Seascape (SCA)
 User Group: Residents/Tourists, Fishermen
 Direction of View: South-southeast
 Distance to Nearest Visible Turbine: 13.5 miles
 Visually Sensitive Resource: Beach Haven Borough Public Beach, Beach Haven Historic District

Environmental Information

Date Taken: 08/19/2020
 Time: 6:53 AM
 Temperature: 73°F
 Humidity: 87%
 Visibility: 10 miles
 Wind Direction: Calm
 Wind Speed: 0 mph
 Conditions Observed: Cloudy

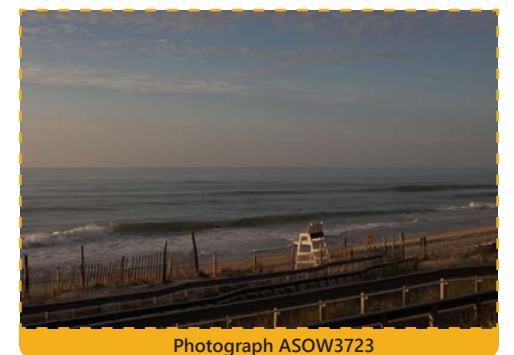
Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 17.72 feet AMSL

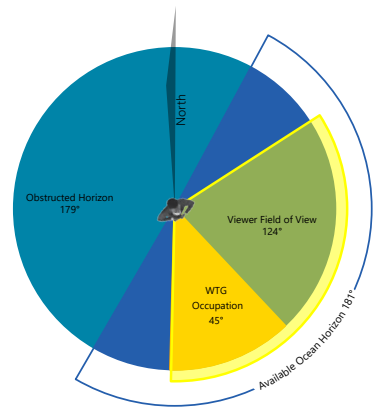
Meteorological Visibility Model (2019)

Visibility Conditions Represented in Photosimulation: 30 Miles
 Frequency of Visibility Condition in August, 2020: 6.3%
 Alternative Condition/Frequency #1: 18 miles/(19.4%)
 Alternative Condition/Frequency #2: 20 miles/(15.2%)

Simulated Photograph(s)

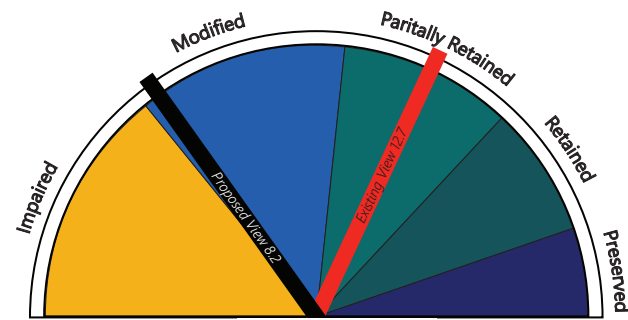


Field of View



Visual Impact Rating

Impact Rating Summary



-4.5. Significant

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	The tall beach lookout chair anchors this view and provides a focal point due to its contrasting color. Secondary focal points include the beach fencing, pink-tinged horizon line and cotton-candy clouds.
Order	The horizontal landscape is punctuated by the repeating vertical fence elements and railings, which are a visual barrier, and the broken clouds in the sky that compress the view to the center of the image.
Visual Clutter	There is "clutter" in this view (boardwalk railing, dilapidated shoreline fence, signage, and lifeguard chair) but it is not significant enough to disrupt any kind of natural order.
Movement	Waves, boats on the water, people on the beach, and wildlife.
Duration & Frequency of View	Moderate to long duration and high frequency view experienced by residents and beach-goers.
Atmospheric Conditions	The early morning view has a dark sky, a clear or bright sky would increase WTG definition.; Drier conditions might increase visibility
Lighting Direction	Side-Lit
Scenic or Recreational Value	NRHP Historic District and this location is a popular beach destination. The ocean is the major contribution to the scenic value of this resource.

Compatibility and Contrast Rating Average

Beach Haven Historic District			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.8	2.8	2.5
Landform	1.5	1.5	2.0
Vegetation	1.3	1.3	2.0
Land Use	2.5	2.3	2.3
User Activity	2.5	2.3	2.3

1 – Compatible	1 – Minimal	1 – Subordinate
2 – Somewhat Compatible	2 – Moderate	2 – Co-Dominant
3 – Not Compatible	3 – Severe	3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 12.7
 Rating Panel Score Range: 11.7 - 13.7

This view is from the edge of the Beach Haven Historic District in the Borough of Beach Haven, New Jersey. The District was added to the National Register of Historic Places on July 14, 1983 for its significance in architecture and history as a beachfront resort during the 19th century. The District's boundary was increased on November 19, 2014 to cover 30 square blocks, with its boundary running from 5th Street to Chatsworth Avenue and from Bay Avenue to Atlantic Avenue. It now includes 149 contributing buildings. The adjacent Beach Haven Borough Public Beach is a popular swimming and sunbathing destination on Long Beach Island. In-season access requires a beach badge, and lifeguard and beach patrol services are provided.

The existing view to the south-southeast from this location looks across a fenced dune restoration area directly out to the ocean. The early morning light is illuminating the fence posts and lifeguard chairs, as well as the surface of the sand and foam along the beach. Continuing away from the gentle surf, the ocean's surface is a silver blue to deep green color, reflecting the rising sun. Swells near the shoreline give way to a relatively smooth water surface that extends to the horizon line. In the distance, the blue water meets low, illuminated clouds on the horizon, which then transitions to a blue sky streaked with clouds overhead. Adjacent residential development is not visible (behind the viewer), but the abundant fencing, lifeguard chairs, and signage demonstrate a strong level of human use/management along the beach. The view is peaceful and the lighting is attractive, and the overall scenic quality of this view is average to distinct.

Rating panel members indicated that the view of the early morning light across the open water with the warm tones of the sand and the deep green of the ocean is visually appealing. The dapple clouded, light blue sky is accentuated by the pink tinge along the horizon. In contrast to the natural beauty of the seascape, the foreground view contains a high level of man-made visual clutter, however, the horizontal lines of the elements, that include the beach fencing, ramp rails, and signposts, are installed parallel to the shoreline and complement the rolling wave action, thereby not entirely detracting from the view. It was also noted by a rating panel member that while the view appears to be undeveloped, the viewer merely needs to turn 180-degrees to observe the heavily built residential Historic District behind them. Rating panel scores for the existing conditions photographs ranged from 11.7 to 13.7 (average score = 12.7). The score indicates that this view is partially retained.

Proposed Conditions

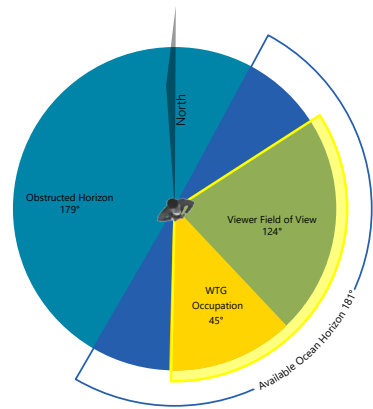
Scenic Quality: Modified
 Rating Panel Score Average: 8.2
 Rating Panel Score Range: 4.7 - 10.7
 Impact Magnitude: 4.5 (Significant)

With the proposed Project in place, the view is dominated by a large array of WTGs that span across an extensive portion of the ocean view to the south-southwest from this location. The Project is in varying states of visibility due to the side-lit conditions of the morning sky. Of the 185-degrees of relatively unobstructed ocean horizon, the Project occupies approximately 45-degrees or approximately 24 percent of the view. Project visibility is enhanced by the relative proximity of the WTGs and the rising sun side-lighting condition, which makes the WTGs appear light colored and a ghostly blue-gray color against the pink horizon. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 4.7 to 10.7 (average score = 8.2). These scores indicate an average reduction of 4.5 points in comparison to the existing view, which suggests the view has become modified and significant visual impacts would result from the Project during clear conditions. Individual rating panel members indicated score reductions that ranged from 1.0 to 8.3. One panel member suggested that the WTGs are a dominant built feature in a once nearly pristine seascape. Despite the light color and slender silhouette of the WTGs against the sky, the stacking of the WTGs (in the left of the view) plays into a perceived arrangement of disorganized and random elements as the viewer moves to the right, thereby creating an increased sense of visual clutter. The movement of the overlapping rotor blades will also attract viewer attention and make the WTGs the focus of this ocean view. However, the clear conditions presented in this photosimulation are not typical or frequent viewing conditions. Based on the 2019 meteorological data, the atmospheric conditions represented in this photosimulation (visibility extending to 32 miles) only occurs during approximately 7% of the daylight hours in August. Two additional photosimulations were created to illustrate atmospheric conditions that occur during 15% and 20% of the daylight hours in August to show more typical visibility conditions. During 15% of daylight hours visibility extends to a distance of 20 miles and during 20% of daylight hours visibility extends to 18 miles. As illustrated in the 15% scenario, only the first few rows of WTGs are faintly visible on the horizon and their prominence is significantly reduced due to a reduction in color contrast and less visible stacking or layering of multiple rows of WTGs. During the 20% scenario, even the nearest WTGs become difficult to see though the atmospheric haze. It is important to note that during these atmospheric condition scenarios, weather conditions on the shore are still perceived as clear and viewers would likely characterize the day as "very clear".

Panel members assigned the Project visibility an average VTL of 5 from this KOP. The WTGs were considered not compatible, resulted in severe scale contrast, and are the dominant feature when considered in the context of the Ocean (water resources). The rating panel also indicated significant scale, compatibility, and spatial dominance contrast with land use and user activity. These scores are consistent with a VTL of 5.

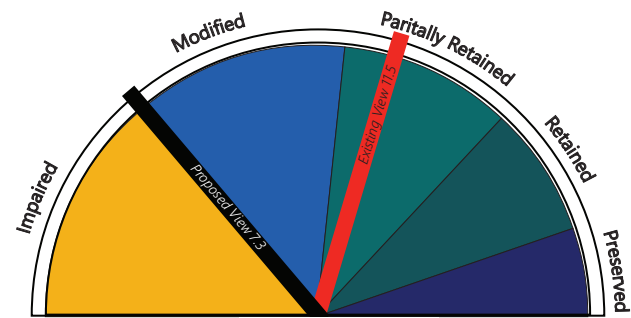
BHB01 Beach Haven Historic District (Night)

Field of View



Visual Impact Rating

Impact Rating Summary



-4.3. Significant

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	The lifeguard chair becomes a focal point only because it is white in an otherwise dark landscape.
Order	The layering of shoreline, open water and horizon create a natural order.
Visual Clutter	There is hardly any ambient light to illuminate the context. The fence line and chair in the foreground attract one's attention.
Movement	Waves and buoy lights likely to be the only features in motion.
Duration & Frequency of View	Short Duration and Occasional
Atmospheric Conditions	Clear
Lighting Direction	Nighttime
Scenic or Recreational Value	Beach Haven Historic District; This area will be used by nearby homeowners and visitors for recreation and views of the nighttime sky.

Compatibility and Contrast Rating Average

Beach Haven Historic District - Night			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.3	2.3	2.3
Landform	1.5	1.8	2.3
Vegetation	1.0	1.0	1.5
Land Use	2.6	2.6	2.8
User Activity	2.5	2.8	2.8

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 11.5
 Rating Panel Score Range: 9.8 - 12.3

This nighttime view is from the edge of the Beach Haven Historic District in the Borough of Beach Haven, New Jersey. The existing view from this KOP is extremely dark, presenting few features that allow the eye to focus, except for a fence in the foreground and low surf at the shoreline. Although the open ocean is directly in front of the viewer, the horizon is barely visible in the distance below a subtle veil of low clouds. In this setting, user experience at the KOP is more likely to be defined by the extreme darkness, and the sound and smell of the adjacent ocean, rather than any visual components of the landscape.

Rating panel scores for the existing conditions photograph ranged from 9.8 to 12.3 (average score = 11.5). The rating panel score for this KOP indicates that the nighttime view from this KOP is partially retained.

Proposed Conditions

Scenic Quality: Impaired
 Rating Panel Score Average: 7.3
 Rating Panel Score Range: 4.7 - 9.7
 Impact Magnitude: 4.3 (Significant)

With the proposed Project in place, the WTG's flashing red lights extend across a substantial portion of the horizon. The visual effect of the lights is accentuated by their number, expanse, and the stacking of rows of WTGs, which increases the intensity of the lights and creates visual hot spots in the view. Due to the lack of other visible features, the WTG lights are the only real focus of the view. All other landscape elements blend together in the dark in comparison to the lights. Due to viewer perspective of the WTG array's grid layout the WTGs appear as a splay of red lights in the middle of the view that appears somewhat odd. Variation in perceived WTG height (due to varying distance from the viewer) in combination with the flash pattern and rotor movement will make the lights the dominant feature of the view.

Rating panel members had variable reactions to the nighttime impact resulting from the Project WTGs, with the VIA scores ranging from 4.7 to 9.7 (average score = 7.3). These scores indicate an average reduction of 4.3 points in comparison to the existing view suggesting significant visual impacts may result from the AOWs at nighttime when active. Individual rating panel members indicated reductions that ranged from 0.3 to 7.3. With the Project in place, the AOWs result in this view becoming impaired.

The rating panel scores indicated an average VTL score of 5. Considering the compatibility, scale contrast, and spatial dominance factors that influenced the VTL at this KOP, impacts to user activity and land use were the greatest. The rating panel felt the AOWs are not compatible, present severe scale contrast, and dominate the nighttime view. The AOWs present moderate scale contrast with the ocean (water resources), as well as co-dominance and

BHB01 Beach Haven Historic District

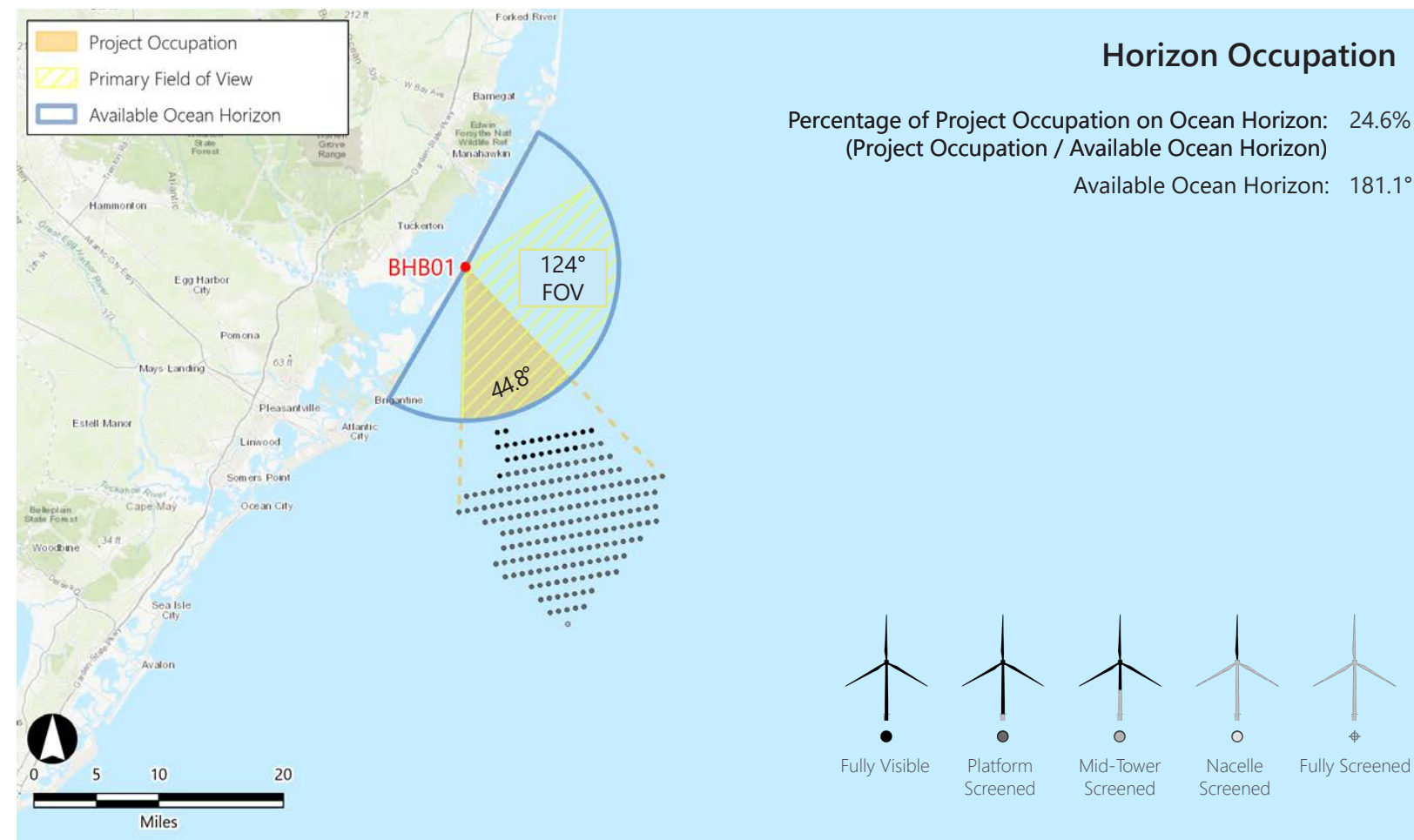
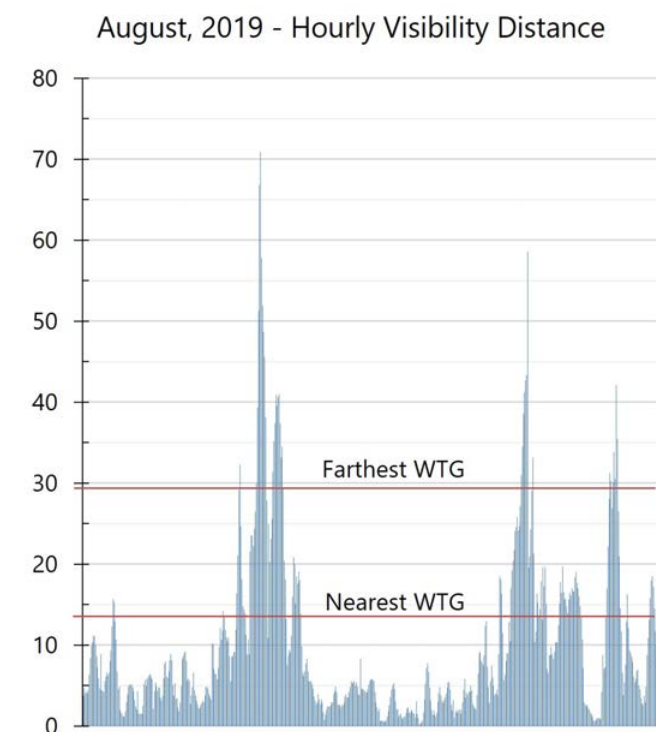
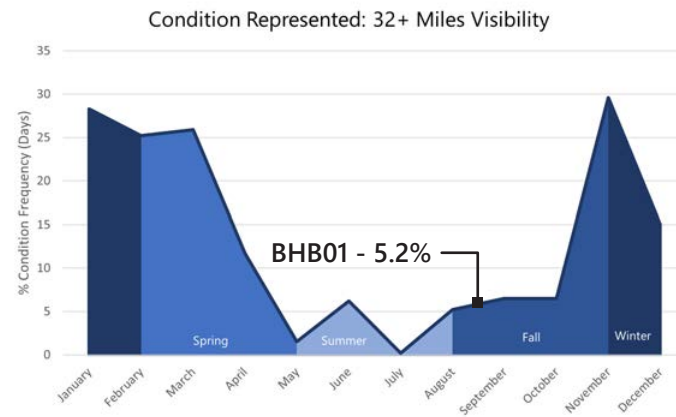
Beach Haven Borough, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 13.5 miles
 Camera Height: 17.72 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

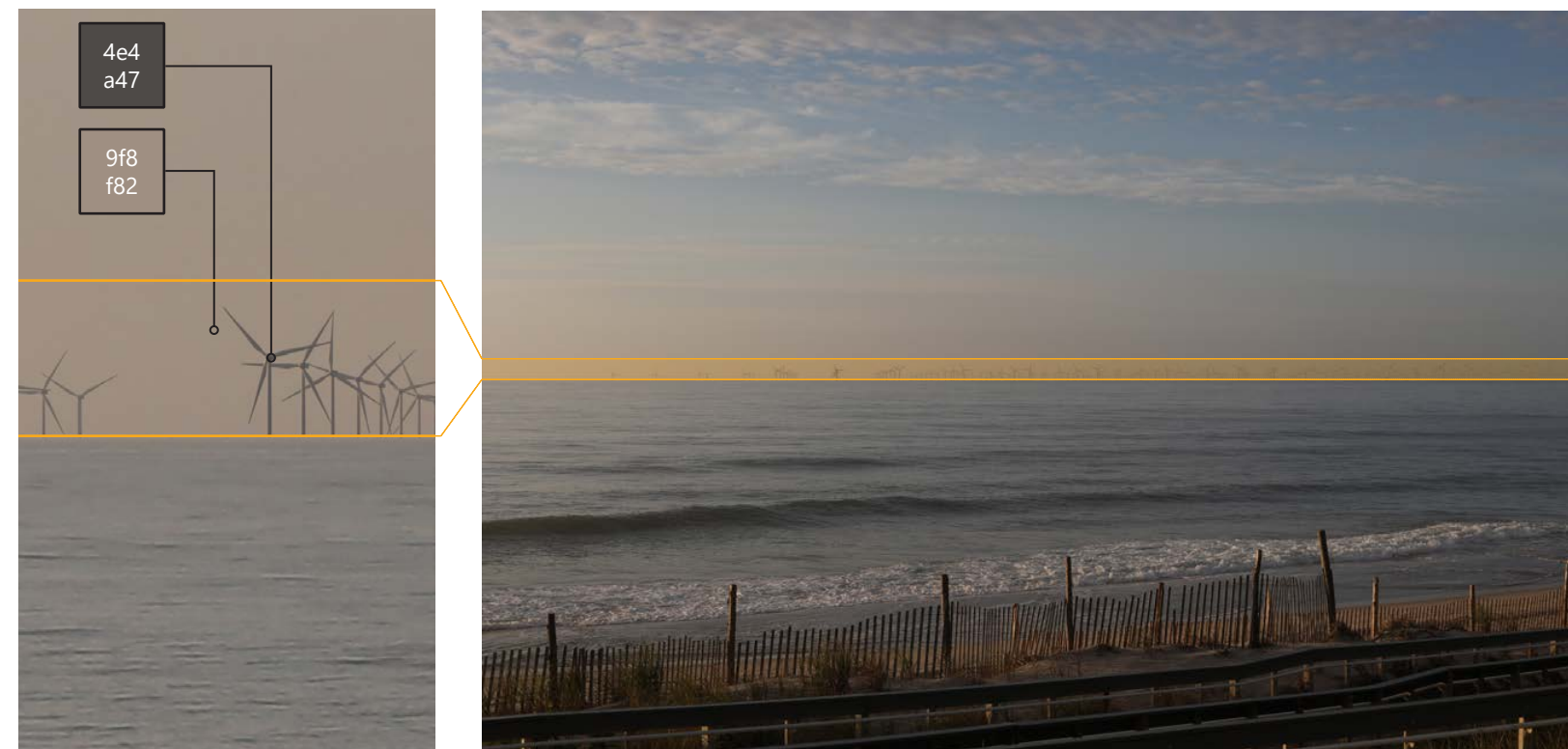
Color Contrast Rating: 2.8

Turbine
 Background

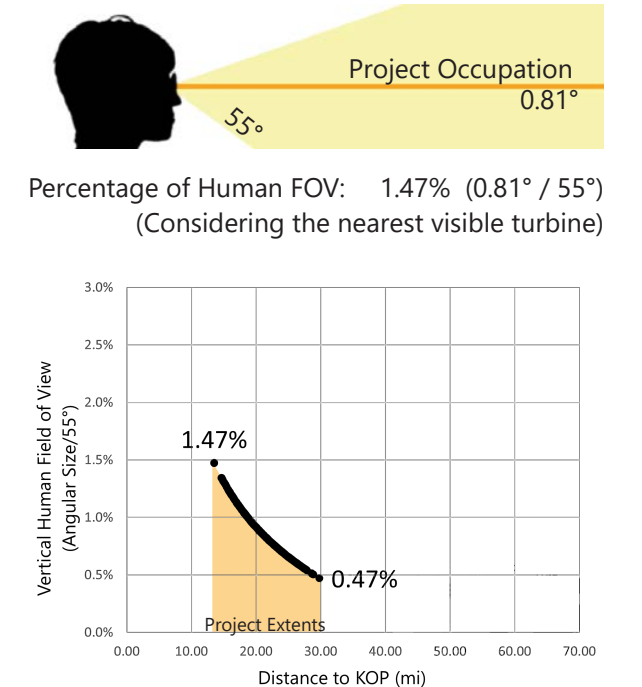
Lighting Condition: Back lit
 Season: Summer
 Sky Condition: Cloudy
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP MC02 illustrates the project from 14.43 miles in the front lit condition. This provides an indication of how the turbines may appear from this KOP during evening conditions.



Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 18-mile Visibility



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 20-mile Visibility



Atlantic Shores Offshore Wind Project
Outer Continental Shelf - New Jersey

Key Observation Point: BHB01 - Beach Haven Historic District
Attachment E: Photosimulations; Page 48 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Nighttime Rendering)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photo Rendering (Nighttime)



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: BHB01 - Beach Haven Historic District
Attachment E: Photosimulations: Page 50 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 18-mile Visibility



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 20-mile Visibility



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Nighttime Rendering)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photo Rendering (Nighttime)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

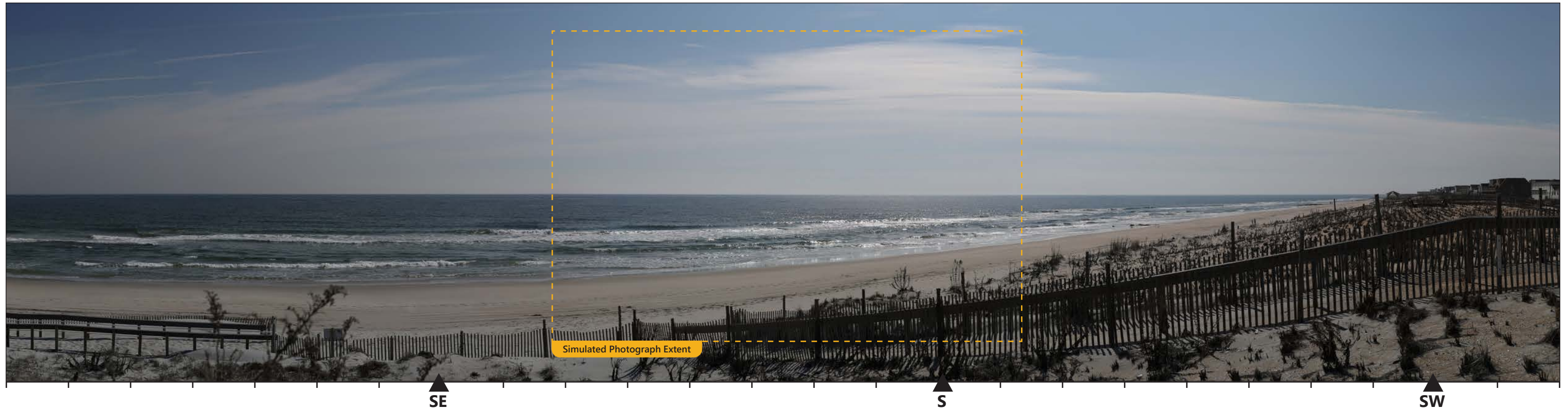
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



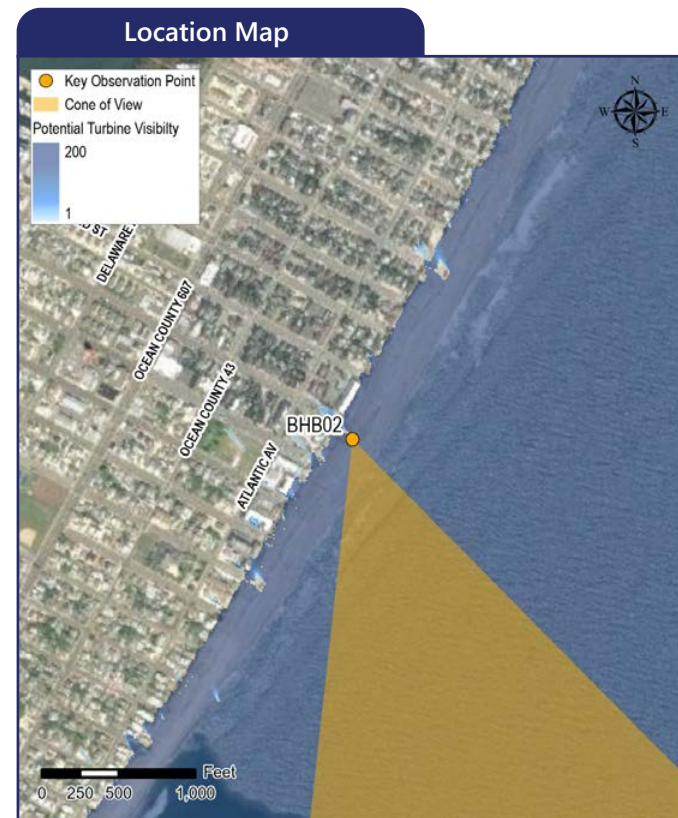
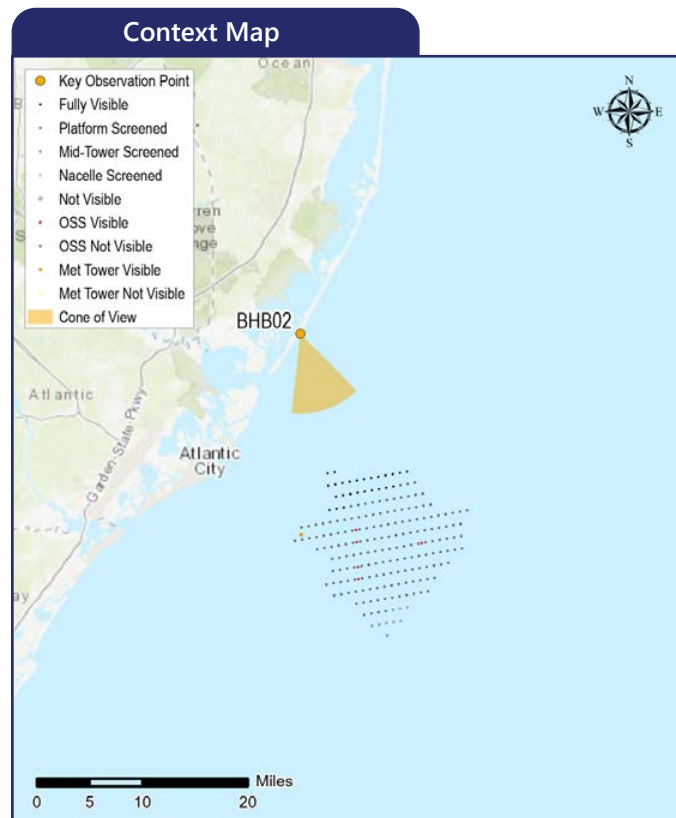
This scale is designed to insure the photosimulation images are printed at the intended size.

BHB02 Centre Street, Beach Haven

Beach Haven Borough, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Long Beach Island, panning clockwise from east (left) to southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates:	39.56169°N, 74.23571°W
Character Area:	Residential Beachfront, Seascape (SCA)
User Group:	Residents/Tourists
Direction of View:	South-southeast
Distance to Nearest Visible Turbine:	13.49 miles
Visually Sensitive Resource:	Beach Haven Borough Public Beach

Environmental Information

Date Taken:	03/02/2022
Time:	12:03 PM
Temperature:	54°F
Humidity:	40%
Visibility:	10 miles
Wind Direction:	West-northwest
Wind Speed:	17 mph
Conditions Observed:	Fair

Photograph Information

Camera:	Canon EOS 5D Mark IV
Resolution:	30.4 Megapixels
Focal Length:	50mm
Camera Height:	27.01 feet AMSL

Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)

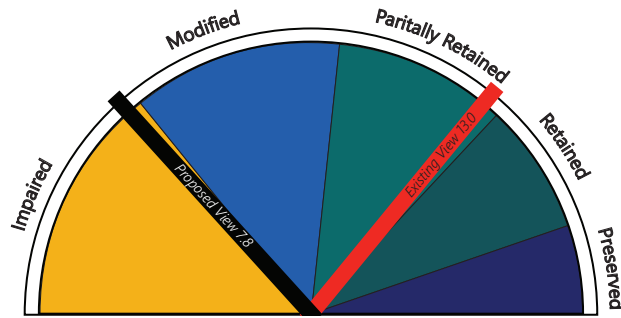


Beach Haven and Holgate Variable Conditions Assessment

Visual Impact Rating

Impact Rating Summary

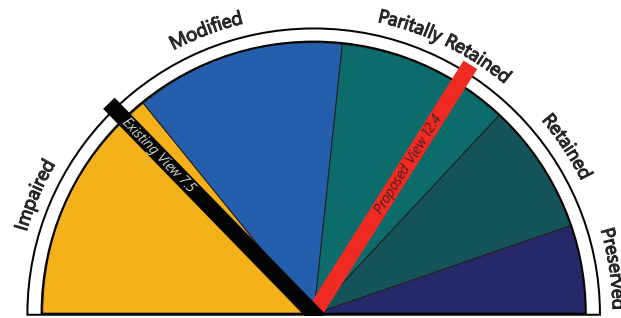
BHB02



-5.3. Significant

Impact Rating Summary

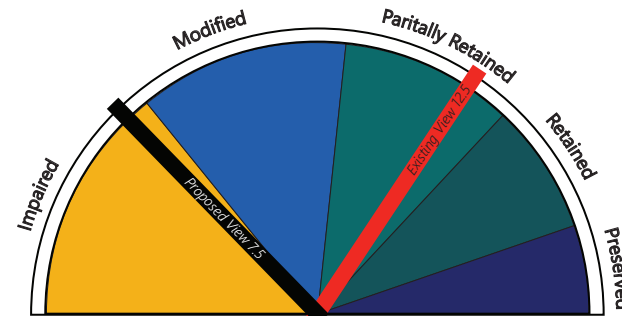
BHB03



-4.8. Significant

Impact Rating Summary

LBT04



-5.0. Significant

KOP Summary

These views were provided at the request of a Long Beach Island citizens group to illustrate how the WTG may appear during different times of day. The location of these views is very similar to the view from Beach Haven Historic District (BHB01). As requested, these photosimulation illustrate the project during sunrise or morning, midday, and sunset or afternoon. The rating panel results for all nine of these variable conditions photosimulations were very similar. All views were considered to be partially retained, with scores ranging from 8.8 to 15.0. Reductions in score ranged from -4.8 to -5.3 considering the rating panel averages, resulting in modified and impaired views with the Projects in place. It should be noted that the rating panel members were asked to independently determine which time of day presented the highest contrast conditions, and all four members agreed that the backlighting of the turbines against a light morning or noon sky presented the most conservative visibility scenario. All of the views considered from these locations received a VTL of 5, with the exception of BHB02, which received a VTL of 6. The horizon occupation of the Projects from these location ranged from 44.5 degrees to 46.6 degrees which is between 24 percent and 35 percent of the available ocean horizon depending on the viewer location. Each of the view context sheets provides specific details regarding the horizon and vertical occupation of the turbines.

Compatibility and Contrast Rating Average

Centre Street Beach Haven			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	3	3	3
Landform	1.8	1.5	1.8
Vegetation	1.3	1.0	1.0
Land Use	2.8	2.5	2.3
User Activity	2.8	2.5	2.5

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Holyoke Avenue			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	3	3	3
Landform	1.5	1.3	1.8
Vegetation	1.0	0.8	1.0
Land Use	2.3	2.3	2.3
User Activity	2.3	2.3	2.5

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Wildlife Refuge on South Long Beach Boulevard in Holgate			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.9	2.9	2.9
Landform	1.5	1.5	1.8
Vegetation	0.3	0.3	0.3
Land Use	2.5	2.5	2.3
User Activity	2.8	2.5	2.3

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

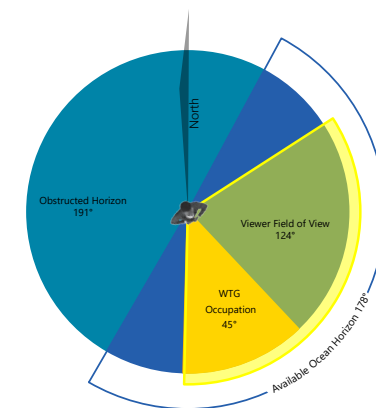
Visual Threshold Level (VTL)

6 An object/phenomenon with strong visual contrasts that is so large that it occupies most of the visual field, and views of it cannot be avoided except by turning one's head more than 45 degrees from a direct view of the object. The object/phenomenon is the major focus of visual attention, and its large apparent size is a major factor in its view dominance. In addition to size, contrasts in form, line, color, and texture, bright light sources and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject detracts noticeably from views of other landscape/seascape elements.

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

General Viewing Parameters



BHB02 Centre Street, Beach Haven

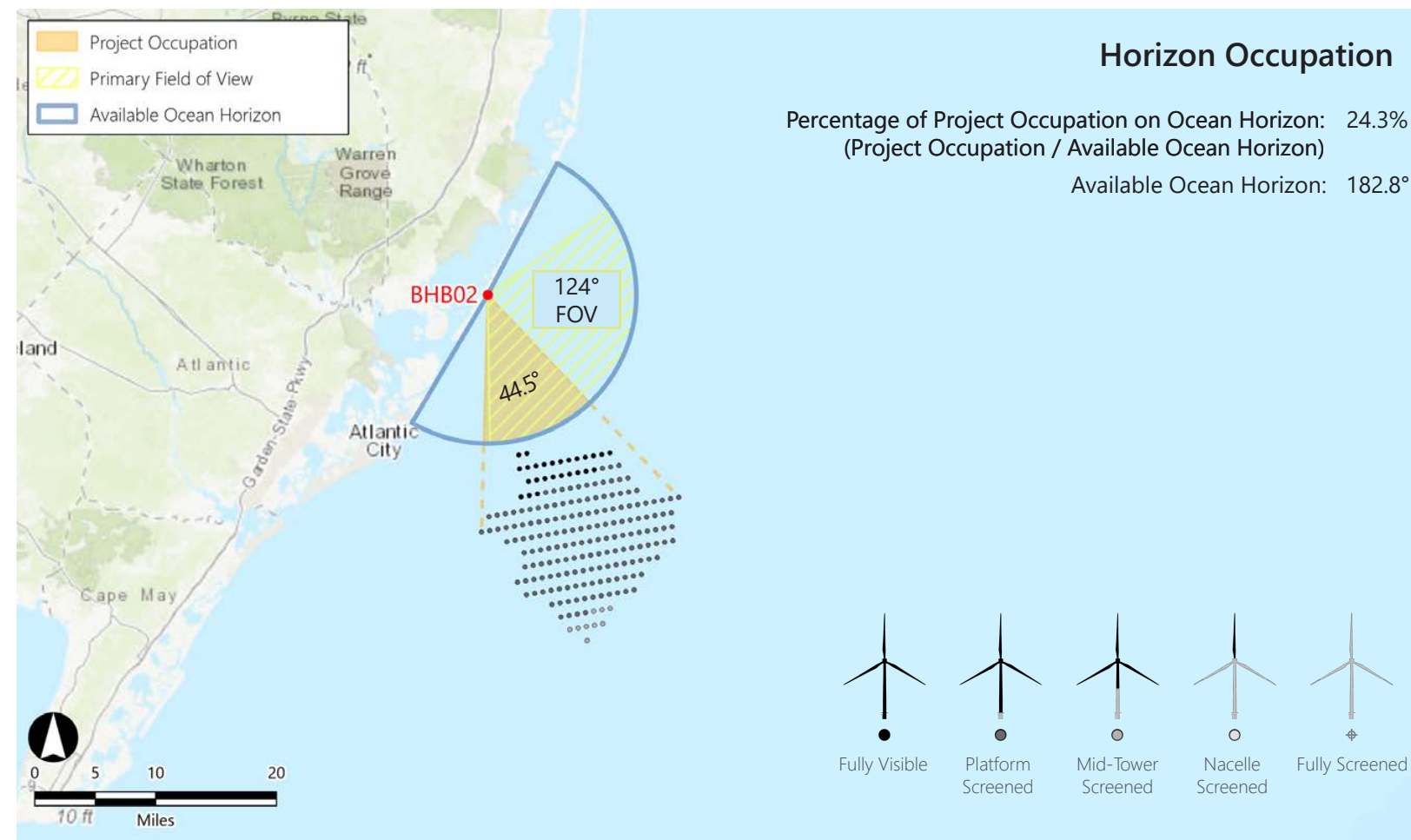
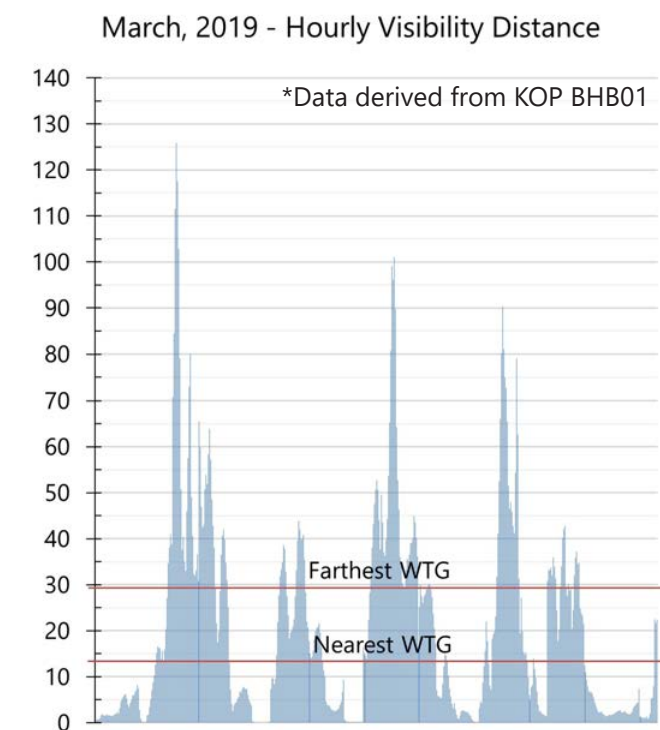
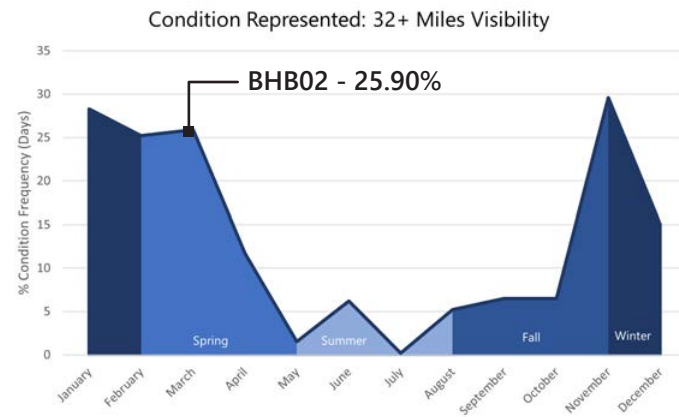
Beach Haven Borough, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 13.49 miles
 Camera Height: 27.01 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

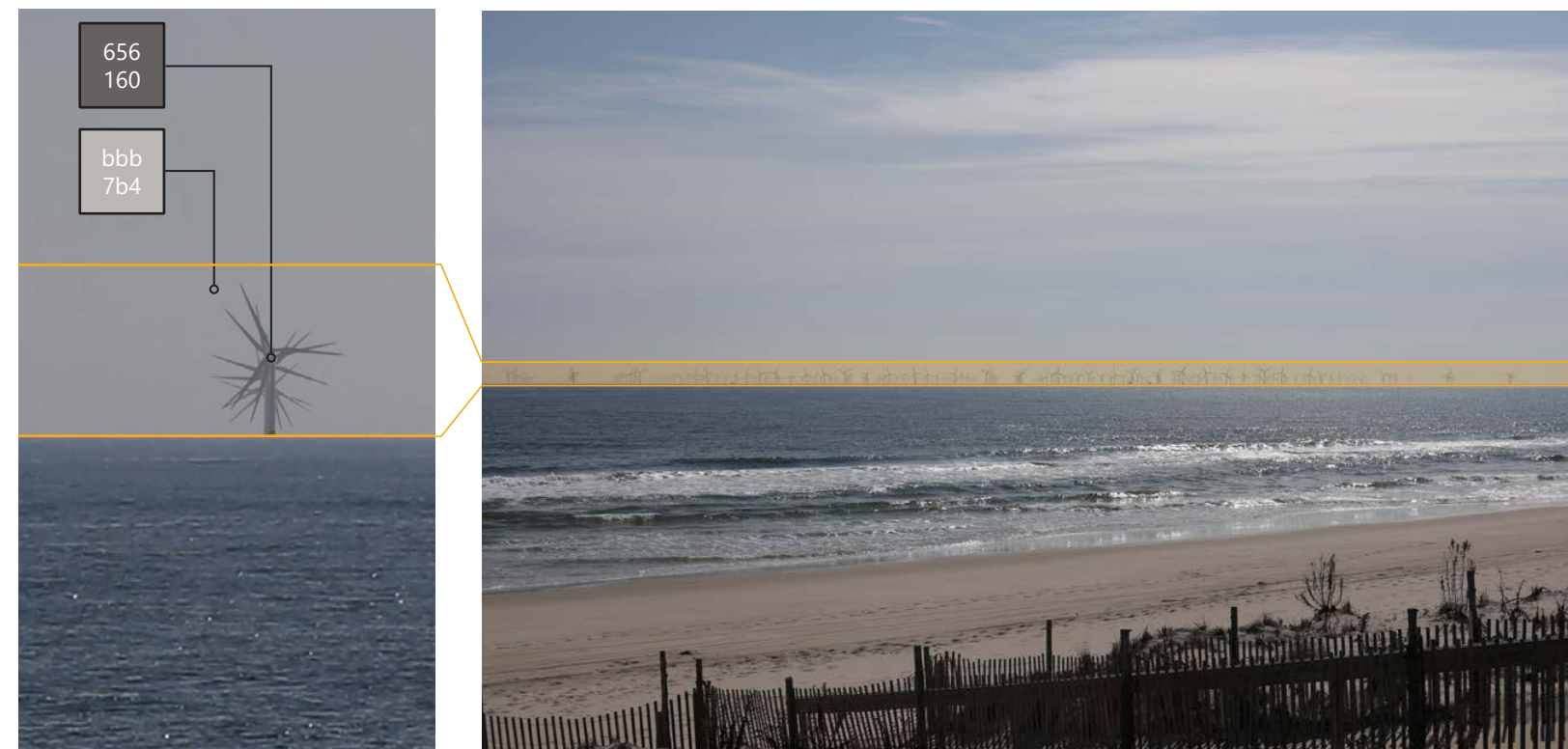
Color Contrast Rating: 3.07

Turbine: [Dark Grey Box]
 Background: [Light Grey Box]

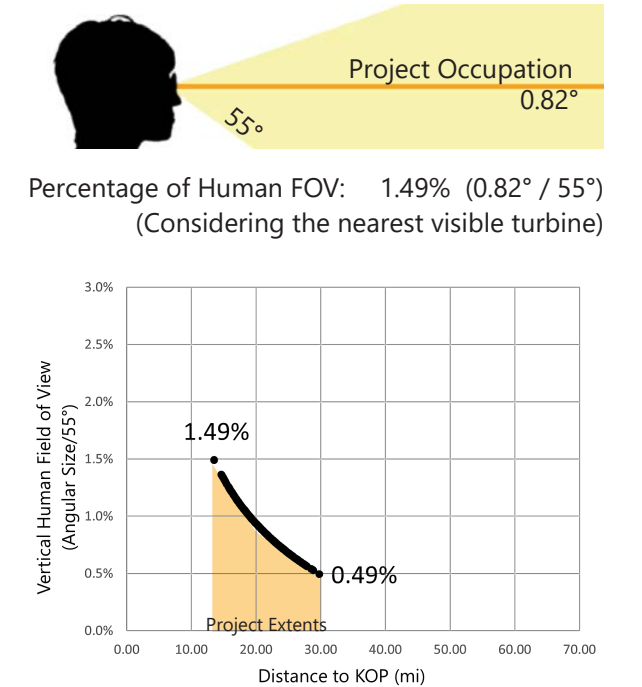
Lighting Condition: Side lit
 Season: Spring
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP BHB01 illustrates the project from 13.5 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.



Vertical Occupation



Existing Conditions (Sunrise)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



Photosimulation (Sunrise)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Noon)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation (Noon)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Sunset)



This scale is designed to insure the
photosimulation images are printed at the
intended size.

Printed at 100% the resulting photosimulation
size is 15 inches wide by 10 inches high. At
this size and focal length, the photosimulation
should be viewed from a distance of 21 inches.

Photosimulation (Sunset)



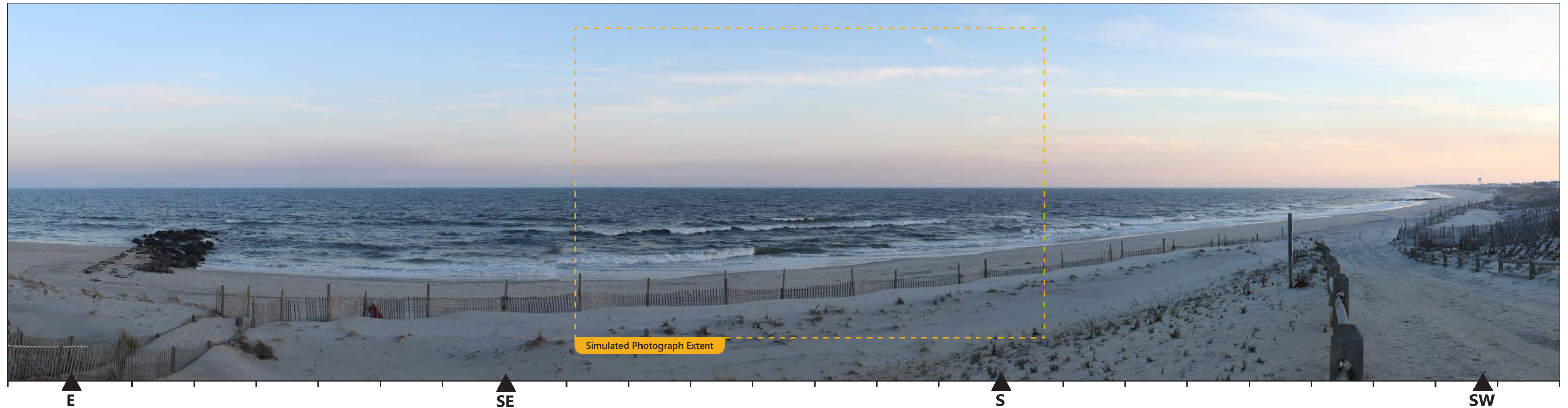
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



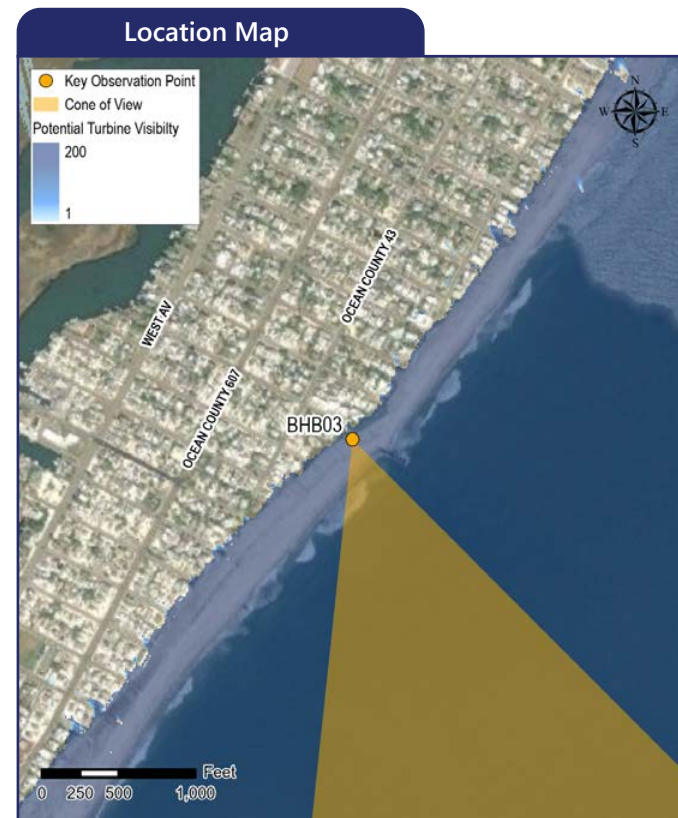
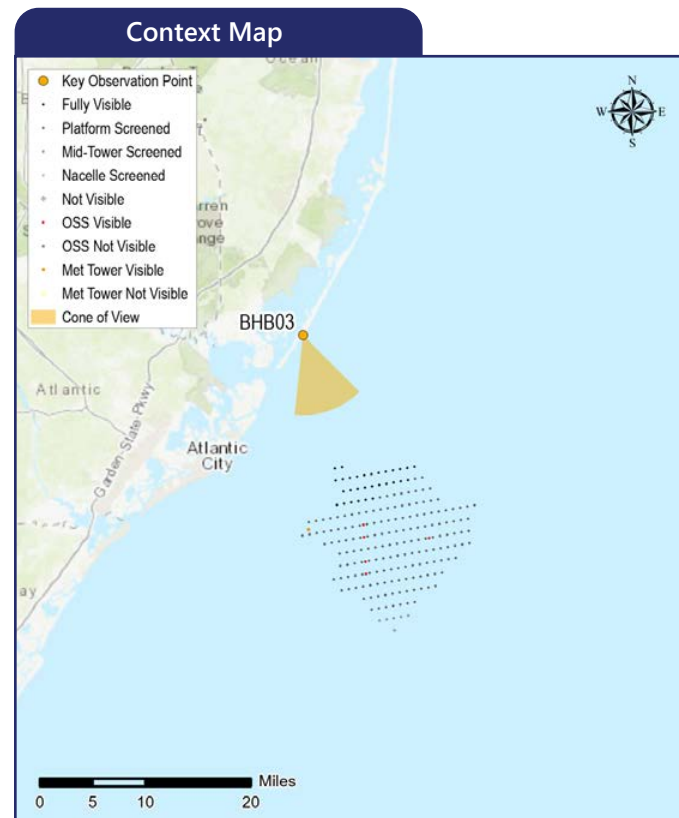
This scale is designed to insure the photosimulation images are printed at the intended size.

BHB03 Holyoke Avenue, Beach Haven

Beach Haven Borough, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Long Beach Island, panning clockwise from east (left) to southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.55258°N, 74.24419°W
 Character Area: Residential Beachfront, Seascape (SCA)
 User Group: Residents/Tourists
 Direction of View: South-southeast
 Distance to Nearest Visible Turbine: 12.97 miles
 Visually Sensitive Resource: Beach Haven Borough Public Beach

Environmental Information

Date Taken: 03/02/2022
 Time: 5:23 PM
 Temperature: 55°F
 Humidity: 30%
 Visibility: 10 miles
 Wind Direction: West
 Wind Speed: 9 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 26.85 feet AMSL

Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)



BHB03 Holyoke Avenue, Beach Haven

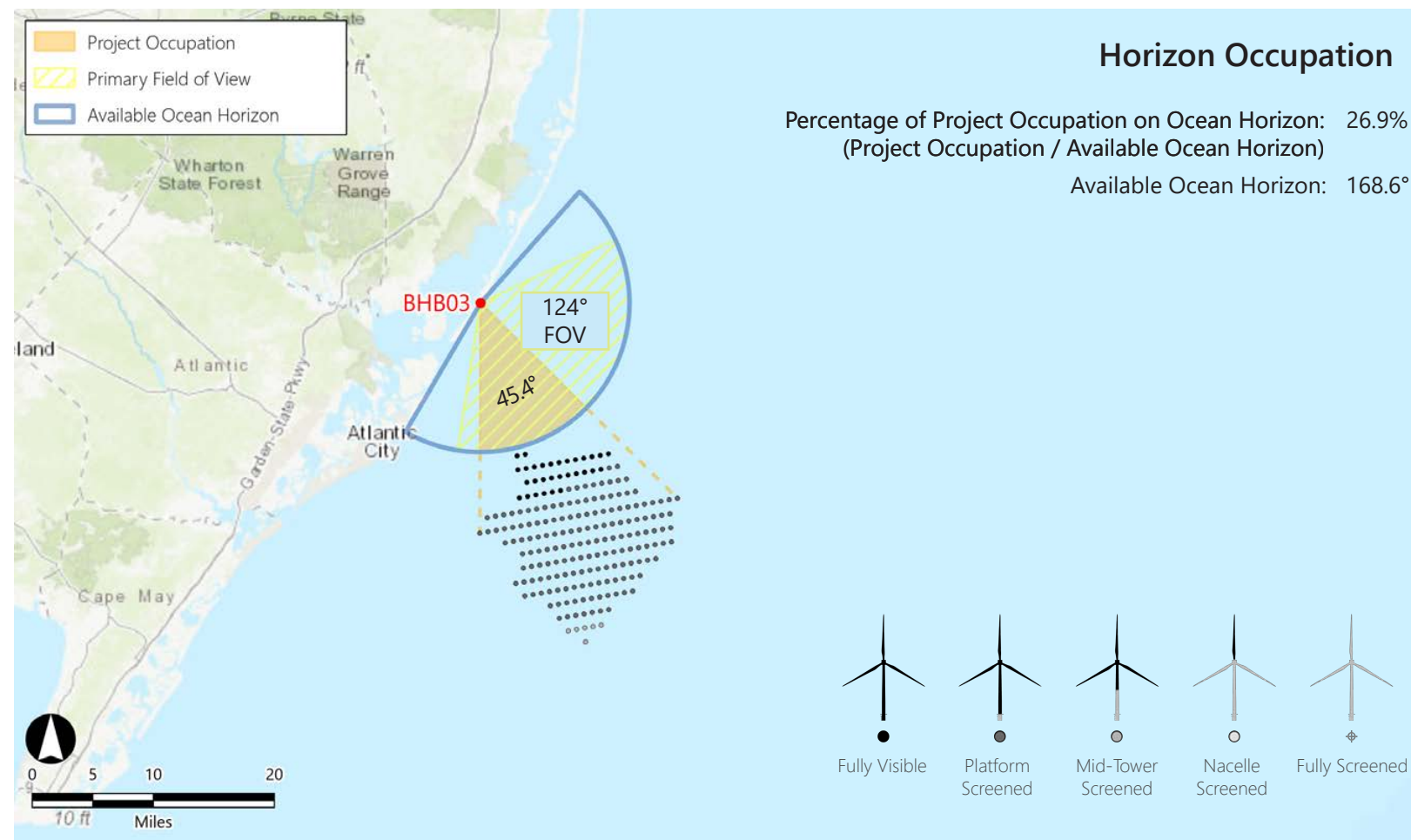
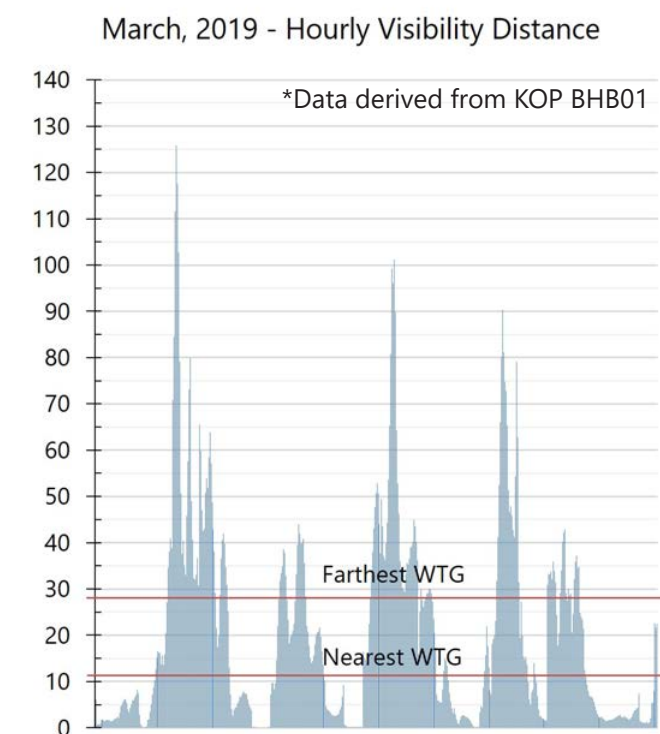
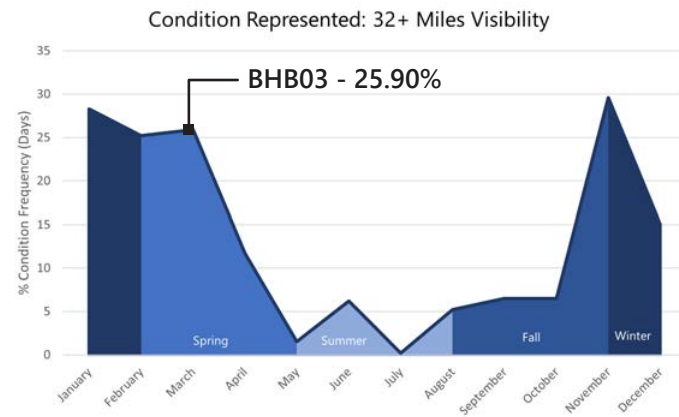
Beach Haven Borough, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 12.97 miles
 Camera Height: 26.85 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

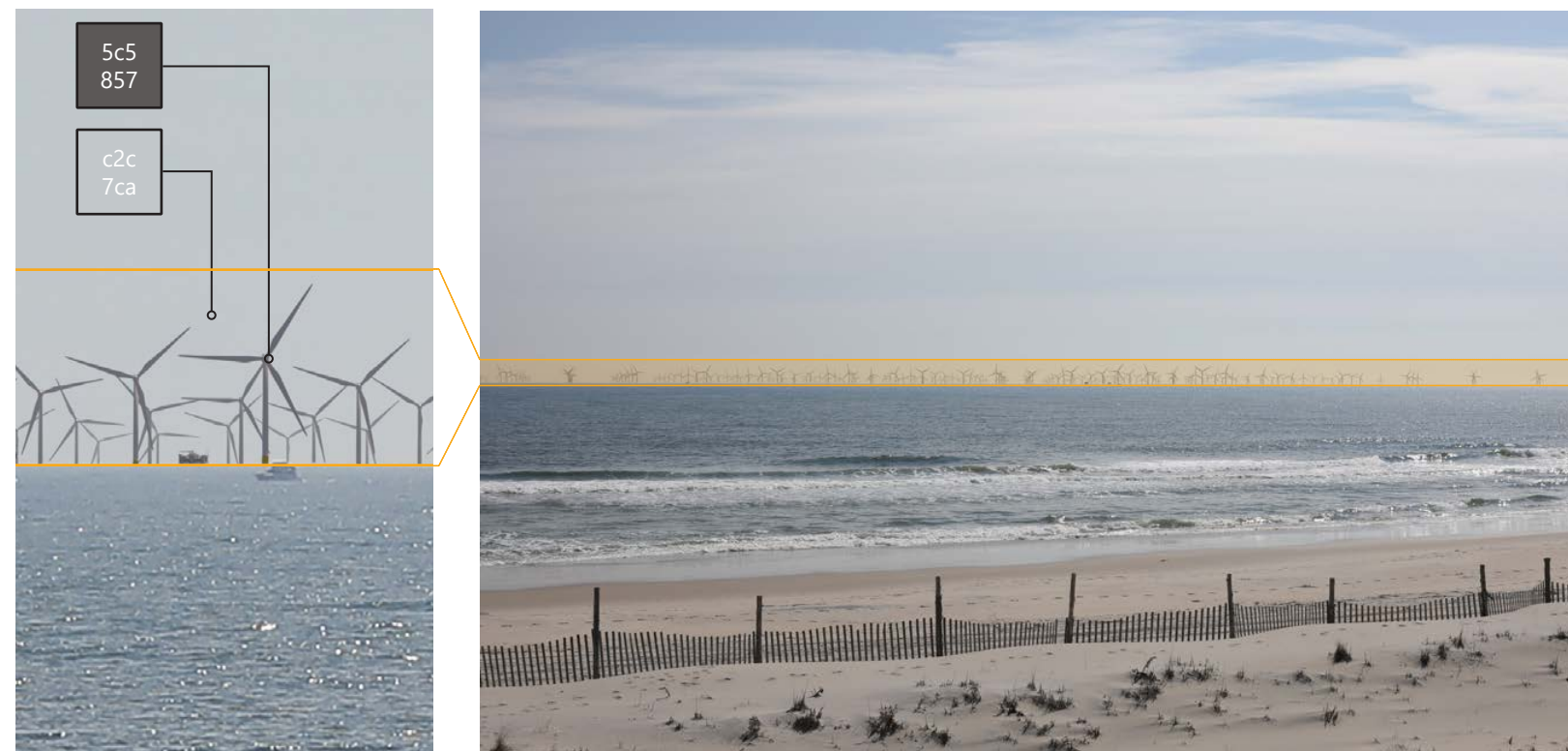
Color Contrast Rating: 4.12

Turbine (dark grey) / Background (light grey)

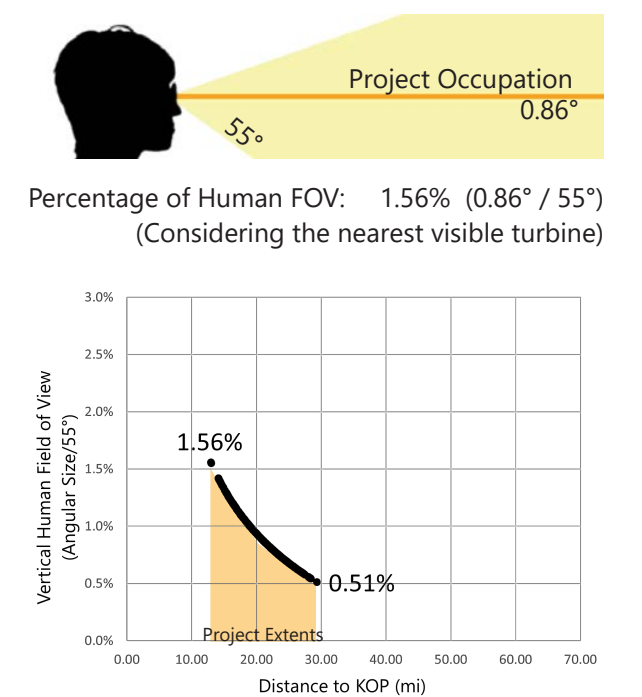
Lighting Condition: Side lit
 Season: Spring
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP LBT04 illustrates the project from 11.84 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.



Vertical Occupation



Existing Conditions (Sunrise)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation (Sunrise)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Noon)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation (Noon)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Sunset)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation (Sunset)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



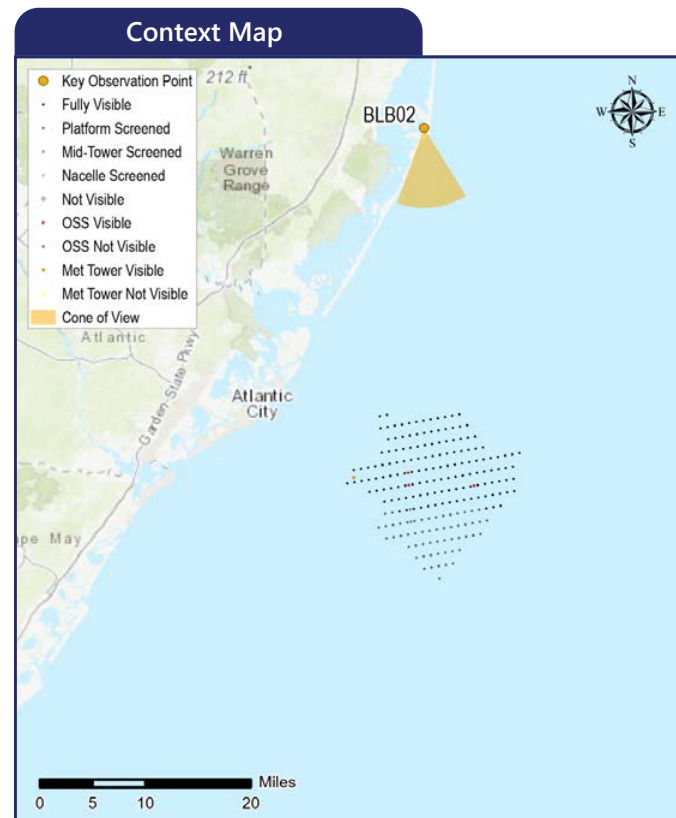
This scale is designed to insure the photosimulation images are printed at the intended size.

BLB02 Barnegat Lighthouse State Park

Barnegat Light Borough. Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from Barnegat Lighthouse State Park, panning clockwise from southeast (left) to southwest (right). The yellow rectangle represents the extent of the simulated photograph(s).



Simulation Information

Coordinates:	39.76434°N, 74.10624°W
Character Area:	Recreation, Seascape (SCA)
User Group:	Residents/Tourists
Direction of View:	South
Distance to Nearest Visible Turbine:	27.32 miles
Visually Sensitive Resource:	Barnegat Lighthouse State Park, Barnegat Lighthouse State Park- Fishing Access

Environmental Information

Date Taken:	09/20/2018
Time:	11:34 AM
Temperature:	72°F
Humidity:	73%
Visibility:	10 miles
Wind Direction:	East-northeast
Wind Speed:	9 mph
Conditions Observed:	Cloudy

Photograph Information

Camera:	Nikon D750
Resolution:	24 Megapixels
Focal Length:	50mm
Camera Height:	155.70 feet AMSL

Notes

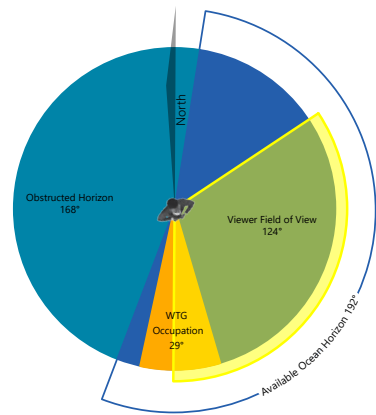
Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Viewshed Analysis indicates no ground-level visibility from this resource.

Simulated Photograph(s)

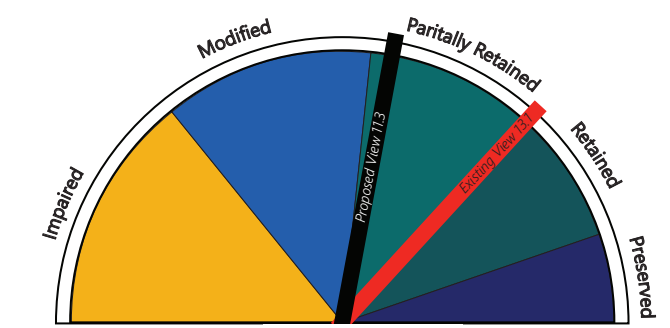


Field of View



Visual Impact Rating

Impact Rating Summary



-1.8. Minimal

Visual Threshold Level (VTL)

- 2** An object/phenomenon that is very small and/or faint, but when the observer is scanning the horizon or looking more closely at an area, can be detected without extended viewing. It could sometimes be noticed by casual observers; however, most people would not notice it without some active looking (Sullivan et al., 2013).
- 4** An object/phenomenon that is obvious and with sufficient size or contrast to compete with other landscape/seascape elements, but with insufficient visual contrast to strongly attract visual attention and insufficient size to occupy most of an observer's visual field.

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Horizon and neighborhood housing.
Order	Fan of residential structures out to ocean, water tower on the far right, surf edge, ocean and horizon with fluffy clouds above.
Visual Clutter	Mass of residential homes with interspersions of tree canopy.
Movement	Tree canopy, wave, and cloud movement.
Duration & Frequency of View	Short term and occasional due to accessibility and viewer activity.
Atmospheric Conditions	Overcast, visibility will increase on clear/partly cloudy days.
Lighting Direction	Backlit
Scenic or Recreational Value	Barnegat Lighthouse State Park and Fishing Access

Compatibility and Contrast Rating Average

Barnegat Lighthouse State Park			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	1.8	1.8	1.3
Landform	1.5	1.3	1.3
Vegetation	1.3	1.3	1.3
Land Use	1.5	1.5	1.3
User Activity	2.0	1.8	1.5

1 – Compatible	1 – Minimal	1 – Subordinate
2 – Somewhat Compatible	2 – Moderate	2 – Co-Dominant
3 – Not Compatible	3 – Severe	3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 13.1
 Rating Panel Score Range: 9.3 - 15.0

This view is from the Barnegat Lighthouse at Barnegat Lighthouse State Park. Built in 1859, the Barnegat Lighthouse is the central feature of the park, and from the observation deck offers a panoramic view of Barnegat Bay, Island Beach, and Long Beach Island. The lighthouse is open to visitors daily from Memorial Day through Labor Day, although it is currently closed for repairs. Along with the lighthouse, this small state park has an interpretive center and a 0.2-mile foot trail through one of the last remnants of maritime forest on Long Beach Islands. The park also offers opportunities for picnicking, bird watching, and fishing access to Barnegat Inlet. No swimming is allowed at the park. Barnegat Lighthouse State Park is part of the New Jersey Coastal Heritage Trail.

The selected KOP is from the observation deck of the Barnegat lighthouse. The elevated view to the south/southeast from this location offers a broad panorama of Long Beach Island extending from the foreground to the background. The island features abundant residential and commercial buildings interspersed with trees and is representative of the Recreation character area. Developed portions of the island are flanked by undeveloped marshland and the Atlantic Ocean to the east and the waters of Barnegat Bay to the west, much of which are outside of the field of view in the selected photo. That field of view is dominated by residential structures interspersed with trees in the foreground and middle ground. A water tower extends into the sky on the right side the view and serves as a focal point. The background includes the shoreline of the island and the waters of the Atlantic Ocean that extend uninterrupted to the horizon. Under the weather conditions featured in the photo, the ocean is a silver-gray color that blends with the overcast sky. The view has a developed character, but the lack of tall structures or other features that interrupt the sky give it an open expansive feel.

Rating panel members indicated that the existing elevated view from the Barnegat Lighthouse is partially retained. This view will be experienced for a relatively short period of time by lighthouse visitors, but their stationary presence on the observation deck allows for identification and focus on landscape/seascape features of interest. At this location, these primarily include developed features, but the broad expanse of open ocean also serves to draw the viewer's eye to the horizon.

Rating panel scores for the existing conditions photo ranged from 9.3 to 15.0 (average score = 13.1) indicating that the view is partially retained.

Proposed Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 11.3
 Rating Panel Score Range: 9.3 - 13.3
 Impact Magnitude: 1.8 (Minimal)

Viewshed analysis suggests that ground level views to the south/southeast toward the Project will be fully screened from most locations in Barnegat Lighthouse State Park. Exceptions would include the break wall/shoreline along the edge of the ocean, and from the elevated lighthouse observation deck.

With the proposed Project in place, the view to the south/southeast from the lighthouse now includes numerous turbines on the horizon at various distances from the viewer. Due to the elevation of this KOP, the towers and full rotors of most of the turbines are visible, with only their bases screened from view due to curvature of the earth. The turbines occupy approximately 29 degrees of the 191.8-degree ocean view available from this vantage point. The turbines on the southeast (left) and southwest (right) side of the view appear fainter and more widely spaced than those in the center of the view that are stacked up in more clearly defined lines. This stacking effect accentuates the turbines' visual presence and their contrast with the sky in the background. Turbine visibility and contrast are reduced under the overcast sky conditions featured in the selected photo, and would be more prominent under clearer conditions when strongly front-lit or back-lit. Their visibility and abundance, coupled with the fact that visitors to the lighthouse are there specifically for the view, make the turbines a prominent new focal point that will add to the developed shoreline character of the existing view. Rating panel members indicated that the Project WTGs would be "almost imperceptible" in the conditions represented, with VIA scores ranging from 9.33 to 13.3 (average score = 11.3). These scores indicate an average reduction of 1.8 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 0.0 to 4.0. As a result, the view from Barnegat Lighthouse remains partially retained and minimal visual impacts are anticipated under the conditions represented in the photosimulation. Panel members noted that "There is very little noticeable change on the horizon due to the light color of the turbines on the white sky" and that "The turbines are distant enough that they do not overwhelm the view". However, it was also indicated that "Viewers will come to this location to have an extended view" and that "...visitors the lighthouse expecting an open and expansive view from the top will catch glimpses of turbines dotting the horizon". One panel member noted that, "During clear conditions the turbines are likely to be much more prominent in the view and further distract viewers from the existing scene."

Considering the scale contrast, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTG's present a moderate scale contrast and are somewhat compatible with the existing seascape features and user activities. The rating panel also suggested that the WTGs are subordinate to co-dominant relative to other seascape features present in this view. Consistent with the anticipated scale contrast, compatibility, and spatial dominance impacts associated with the Project, panel members assigned Project visibility an average VTL of 2 from this KOP. However, panel members noted that during clearer conditions, this KOP's VTL score could reach a 4.

BLB02 Barnegat Lighthouse State Park

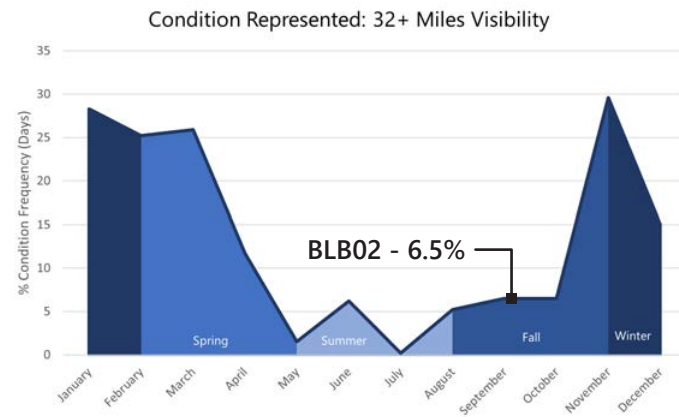
Barnegat Light Borough, Ocean County, New Jersey

KOP Information

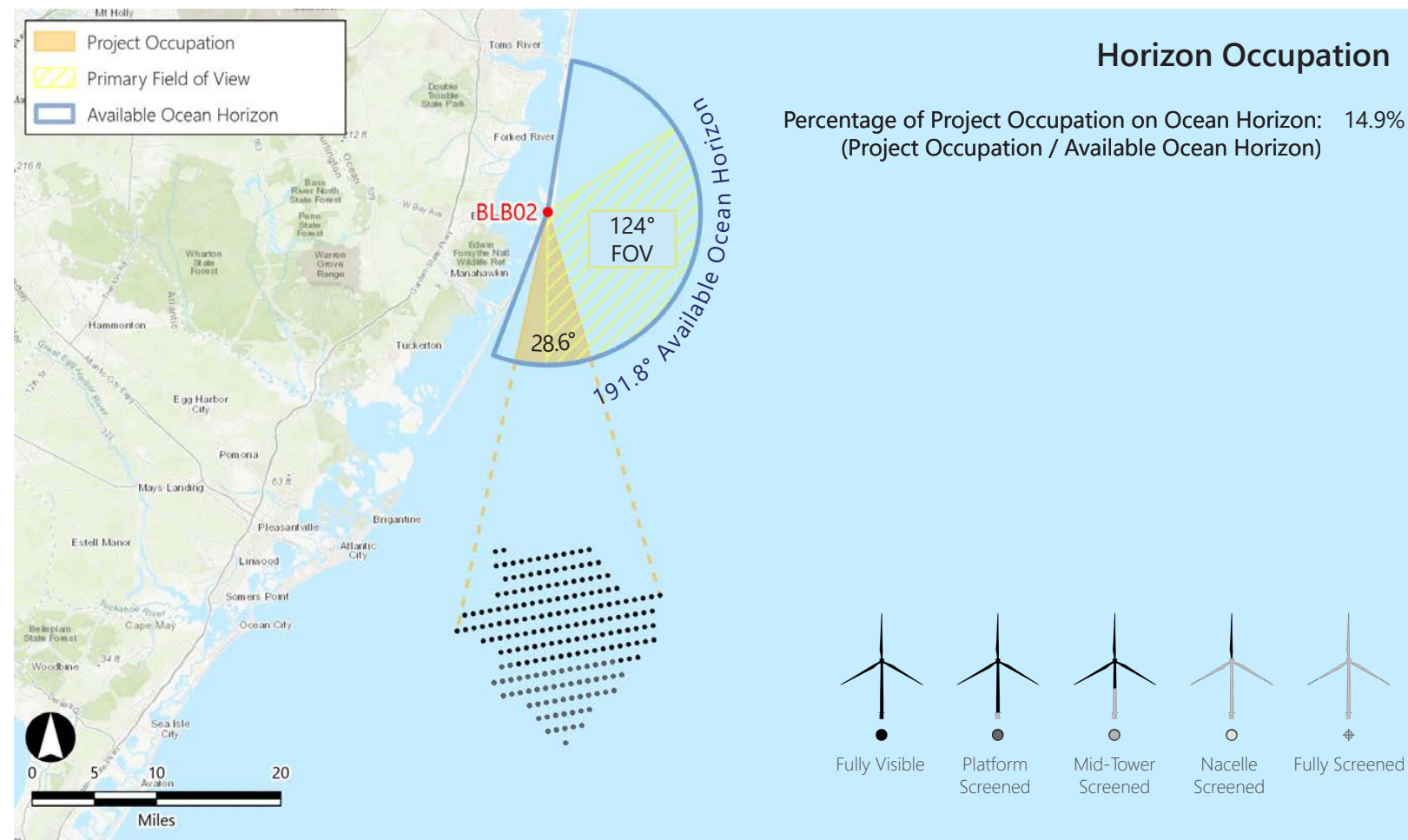
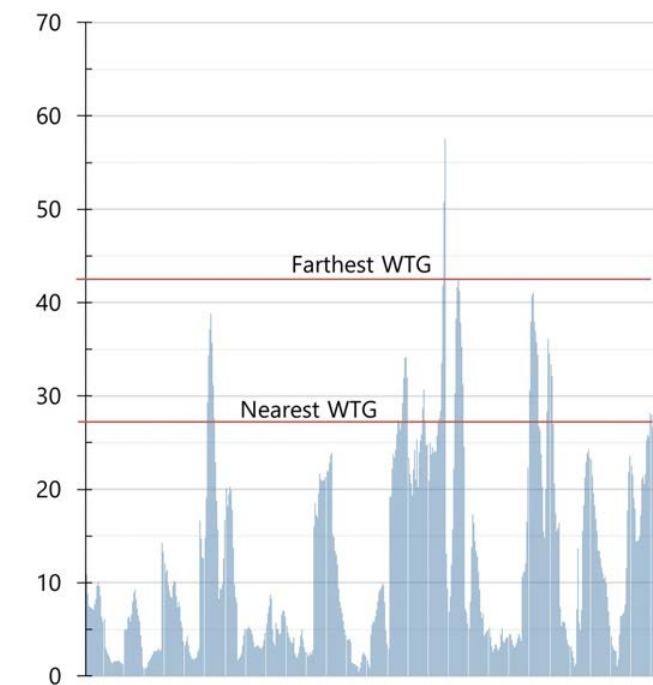
Primary Field of View: East
 Distance to Closest WTG: 27.32 miles
 Camera Height: 155.70 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



September, 2019 - Hourly Visibility Distance



WTG Color Contrast

Color Contrast Rating: 1.19
 Turbine (Grey) / Background (Light Grey)

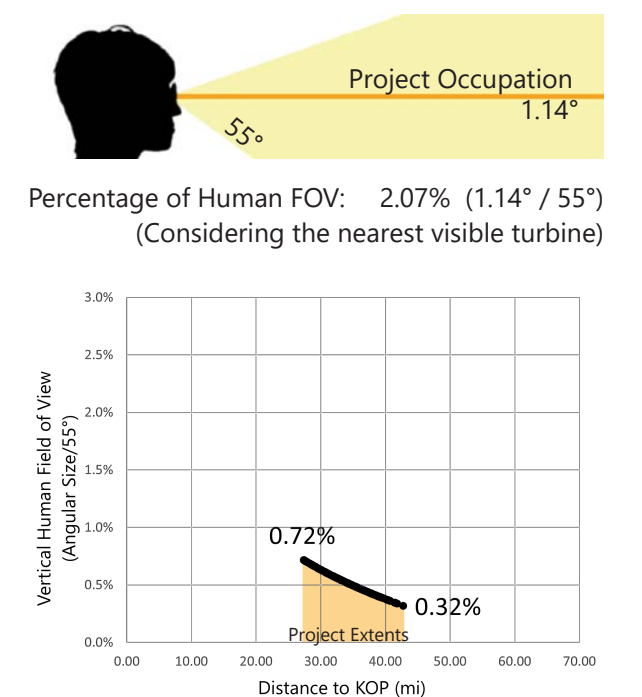
Lighting Condition: Back lit
 Season: Fall
 Sky Condition: Cloudy
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP EMC01 illustrates the project from 25.7 miles in the side lit condition. This provides an indication of how the turbines may appear from this KOP during midday conditions.



Vertical Occupation



Existing Conditions



Photographic data provided by and credited to:
TJD&A Landscape Architects and Planners | Ocean Wind LLC | Orsted Wind Power North America LLC



Photosimulation



Photographic data provided by and credited to:
TJD&A Landscape Architects and Planners | Ocean Wind LLC | Orsted Wind Power North America LLC

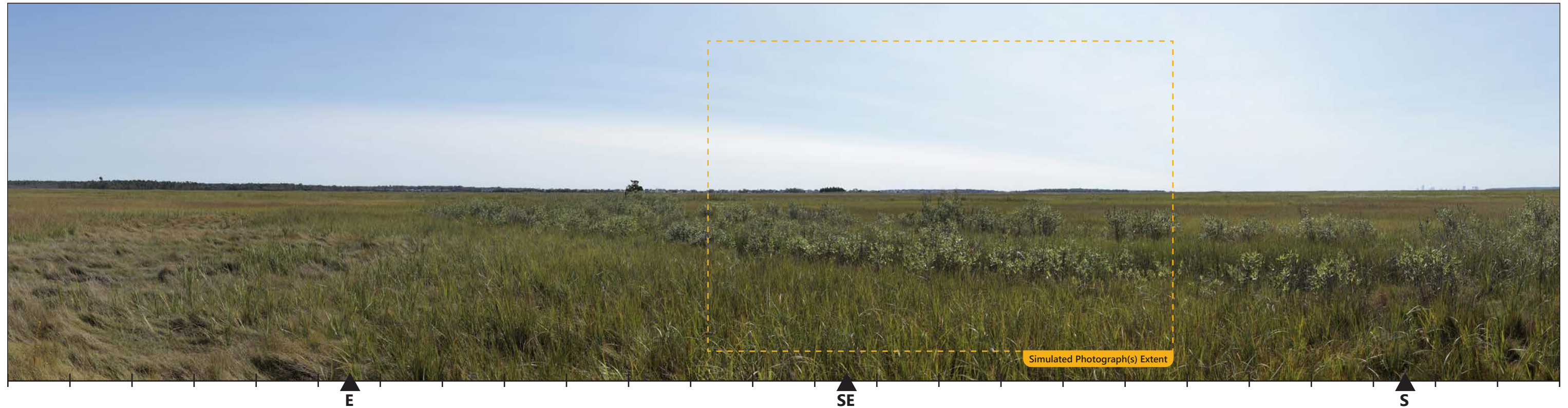
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



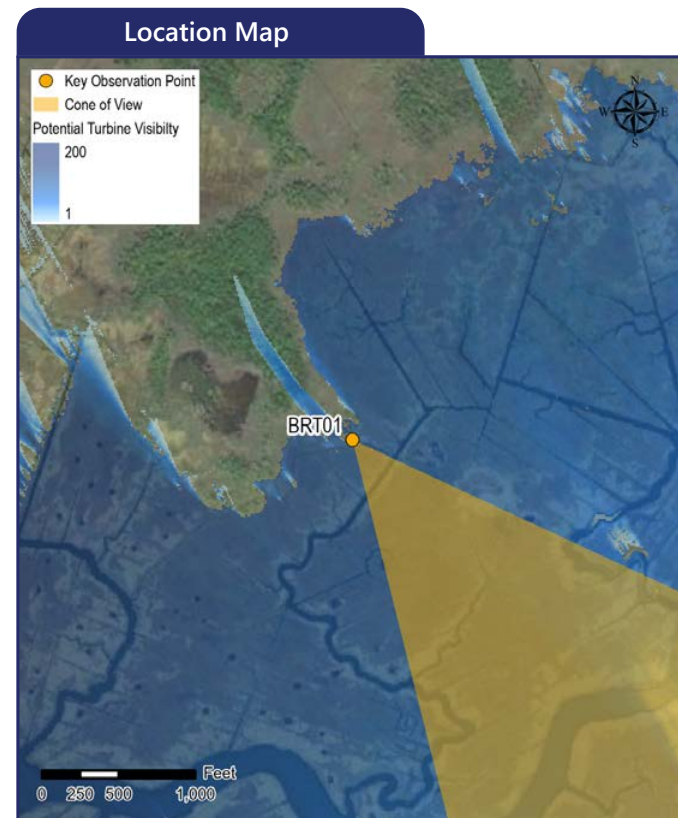
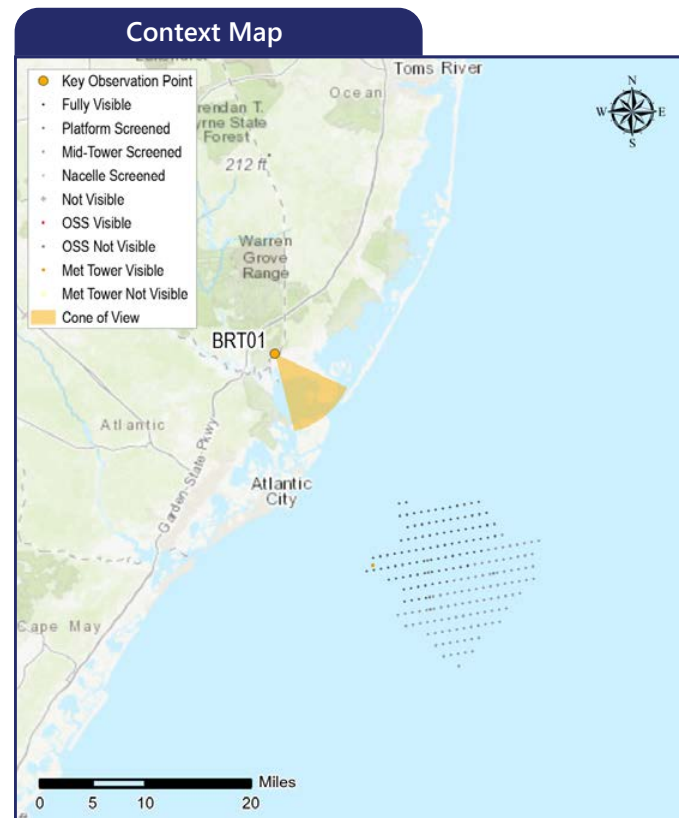
This scale is designed to insure the photosimulation images are printed at the intended size.

BRT01 Bass River State Forest

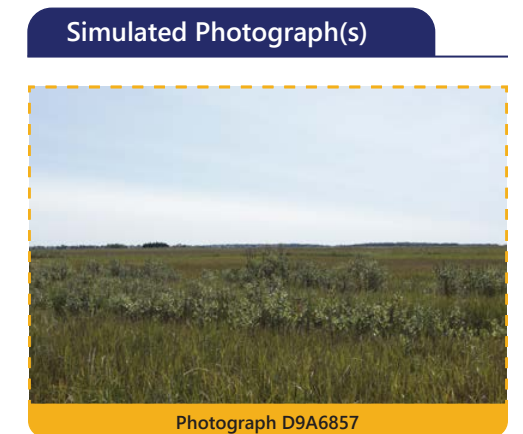
Bass River Township, Burlington County, New Jersey



The image above is a +/- 124° panorama photograph from the Bass River State Forest, panning clockwise from northeast-east (left) to south (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).

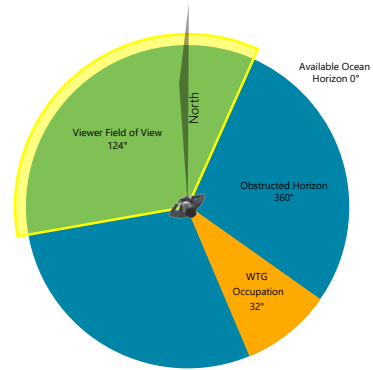


Simulation Information	
Coordinates:	39.57672°N, 74.40830°W
Character Area:	Dredged Lagoon, Salt Marsh (LCA)
User Group:	Residents/Tourists
Direction of View:	Southeast
Distance to Nearest Visible Turbine:	18.47 miles
Visually Sensitive Resource:	Edwin B. Forsythe NWR, Bass River State Forest, Bass River State Forest Historic District
Environmental Information	
Date Taken:	09/22/2020
Time:	11:37 AM
Temperature:	68°F
Humidity:	32%
Visibility:	10 miles
Wind Direction:	North-Northwest
Wind Speed:	13 mph
Conditions Observed:	Fair
Photograph Information	
Camera:	Canon EOS 5D Mark IV
Resolution:	30.4 Megapixels
Focal Length:	50mm
Camera Height:	6.90 feet AMSL
Notes	
Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.	

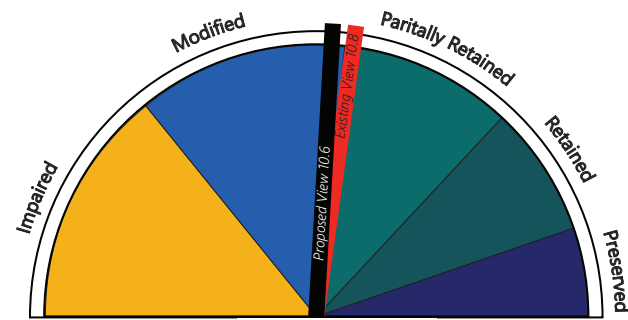


Map considers screening by curvature of the earth, viewer height, and WTG height only. Considering landscape features 125 WTGs will be visible.

Field of View Visual Impact Rating



Impact Rating Summary



-0.3. Negligible

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 10.8
 Rating Panel Score Range: 10.2 - 11.2

This view is from Bass River State Forest in Bass River Township, New Jersey. It is located approximately 25 miles north of Atlantic City and 6 miles West of Tuckerton. Bass River was the first forest acquired by the State of New Jersey (in 1905) and totals 29,147 acres. The center of the Forest's recreational activities is 67-acre Lake Abegami, which provides opportunities for swimming, boating, and canoeing. Other recreational opportunities offered at the Forest include hiking, camping, fishing, picnicking, and cross-country skiing. The selected viewpoint is located at the edge of a large salt marsh. The view to the southeast from this location includes a broad expanse of marsh grass and low shrubs that extend to the horizon, where some clumps of distant trees and low hills are visible. The horizon line is slightly irregular but basically flat. The sky overhead is open and visible man-made features are limited to distant structures on the low hills in the background. This, along with the lack of tall vegetation, gives the viewer an open, expansive, and undisturbed character.

Rating panel members indicated that the existing view is a combination of highly textured marshland with groupings of low scrub vegetation scattered throughout the view; however, there is limited visual complexity to the composition of the grasses, shrubs, and sky. The wide-open view across the marshland will be experienced by visitors over a short period of time as they move along the walking trails. The band of man-made structures in the background view contrasts with the deep greens of the low, undulating topography and the light green tones of the middle ground vegetation. The general lack of competing landscape features enhances the expansive feel of the view and draws the viewer's eye to the horizon. Rating panel scores for the existing conditions photographs ranged from 10.2 to 11.2 (average score = 10.8). Based on this score, the view is partially retained.

Proposed Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 10.6
 Rating Panel Score Range: 10.2 - 11.2
 Impact Magnitude: 0.3 (Negligible)

Viewshed analysis suggests that the Project's visibility from this general area will be largely limited to the open marsh, with potential views completely screened in more wooded areas as one moves further inland (to the northwest).

With the proposed Project in place, looking at the southeast view the WTG rotor blades are almost indiscernible behind the undulating topography and man-made elements on the horizon. In addition, there is no visibility to the ocean horizon, and the Project occupies approximately 31-degrees or 8.6% percent of the view (see Field of View Image, left). Project visibility is mitigated by the relative proximity of the WTGs (18.47-miles) and their side lighting by the near midday sun, which shadows the WTGs against the sky. The rating panel scores indicate an average reduction of 0.3 points in comparison to the existing view indicating a negligible visual impacts. Individual rating panel members indicated reductions that ranged from 0.3 to 0.7. Panel members suggested that the presence of the WTGs would be minimally noticeable to most viewers, since the viewer's attention is focused on the foreground and the middle ground of the existing, natural environment. The movement of the rotor blades could attract the viewer's attention; however, the visual intrusion is not considered severe enough to be a substantial reduction in the overall scenic quality of the view. In addition, the visibility of the WTGs is likely to be reduced under more hazy or foggy sky conditions. With the Project in place, the view remains partially retained.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, the rating panel indicated that the WTGs present minimal scale contrast, are compatible with the existing landscape features such as water resources, landform, and vegetation. The panel scores also suggest that the Project is somewhat compatible with user activity. Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 2 from this KOP.

Visual Threshold Level (VTL)

2 An object/phenomenon that is very small and/or faint, but when the observer is scanning the horizon or looking more closely at an area, can be detected without extended viewing. It could sometimes be noticed by casual observers; however, most people would not notice it without some active looking (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	A variety of vegetation both distant and near draw viewer attention, but neither serve as a primary focal point.
Order	The layering of the marsh in the foreground, distant vegetation in the mid-ground and the sky meeting the land at the horizon create a natural order.
Visual Clutter	None observed by the rating panel.
Movement	None observed by the rating panel.
Duration & Frequency of View	Short term and occasional due to accessibility and viewer activity.
Atmospheric Conditions	Hazy white/bluish sky with minimal interest. Hazy/overcast days would limit visibility considerably from this location
Lighting Direction	Side-Lit
Scenic or Recreational Value	National Wildlife Refuge and Bass River Forest Historic District.; Residents or tourists may pass through this area.

Compatibility and Contrast Rating Average

Bass River State Forest			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	0.3	0.3	0.3
Landform	1.4	1.4	1.1
Vegetation	1.3	1.3	1.0
Land Use	1.3	1.0	1.0
User Activity	2.0	1.0	1.0

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

BRT01 Bass River State Forest

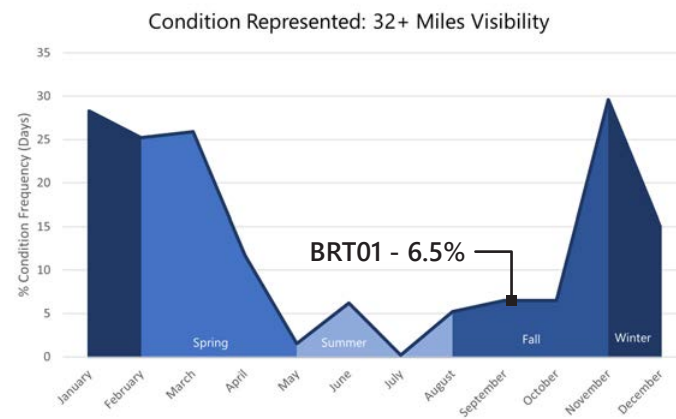
Bass River Township, Burlington County, New Jersey

KOP Information

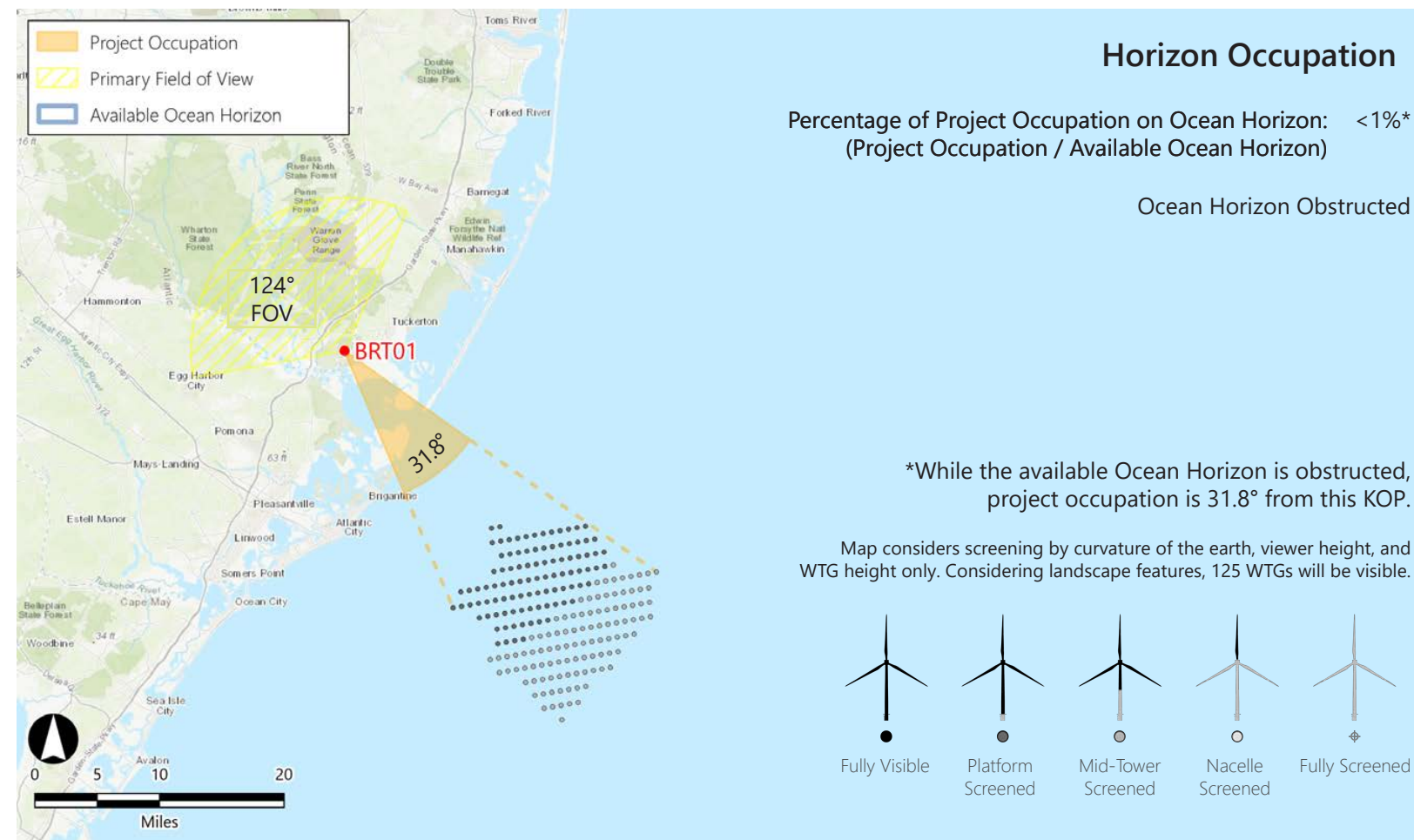
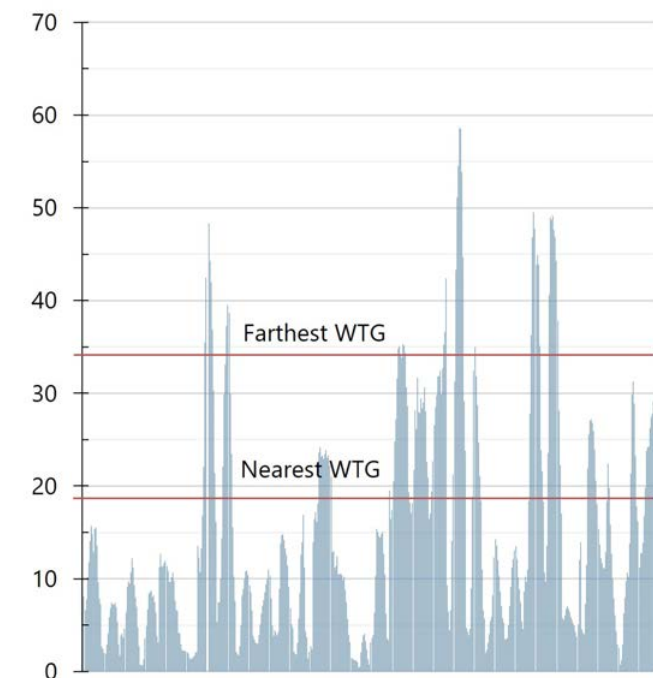
Primary Field of View: North
 Distance to Closest WTG: 18.47 miles
 Camera Height: 6.9 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



September, 2019 - Hourly Visibility Distance



WTG Color Contrast

Color Contrast Rating: 1.68

Turbine (Dark Grey) / Background (Light Grey)

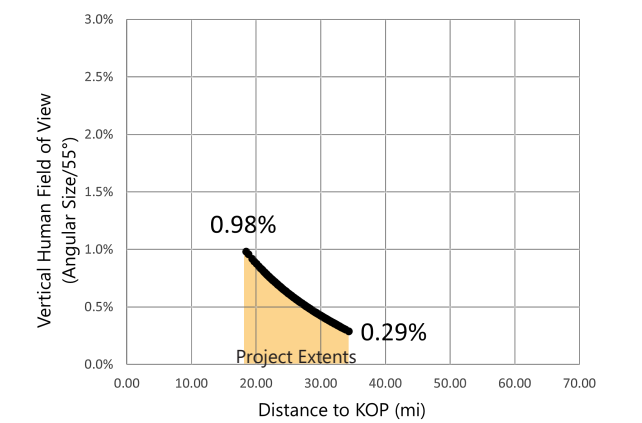
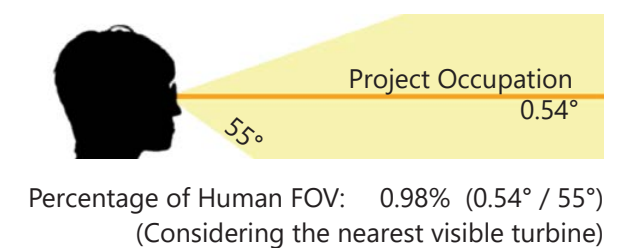
Lighting Condition: Back lit
 Season: Fall
 Sky Condition: Cloudy
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP OC01 illustrates the project from 21.72 miles in the front lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.



Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



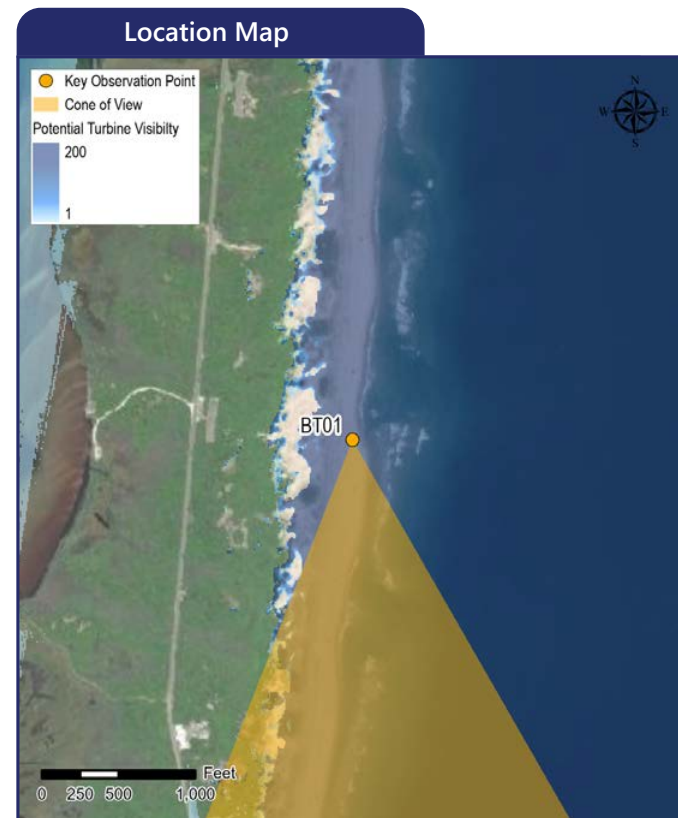
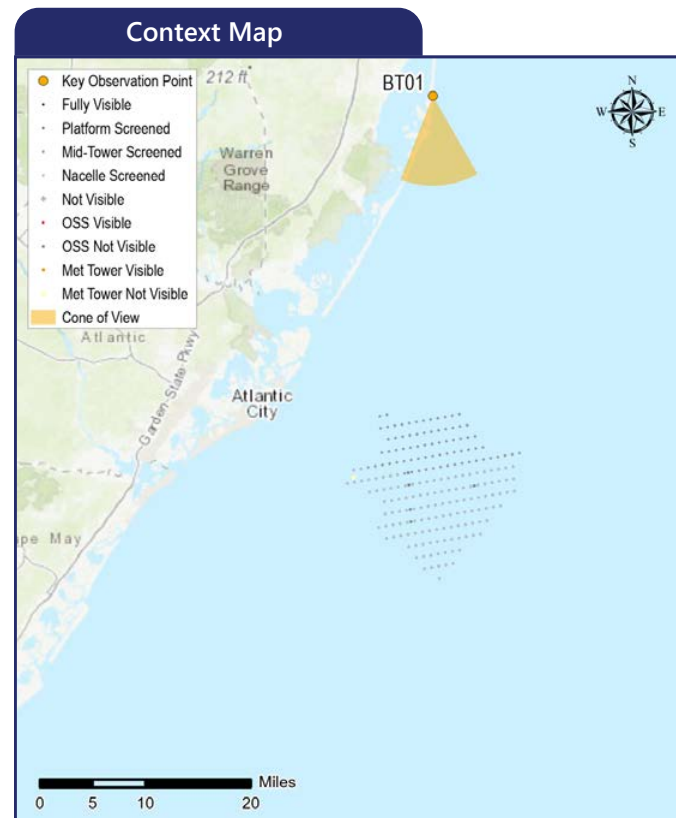
This scale is designed to insure the photosimulation images are printed at the intended size.

BT01 Island Beach State Park

Berkeley Township, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Island Beach State Park, panning clockwise from east-southeast (left) to southwest (right). The yellow rectangle represents the extent of the simulated photograph(s).



Simulation Information

Coordinates: 39.80805°N, 74.08997°W
 Character Area: Undeveloped Beach, Seascape (SCA)
 User Group: Residents/Tourists, Fishermen
 Direction of View: South
 Distance to Nearest Visible Turbine: 30.25 miles
 Visually Sensitive Resource: Island Beach State Park

Environmental Information

Date Taken: 08/21/2020
 Time: 9:35 AM
 Temperature: 79°F
 Humidity: 62%
 Visibility: 10 miles
 Wind Direction: South-southwest
 Wind Speed: 6 mph
 Conditions Observed: Partly Cloudy

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 10.52 feet AMSL

Notes

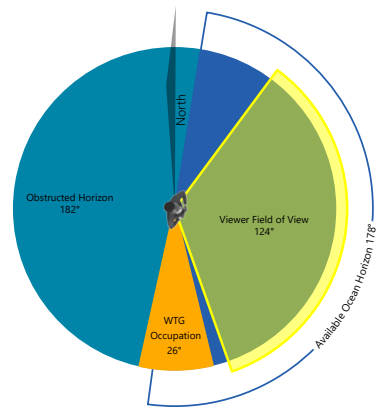
Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)

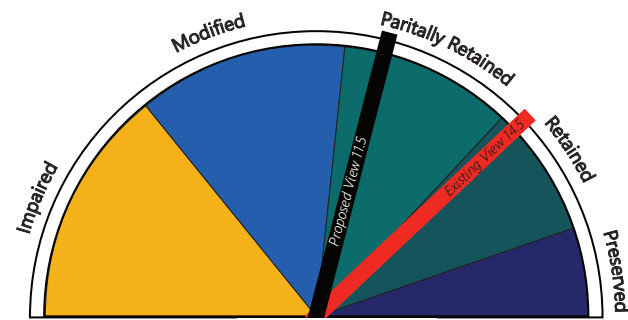


Map considers screening by curvature of the earth, viewer height, and WTG height only. Considering landscape features, 190 WTGs will be visible.

Field of View Visual Impact Rating



Impact Rating Summary



-3.0. Significant

Existing Conditions

Scenic Quality: Retained
 Rating Panel Score Average: 14.5
 Rating Panel Score Range: 13.0 - 16.0

This view is from Island Beach State Park in Berkley Township, New Jersey. Island Beach State Park is a preserved barrier island that protects a variety of natural shoreline and nearshore habitats. The park contains close to 10 miles of sandy beach, an extensive shoreline along Barnegat Bay, dense maritime forests, rolling sand dunes, and tidal marshes. The State of New Jersey purchased the 2,694-acre property in 1953, and the park was officially opened in 1959. The majority of visitors to Island Beach State Park come to swim in the ocean, surf or fish from the beach, but the park also provides recreational opportunities for hikers and other outdoor enthusiasts.

The view to the south from this location looks straight down the beach, with the blue-green ocean on the left and grassy dunes on the right. The ocean, beach and dunes proceed away from the viewer, and come together at a distant vanishing point that draws the viewer's eye to the right side of the selected photo. The beach itself is a broad expanse of relatively level open sand, and the light blue sky over head is streaked with bands of thin white clouds. At the time the photo was taken, few people were on the beach, but vehicle tracks in the sand indicate more intensive human activity. Despite the presence of these tracks, the beach has a clean, uncluttered, and natural character.

Rating panel members indicated that the view provides a rare opportunity to observe a natural beach and dune-scape with minimal human influence less the numerous beachgoers and frequent vehicle traffic. Rating panel scores for the existing conditions photographs ranged from 13.0 to 16 (average score = 14.5) indicating that this view is retained.

Proposed Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 11.5
 Rating Panel Score Range: 9.7 - 14.0
 Impact Magnitude: 3.0 (Significant)

Viewshed analysis suggests that Project visibility from this general area will be available along the beach but becomes quickly blocked by the vegetated dunes on the right with scattered areas of discrete visibility due to elevation and limited vegetation at specific locations. Potential views become available again from portions of the park to the west along Barnegat Bay.

With the proposed Project in place, a considerable portion of the WTGs is screened by curvature of the earth, but the large rotors appear and fine, dark features on the horizon. In areas where considerable row stacking occurs, the WTGs read as a heavier mass on the horizon, increasing their prominence slightly. Rating panel members had a variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 9.7 to 14 (average score = 11.5). These scores indicate an average reduction of 3.0 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 0.3 to 6.3. At the low end of this range, panel members indicated that, "The addition of the wind turbines on the horizon does not immediately attract the viewer's attention when taking in this highly attractive seascape. Upon observing the greater view to the sand, surf, dune vegetation and then horizon, the eye moves to the center of the view and fixes on the light gray, fine textured turbine silhouettes on the horizon. Upon focusing on the darker mass of ordered, stacked turbines in the center view, the additional individualized turbines to the left and right of the center mass also become more visible". The panel member indicating the highest degree of visual change noted, "The proposed turbines, though distant and camouflaged in the haze, become the only visible sign of development in this view. They interrupt the horizon flowing across the water and into the dune landscape. The low grass covered dunes are the primary focus in the view until the turbines are added across the majority of the scene". With the Project in place, this view becomes partially retained, suggesting significant visual impacts may occur during high visibility conditions such as those presented in the photosimulation.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present low to moderate scale contrast with landform, vegetation, land use, water resources and user activity. The WTGs we found to be somewhat compatible with and presented low to moderate spatial dominance with water resources, landform, vegetation, land use, and user activity. Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 3 from this KOP.

Visual Threshold Level (VTL)

3 An object/phenomenon that can be easily detected after a brief look and would be visible to most casual observers, but without sufficient size or contrast to compete with major landscape/seascape elements.

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	At the vanishing point where the green vegetation meets the blue sea and people congregate in the view.
Order	The natural order is within the beach landscape: open seemingly endless water, waves crashing at the shore, wide sandy beach, and grass.
Visual Clutter	None observed by the rating panel.
Movement	Ocean waves, beach goers.
Duration & Frequency of View	Short duration and occasional.
Atmospheric Conditions	A fully clear day may increase visibility, while a overcast/hazy will decrease visibility
Lighting Direction	Backlit
Scenic or Recreational Value	This is a wide open sandy beach free of any visible development; Island Beach State Park.

Compatibility and Contrast Rating Average

Island Beach State Park			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.4	1.9	1.9
Landform	2.0	1.5	1.8
Vegetation	2.0	1.5	1.5
Land Use	1.8	1.5	1.3
User Activity	1.8	1.5	1.5
	1 – Compatible 2 – Somewhat Compatible 3 – Not Compatible	1 – Minimal 2 – Moderate 3 – Severe	1 – Subordinate 2 – Co-Dominant 3 – Dominant

BT01 Island Beach State Park

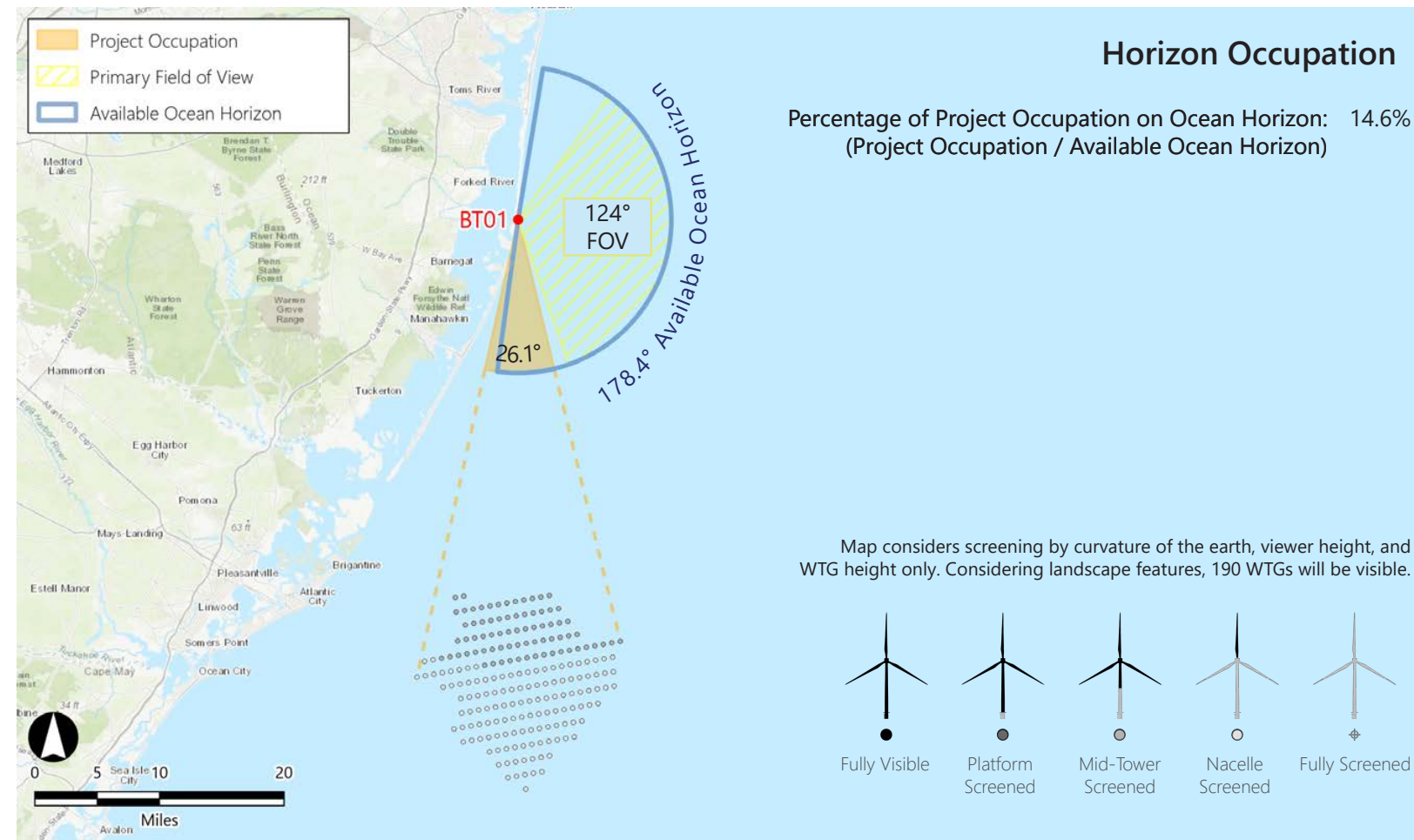
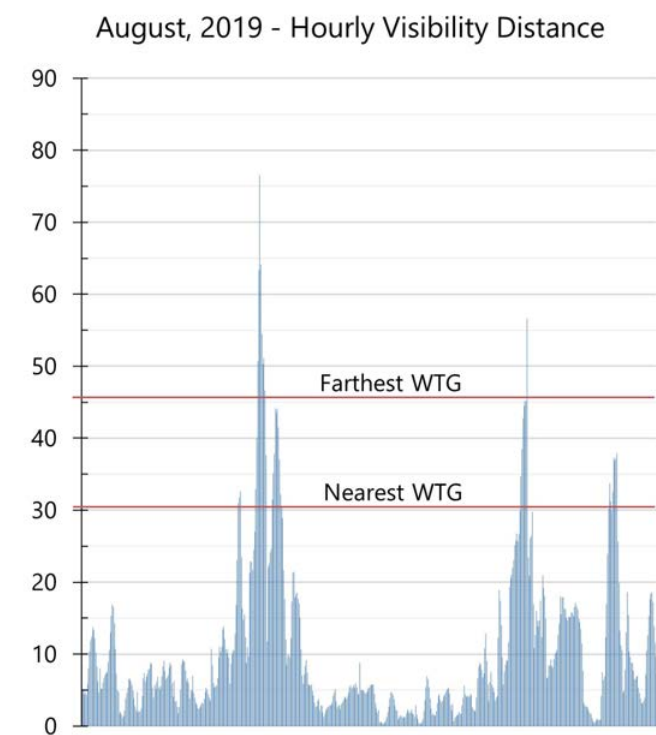
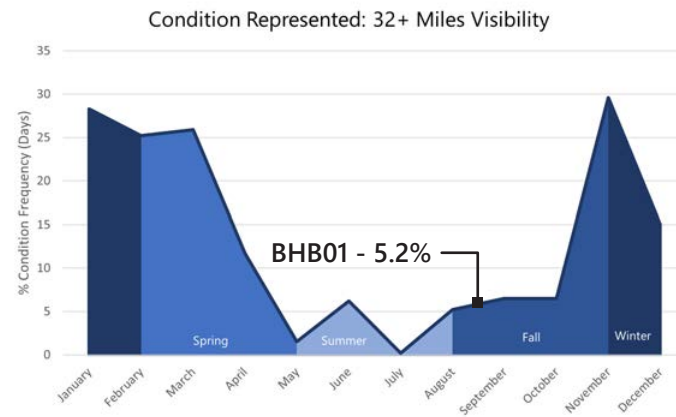
Berkeley Township, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 30.25 miles
 Camera Height: 10.52 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

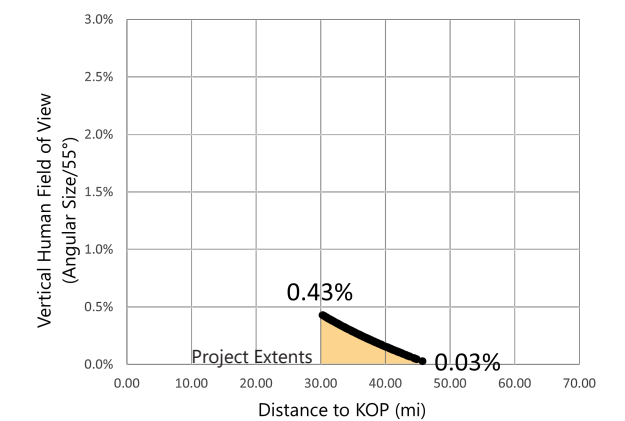
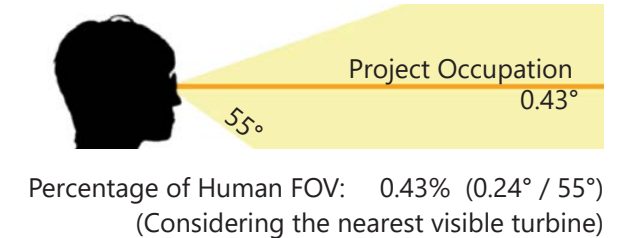
Color Contrast Rating: 1.76
 Turbine
 Background

Lighting Condition: Side lit
 Season: Summer
 Sky Condition: Partly Cloudy
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP BLB02 illustrates the project from 27.32 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.

Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: BT01 - Island Beach State Park

Attachment E: Photosimulations; Page 18 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



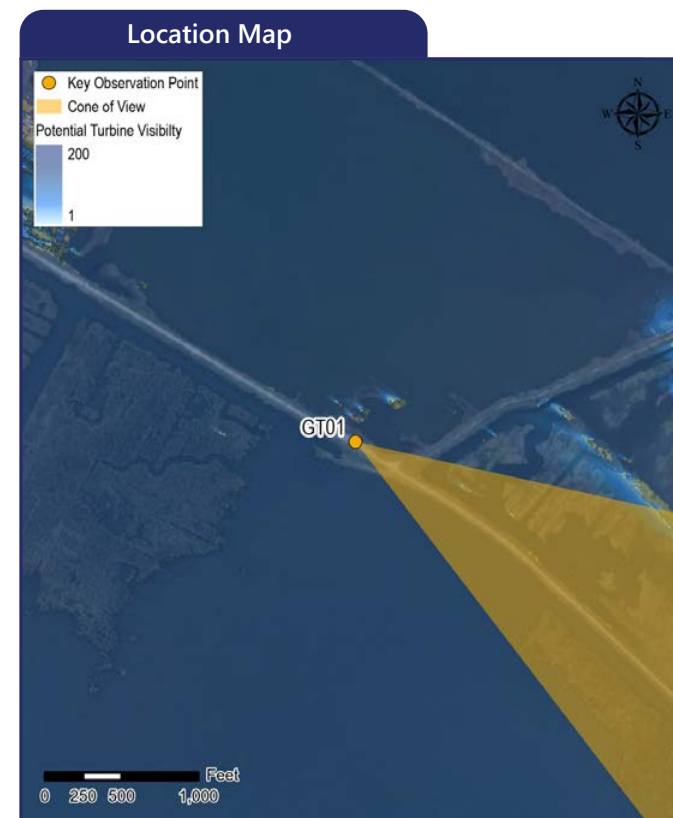
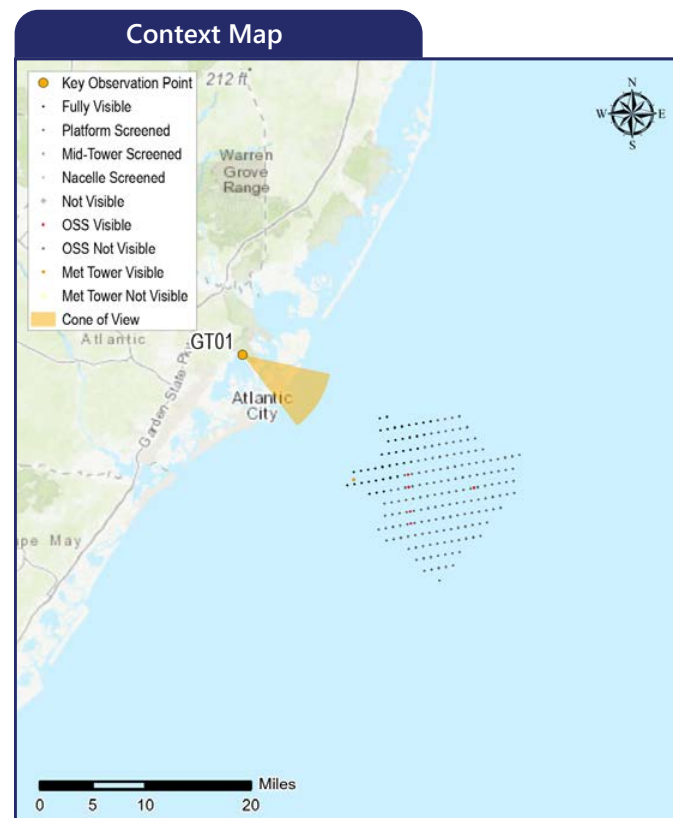
This scale is designed to insure the photosimulation images are printed at the intended size.

GT01 Edwin B. Forsythe NWR, Galloway Township

Galloway Township, Atlantic County, New Jersey



The image above is a +/- 124° panorama photograph from the Edwin B. Forsythe National Wildlife Refuge, panning clockwise from north-northeast (left) to south-southeast (right). The yellow rectangle represents the extent of the simulated photograph(s).



Simulation Information

Coordinates: 39.45787°N, 74.43224°W
 Character Area: Salt Marsh, Landscape (LCA)
 User Group: Residents/Tourists
 Direction of View: East-southeast
 Distance to Nearest Visible Turbine: 14.34 miles
 Visually Sensitive Resource: Edwin B. Forsythe NWR

Environmental Information

Date Taken: 09/23/2020
 Time: 3:19 PM
 Temperature: 80°F
 Humidity: 39%
 Visibility: 10 miles
 Wind Direction: West-northwest
 Wind Speed: 14 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 32.59 feet AMSL

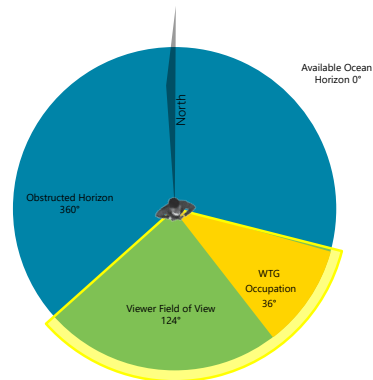
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

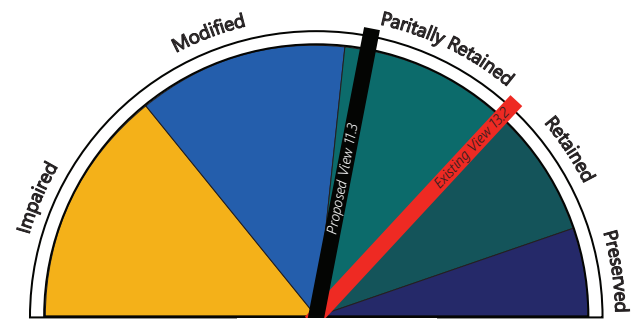
Simulated Photograph(s)



Field of View Visual Impact Rating



Impact Rating Summary



-1.9. Somewhat Significant

Visual Threshold Level (VTL)

4 An object/phenomenon that is obvious and with sufficient size or contrast to compete with other landscape/seascape elements, but with insufficient visual contrast to strongly attract visual attention and insufficient size to occupy most of an observer's visual field.

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	As the central roadway curves to the right, just beyond the left branching roadway.
Order	The foreground roadway provides an entrance into the frame and the neutral colors of the roadway, both echoed in the marsh land and offset by the variety of greens and blues, combined with a variety of texture circulates the eye throughout the view. The developed horizon adds contrast.
Visual Clutter	The development on the horizon adds a mottled cluttered span inserted into an otherwise ordered natural environment.
Movement	Vehicles, people and wildlife likely to be the main source of movement.
Duration & Frequency of View	Short Term/Fleeting Occasional
Atmospheric Conditions	Perfectly clear day free of clouds and haze. Atmospheric haze may change the level of visibility.
Lighting Direction	Frontlit & Side-Lit
Scenic or Recreational Value	This NWR is often used for bird watching, walking/hiking, and general enjoyment of nature.; Edwin B. Forsythe NWR.

Compatibility and Contrast Rating Average

Edwin B. Forsythe NWR, Galloway Township			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.6	2.4	1.9
Landform	2.4	2.4	1.9
Vegetation	2.3	2.3	1.8
Land Use	2.0	2.3	1.8
User Activity	1.8	2.3	1.8
	1 – Compatible 2 – Somewhat Compatible 3 – Not Compatible	1 – Minimal 2 – Moderate 3 – Severe	1 – Subordinate 2 – Co-Dominant 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
Rating Panel Score Average: 13.2
Rating Panel Score Range: 12.3 - 14.7

This view is from the Edwin B. Forsythe NWR in Galloway Township, New Jersey. This NWR protects more than 48,000 acres of southern New Jersey coastal habitats, primarily salt marsh interspersed with shallow coves and bays. The refuge's location in one of the Atlantic Flyways most active flight paths makes it an important link in seasonal bird migration. The refuge includes several scenic trails that pass through coastal wetlands, freshwater ponds, early successional fields, and woodlands. The refuge offers a non-motorized boat launch on Lily Lake, and motorized boat access at Scotts Landing boat launch. The refuge also features a Visitor Information Center, from which visitors can access the Wildlife Drive, an 8-mile auto tour through one of the best birding areas in the region. The Wildlife Drive features two wildlife observational towers, a boardwalk extending over the salt marsh with views of the Atlantic City skyline, and links to a network of trails, providing opportunities for hiking, wildlife observation, and photography.

The selected KOP is from one of the observation towers along the Wildlife Drive. The elevated view to the east/southeast includes a broad expanse of open water and salt marsh that extends from the immediate foreground to the horizon. This view is representative of the Salt Marsh character area. Within this larger context, the selected photo features a gently curving, unpaved road that proceeds away from the viewer. The road is flanked on either side by a band of marsh vegetation and sizeable bodies of open water. The open water areas in the middle ground are interspersed with areas of low herbaceous vegetation and small patches of shrubs. The road follows a causeway that extends into the background and carries the viewer's eye to a developed area on the horizon that includes numerous buildings and water towers. To the left of this developed area, additional salt marsh and an irregular band of trees define the horizon line. The open water, low vegetation, and broad expanse of unbroken sky give the view an open, panoramic character. The landscape appears largely undeveloped, but the road and background development temper the sense of wildness.

This view will be experienced primarily by bird watchers and nature enthusiasts who climb the tower to get an overview of the marsh and wildlife that may be visible in the foreground. Their focus will be on the natural features that characterize the foreground and middle ground of this view rather than the developed features on the horizon. However, because these distinct features are clearly visible, they may be of interest to some visitors for orientation purposes.

Rating panel scores for the existing conditions photo ranged from 12.3 to 14.7 (average score = 13.2). This score indicates that this KOP is partially retained.

Proposed Conditions

Scenic Quality: Partially Retained
Rating Panel Score Average: 11.3
Rating Panel Score Range: 10.3 - 12.7
Impact Magnitude: 1.9 (Somewhat Significant)

Viewshed analysis suggests that views of significant numbers of turbines are potentially available from this KOP and surrounding portions of the Edwin B. Forsythe NWR. However, ground level views will include less of the turbines' overall structure than is visible from the elevated observation tower.

With the proposed project in place, the view to the south/southeast from this KOP now includes numerous wind turbines extending above the existing vegetation and developed features on the horizon. Due to the elevated viewer perspective, the towers and rotors of many of the turbines are fully visible above the horizon line and the WTGs extend evenly across the full field of view. The turbines occupy approximately 36 degrees of the 124-degree panoramic view featured in the context photo. Due to the midday lighting conditions, turbine contrast with the sky is limited due to a lack of strong shadows or direct illumination by the sun. However, under the clear viewing conditions illustrated in the selected photo, the turbines are very noticeable and represent a substantial expansion of existing background development on the horizon.

This view will be experienced for a relatively short period of time by visitors to the NWR, but their stationary presence on the observation tower allows for identification and focus on landscape features of interest. Although these features are likely to be the natural landscape and wildlife in the foreground and middle ground at this location, the abundance of turbines in the background will draw the viewer's eye to the horizon. The turbines size, novel form, and movement will also serve to increase their visual presence. These factors, along with their abundance, will make the turbines prominent new focal points in this view.

Rating panel members indicated that, "the front-lit view of WTGs at this location are softened by their white appearance which provides a low contrast with the pale blue horizon. However, the apparent height and quantity of the turbines is large", with VIA scores ranging from 10.3 to 12.7 (average score = 11.3). These scores indicate an average reduction of 1.9 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 1.3 to 2.7. The view from this location remains partially retained and the score indicate a somewhat significant impact would result from the Projects. Panel members noted that "The light color of the turbines allows the rich tapestry of the wildlife refuge vegetation and waterways to remain the dominant feature in the view, however, the aesthetic quality of the view is modified by the introduction of such a massive wind farm that spans the entire view from the observation platform".

Considering the scale contrast, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTG's present moderate scale contrast and range from somewhat to not compatible with the existing seascape features and user activities. The rating panel also suggested that the WTGs are co-dominant relative to other seascape features present in this view. Consistent with the anticipated scale contrast, compatibility, and spatial dominance impacts associated with the Project, panel members assigned Project visibility an average VTL of 4 from this KOP.

GT01 Edwin B. Forsythe National Wildlife Refuge

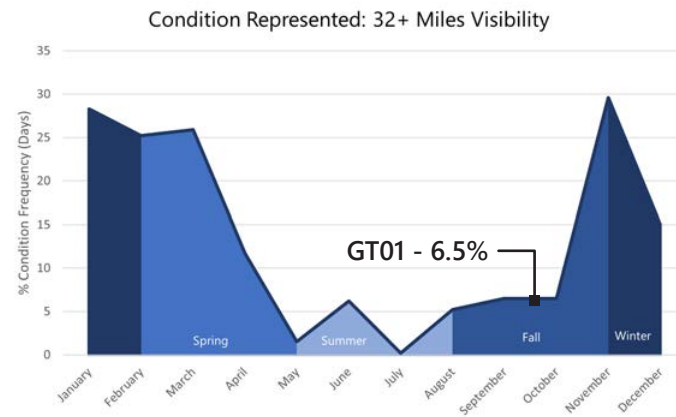
Galloway Township, Atlantic County, New Jersey

KOP Information

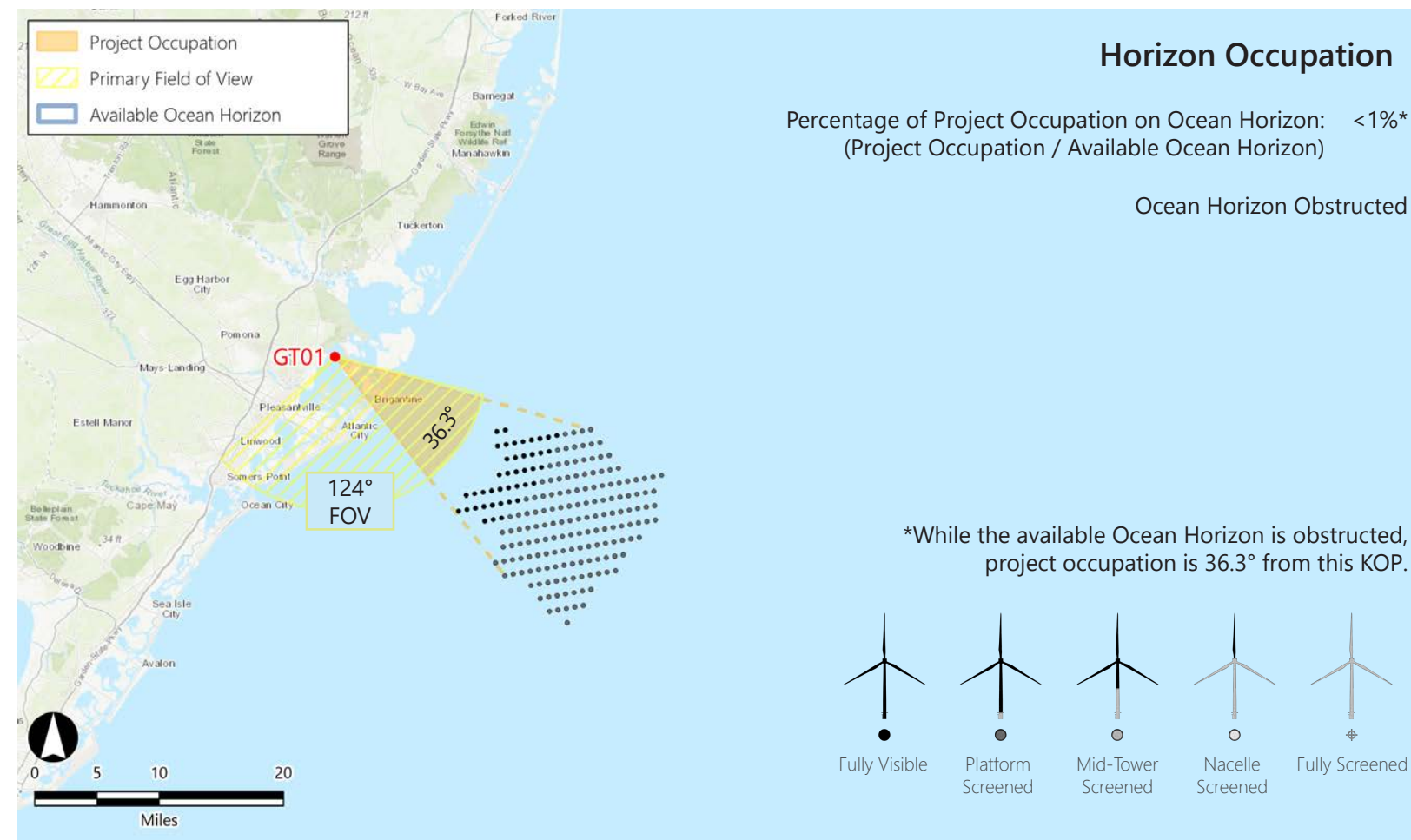
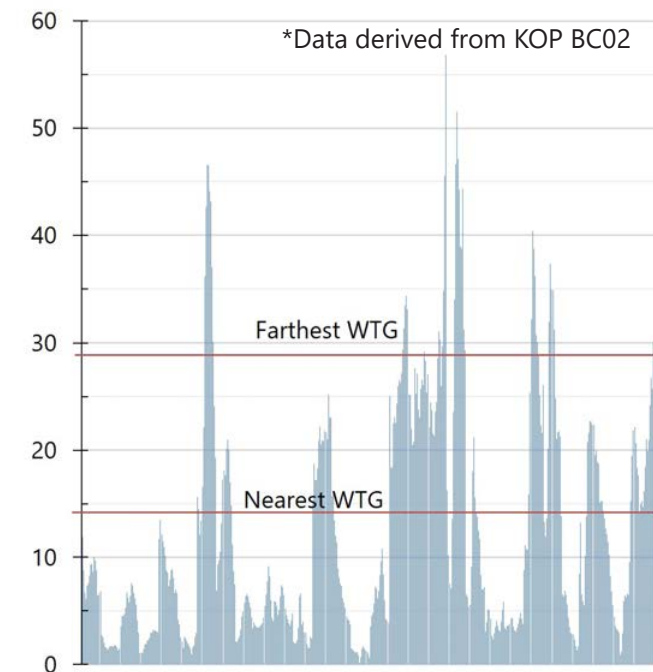
Primary Field of View: Southeast
 Distance to Closest WTG: 14.34 miles
 Camera Height: 32.59 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



September, 2019 - Hourly Visibility Distance



WTG Color Contrast

Color Contrast Rating: 2.25

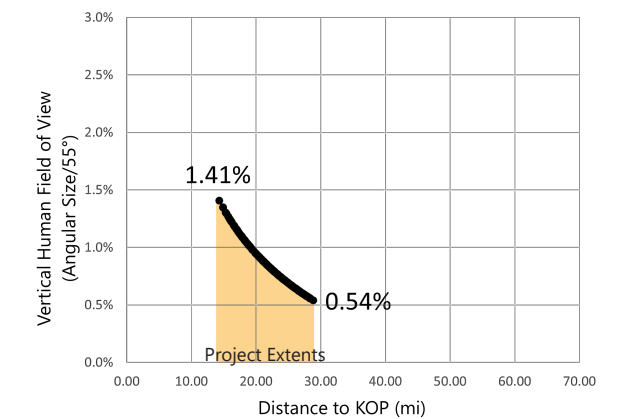
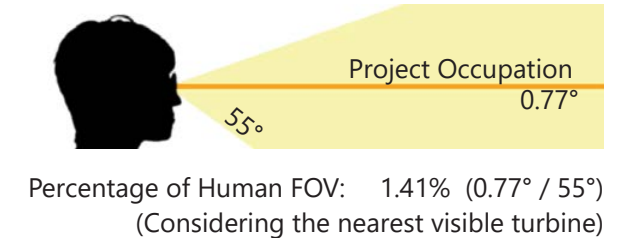
Turbine [Dark Grey] }
 Background [Light Blue] }

Lighting Condition: Side lit
 Season: Fall
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP AC02 Illustrates the project from 11.42 miles in the front lit condition. This provides an indication of how the turbines may appear from this KOP during midday conditions.

Vertical Occupation



Existing Conditions



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: GT01 - Edwin B. Forsythe NWR, Galloway Township

Attachment E: Photosimulations, Page 92 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: GT01 - Edwin B. Forsythe NWR, Galloway Township

Attachment E: Photosimulations, Page 93 of 159

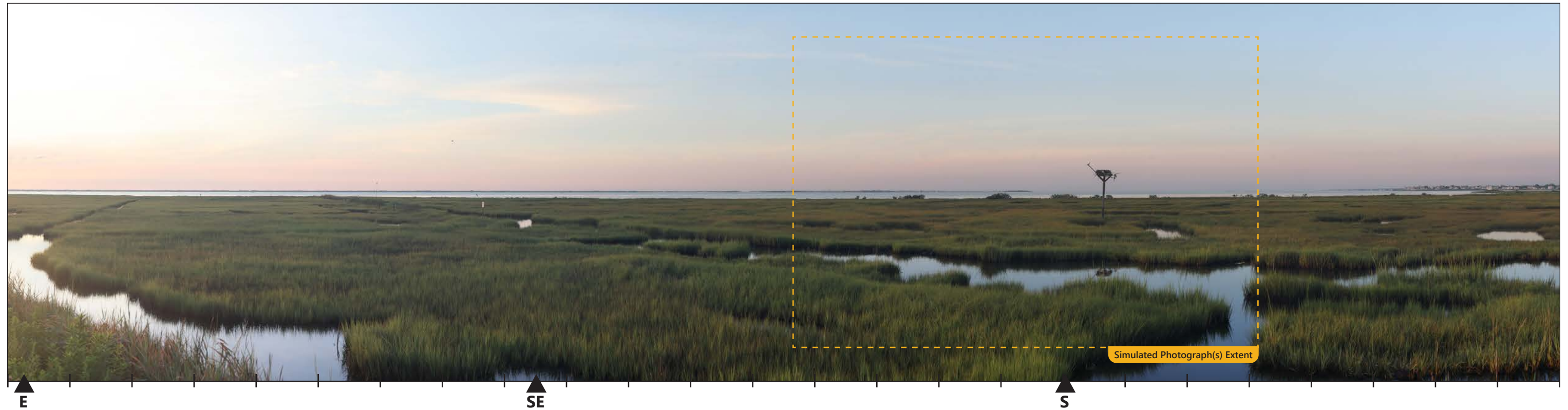
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



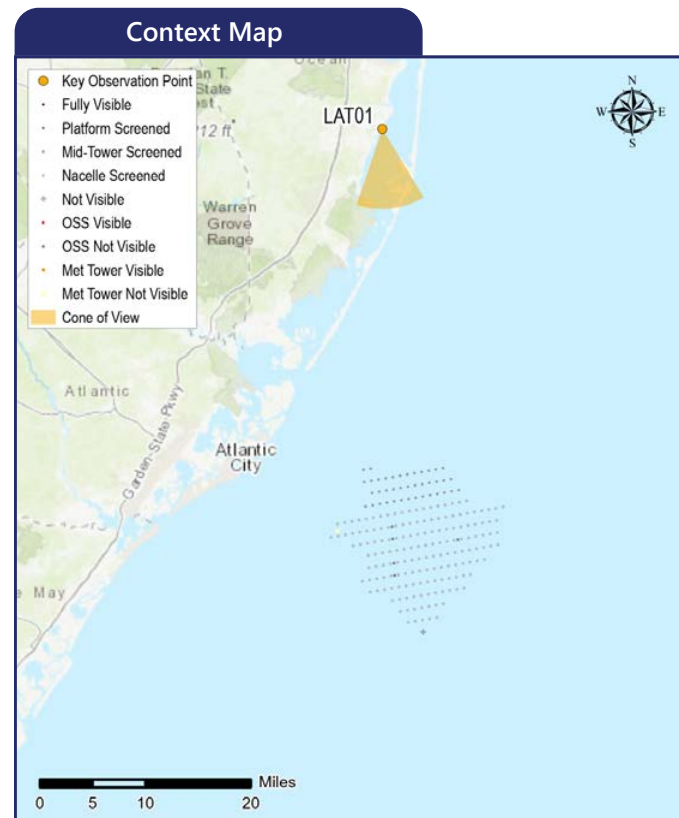
This scale is designed to insure the photosimulation images are printed at the intended size.

LAT01 Edwin B. Forsythe NWR at the Woodmansee Estate

Lacey Township, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Edwin B. Forsythe National Wildlife Refuge (NWR) at the Woodmansee Estate, panning clockwise from east (left) to southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.83711°N, 74.15082°W
 Character Area: Dredged Lagoon, Salt Marsh (LCA)
 User Group: Residents
 Direction of View: South
 Distance to Nearest Visible Turbine: 32.18 miles
 Visually Sensitive Resource: Edwin B. Forsythe National Wildlife Refuge

Environmental Information

Date Taken: 08/21/2020
 Time: 6:24 AM
 Temperature: 70°F
 Humidity: 87%
 Visibility: 10 miles
 Wind Direction: Calm
 Wind Speed: 0 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 9.78 feet AMSL

Notes

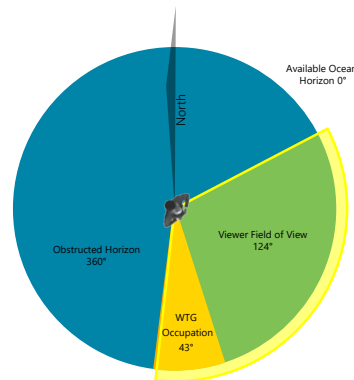
Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Night time photosimulations are digitally adjusted from daytime photographs.

Simulated Photograph(s)

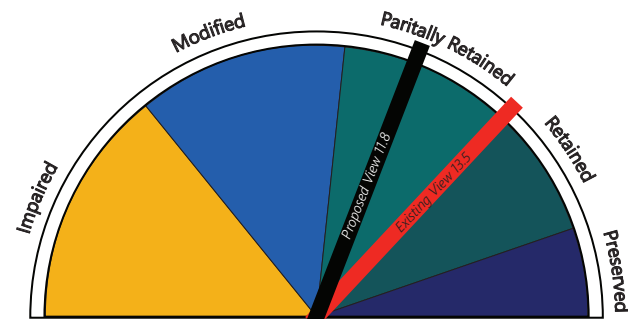


Field of View



Visual Impact Rating

Impact Rating Summary



-1.8 Somewhat Significant

Visual Threshold Level (VTL)

4 An object/phenomenon that is obvious and with sufficient size or contrast to compete with other landscape/seascape elements, but with insufficient visual contrast to strongly attract visual attention and insufficient size to occupy most of an observer's visual field (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Large bird's nest on vertical post in center of view.
Order	There is a layering of salt marsh in the foreground, horizontal lines in the middle ground consisting of open water and some distant land form, and the open sky above the horizon. There is textural complexity in the foreground.
Visual Clutter	Nesting platform is a strong vertical element in the view.
Movement	None present in view, but boats on the bay, waves, and wildlife could animate the scene at times.
Duration & Frequency of View	Long duration and high frequency views associated with nearby residential viewers.
Atmospheric Conditions	The rosy pink sunrise blurs the horizon line.
Lighting Direction	Side-Lit
Scenic or Recreational Value	Primarily boating, viewing, and birdwatching. The housing development just out of view likely brings other variety of scenic and recreational value.

Compatibility and Contrast Rating Average

Edwin B. Forsythe NWR at the Woodmansee Estate			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.3	1.8	1.8
Landform	2.0	1.8	1.8
Vegetation	1.5	1.3	1.3
Land Use	1.8	1.0	1.0
User Activity	2.0	1.5	1.5

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Retained
 Rating Panel Score Average: 13.5
 Rating Panel Score Range: 12.3 - 14.3

This view is from the edge of a dredged channel (behind the viewer) overlooking the Edwin B. Forsythe National Wildlife Refuge (NWR) in Ocean City, New Jersey. The Woodmansee Estate is one of the oldest homesteads in the township and was formerly operated as a state game farm throughout much of the 20th century. The NWR includes more than 47,000 acres of southern New Jersey coastal habitats and is actively managed for migratory birds. More than 82 percent of Forsythe Refuge is wetlands, of which 78 percent is salt marsh, interspersed with shallow coves and bays. Facilities include a visitor information center, trails, boardwalks and overlooks, and popular recreational activities include birding, hunting, fishing, photography, and environmental education. The existing view to the south from this location features a salt marsh that extends from the foreground to the middle ground. The marsh is a mix of low herbaceous vegetation and pockets of open water. A man-made osprey nesting platform is the only vertical feature and a prominent focal point within the marsh. The far edge of the marsh includes some clumps of low shrubs, and is backed by Barnegat Bay which appears as an expanse of open water. The water extends to a distant spit of land on the horizon in the left half of the view. On the right, the water extends to the horizon where it meets the open sky, which in the early morning light is a mix of pink, purple, orange, and blue. Other than the nesting platform and some evidence of structures on the distant spit of land, the existing view has a peaceful, undisturbed character.

The view to the horizon from this location within the NWR is largely obstructed by distant land masses to the east, south and west, and by nearby residential development behind the viewer (from the northwest to the northeast). Only about 28 degrees of the 360-degree view (to the south, representing approximately 8% of the available view) offers an unobstructed view of the ocean that extends out to the horizon. Thus, although significant long-distance views toward the ocean are available from this location, only a small portion of these views are uninterrupted by intervening land masses.

Rating panel members indicated that although viewed from the edge of a densely developed residential area, the existing view is a relatively undisturbed salt marsh. It is a soft landscape with gentle undulation and open pockets of smooth reflective water. The blended colors of the sky present a pleasing contrast with various shades of green and orange in the highly textured marsh grass. The interplay of landform and open water are integral components in the foreground marsh as well as the bay and barrier islands in the middle ground and background. The flat landform in the background is occasionally interrupted by man-made forms that float on the hazy horizon where the ocean and sky blend together. Rating panel scores for the existing conditions photographs ranged from 12.3 to 14.3 (average score = 13.5). This score indicates that this view is retained.

Proposed Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 11.8
 Rating Panel Score Range: 10.3 - 13.0
 Impact Magnitude: 1.8 (Somewhat Significant)

Viewshed analysis suggests that the Project has the potential to be visible from almost all of the marsh in this area, and the first row of homes along the marsh edge (behind the viewer). Potential views of the Project are screened from interior portions of the adjacent neighborhood, including the excavated channels between the streets.

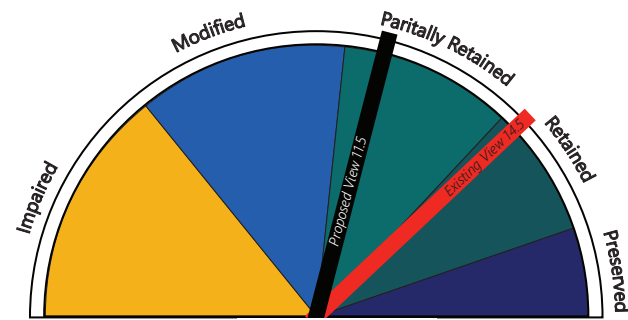
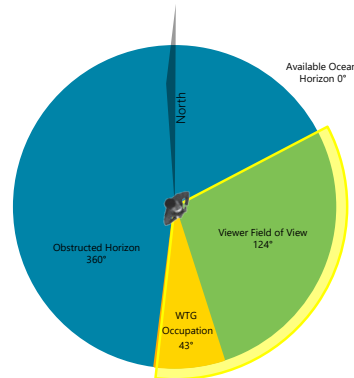
With the proposed Project in place, an array of wind WTGs is visible above the open water on the distant horizon. The WTG array will occupy most of the currently unobstructed ocean horizon and draw viewer attention to the background. However, at this distance, the WTGs appear consistent in elevation with the distant land masses and carry the line of the land across the horizon. The WTGs generally blend well with hazy sky, although the WTGs more central to the view, and those that line-up/stack against one another, appear as larger more visible forms. Rating panel members had a generally consistent range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 10.3 to 13.0 (average score = 11.8). These scores indicate an average reduction of 1.8 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 1.0 to 3.7. The rating panel indicated that although visible, the WTGs do not dominate the view, and that the marsh and nesting platform in the foreground remain the focal points in the view. Although the WTGs interrupt the interplay of land and water, and the movement of the rotor blades could serve to attract viewer attention, this effect will be limited by the distance from the WTGs and foreground activity. With the Project in place, the scenic quality of this view becomes partially retained suggesting somewhat significant impacts could result from the Projects during clear viewing conditions.

The rating panel scores indicated that the Project would present co-dominance, moderate scale contrast, and some degree of compatibility with water resources, landform, and user activity. The Project would also be somewhat compatible with the existing vegetation in the view. The Project would be subordinate and would present minimal scale contrast with vegetation and land use. Consistent with these findings, panel members assigned the Project visibility an average VTL of 4 from this KOP.

LAT01 Edwin B. Forsythe NWR at the Woodmansee Estate (Night)

Field of View Visual Impact Rating

Impact Rating Summary



-3.8. Significant

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	A single red dot of light left of center in the view.
Order	There is a layering of salt marsh in the foreground, horizontal lines in the middle ground consisting of open water and some distant land form, and the open sky above the horizon. There is textural complexity in the foreground with the salt marsh plants and water.
Visual Clutter	Although difficult to see at this distance lights from the distant barrier island draw the viewer's attention.
Movement	None present (however, flashing buoys and cars on the bay and barrier island are likely present).
Duration & Frequency of View	Long duration and high frequency views associated with nearby residential viewers.
Atmospheric Conditions	Conditions are generally clear. Moisture in the air could impact visibility.
Lighting Direction	Nighttime
Scenic or Recreational Value	This is part of the Forsythe NWR, but in a residential area. Local residents will experience this view on a regular basis.

Compatibility and Contrast Rating Average

Edwin B. Forsythe NWR at the Woodmansee Estate - Night			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.3	2.0	2.3
Landform	1.5	1.8	2.3
Vegetation	1.3	1.5	1.5
Land Use	2.3	2.0	2.5
User Activity	2.1	2.1	2.6

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 11.4
 Rating Panel Score Range: 10.2 - 12.7

This KOP is located on the edge of a dredged channel (behind the viewer) overlooking the Edwin B. Forsythe National Wildlife Refuge (NWR) in Ocean City, New Jersey. The existing nighttime view over an undeveloped salt marsh has few discernible features other than a ribbon of water in the foreground that is reflecting what little ambient light is present (perhaps from adjacent development behind the viewer). One bright red light is visible on the left side of the view, which draws the viewer's eye to more subtle lighting from development on the offshore barrier islands. The starless sky overhead is dark black with a few thin clouds barely visible. The ocean is also dark and does not draw viewer attention, which under these conditions is more likely to focus on the sounds and smells of the adjacent marsh.

Rating panel scores for the existing conditions photographs ranged from 10.2 to 12.7 (average score = 11.4). This view is partially retained based on the rating panel scores.

Proposed Conditions

Scenic Quality: Modified
 Rating Panel Score Average: 7.7
 Rating Panel Score Range: 5.3 - 9.8
 Impact Magnitude: 3.8 (Significant)

With the proposed Project in place, the red lights of the WTG's are clearly visible. Given their distance from the viewer, the individual lights appear small, except when the WTGs are stacked on top of each other, which creates some more intense "hot spots". The grid layout of the WTGs and distance at which the project is viewed from this location (over 32 miles) result in perspective lines of light that appear as regular long red streaks that draw viewer attention to the center of the view. One rating panel member characterized this effect is "captivating", while another indicated that it created a sense of movement in the WTG array. A third panel member likened the appearance of the lights to airport runway right lighting that extended deep into the view. Because of the dark setting, even at significant distance, the WTG lights become a dominant focal point in this view that draw viewer attention away from the foreground and the other existing lights in the view.

Rating panel members had variable reactions to the nighttime impact resulting from the Project WTGs, with the VIA scores ranging from 5.3 to 9.8 (average score = 7.7). These scores indicate an average reduction of 3.8 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 0.3 to 6.0. With the Project in place, the view becomes impaired to and the visual impact could be significant under clear nighttime conditions when the AWOLs are active.

Panel members indicated that the AWOL's dominate the view when considering land use and user activity and co-dominance with water resources and landform. The panel also indicated that the AWOLs would result in moderate scale contrast, but would be somewhat compatible with all uses and landscape features. The average rating panel scores indicated a VTL of 5, which is consistent with the scale and spatial dominance ratings for land use and users.

LAT01 Edwin B. Forsythe NWR at the Woodmansee Estate

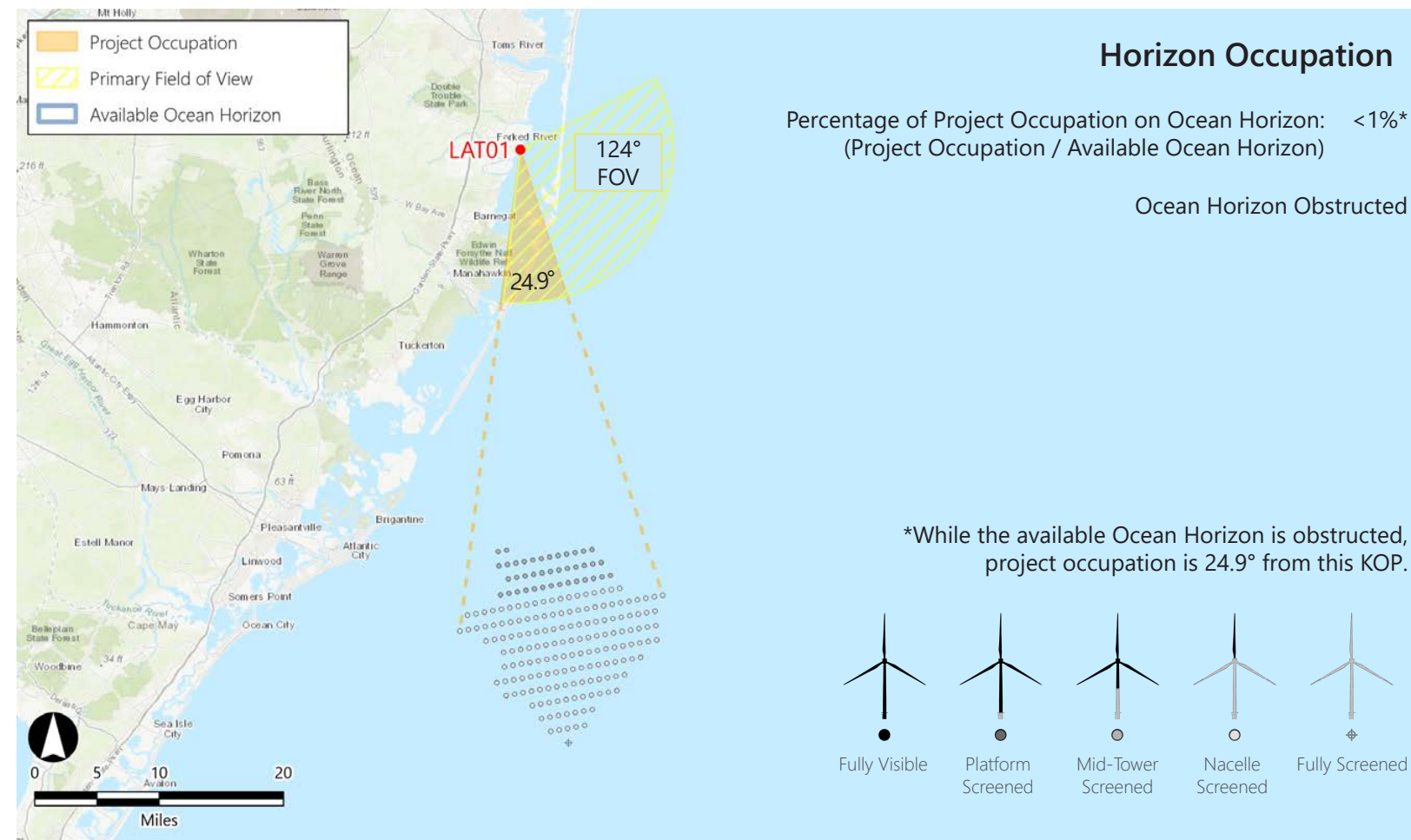
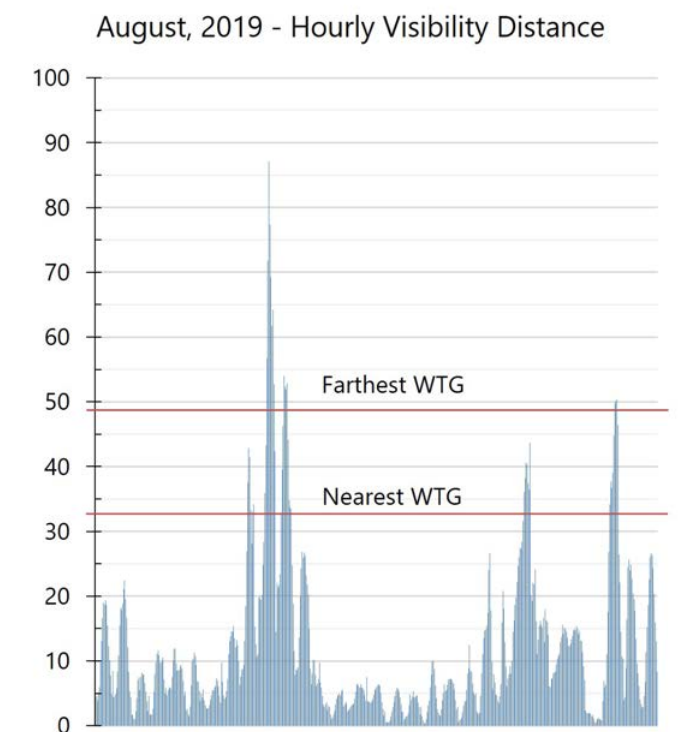
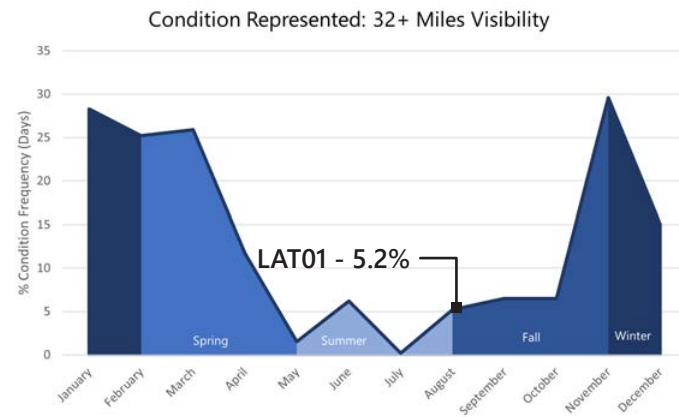
Lacey Township, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 32.18 miles
 Camera Height: 9.78 ft
 User Groups: Residents

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

Color Contrast Rating: 1.37

Turbine: [Grey square]
 Background: [Dark grey square]

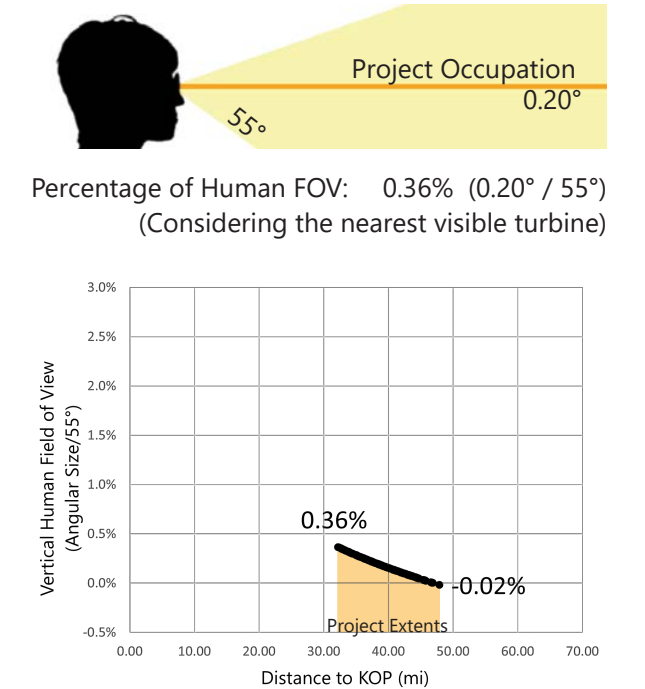
Lighting Condition: Back lit
 Season: Summer
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP BT01 Illustrates the project from 30.25 miles in the side lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.



Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: LAT01 - Edwin B. Forsythe National Wildlife Refuge at the Woodmansee Estate
Attachment E: Photosimulations; Page 11 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Nighttime Rendering)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photo Rendering (Nighttime)



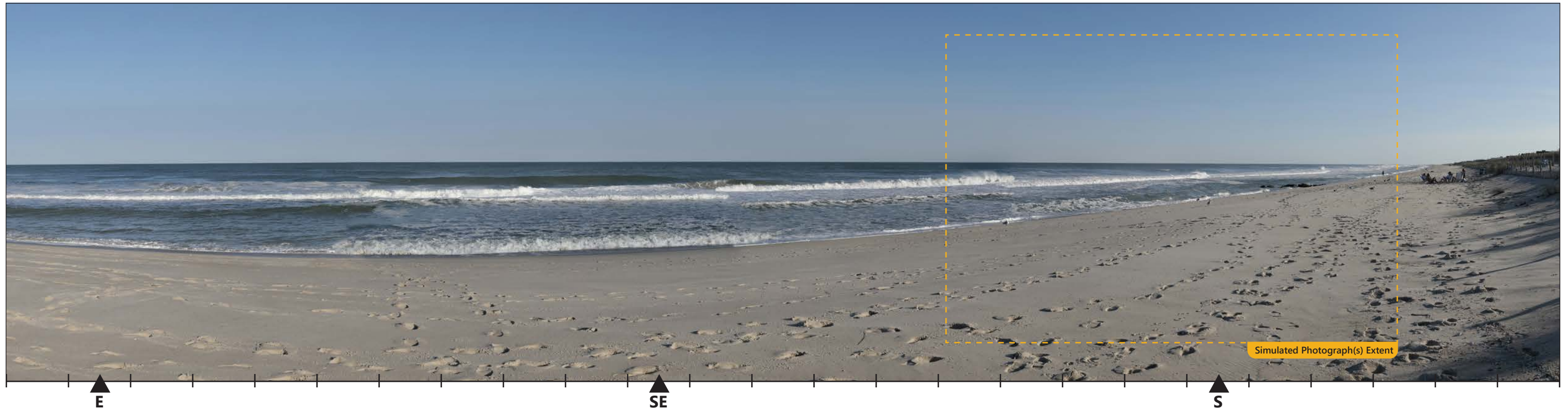
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



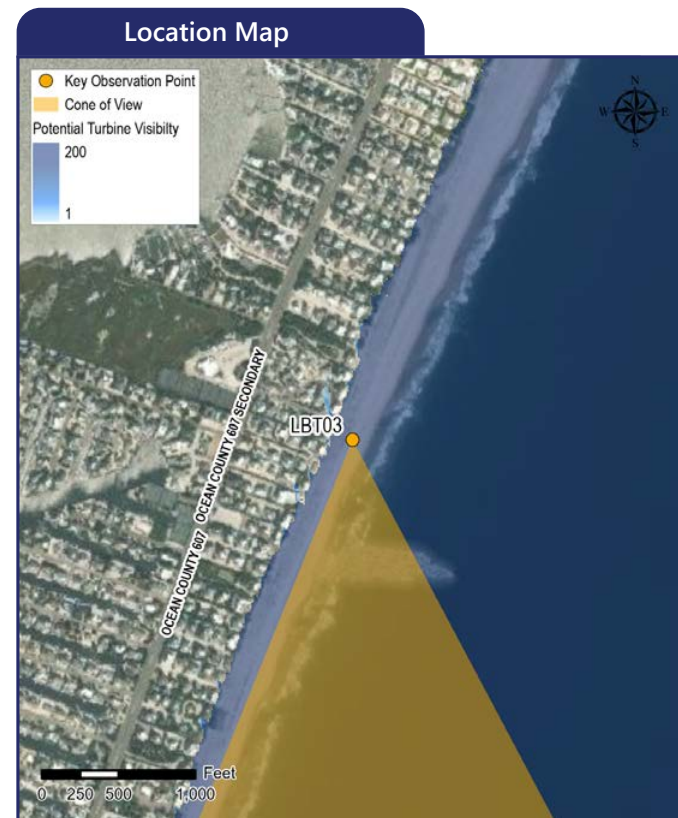
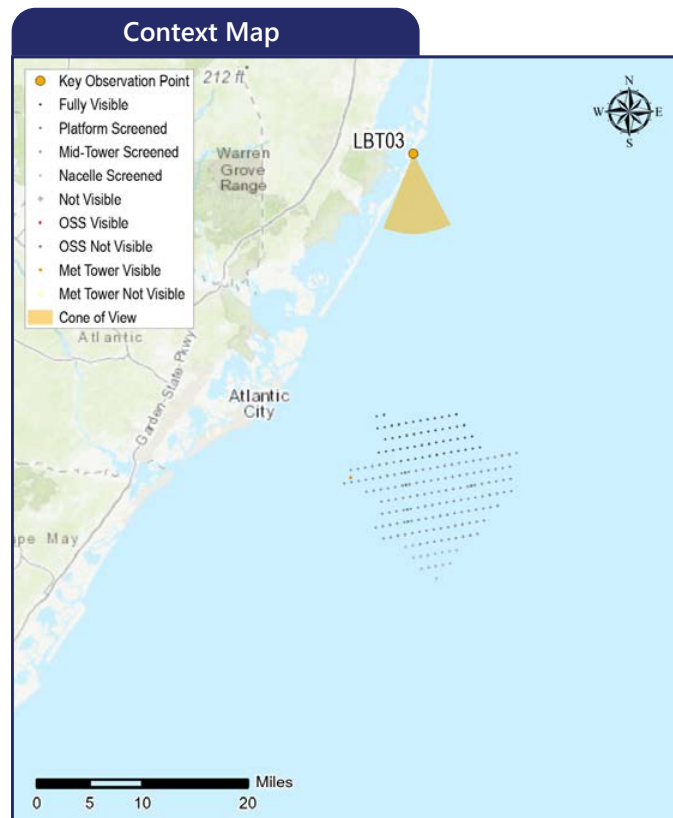
This scale is designed to insure the photosimulation images are printed at the intended size.

LBT03 Beach at Long Beach Island Foundation for the Arts and Sciences

Long Beach Township, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Beach at Long Beach Island Foundation for the Arts and Sciences NRL, panning clockwise from east (left) to south-southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates:	39.72895°N, 74.12058°W
Character Area:	Residential Beachfront, Seascape (SCA)
User Group:	Residents/Tourists, Fishermen
Direction of View:	South
Distance to Nearest Visible Turbine:	24.87 miles
Visually Sensitive Resource:	N/A

Environmental Information

Date Taken:	09/22/2020
Time:	5:17 PM
Temperature:	69°F
Humidity:	38%
Visibility:	10 miles
Wind Direction:	West
Wind Speed:	10 mph
Conditions Observed:	Fair

Photograph Information

Camera:	Canon EOS 5D Mark IV
Resolution:	30.4 Megapixels
Focal Length:	50mm
Camera Height:	16.64 feet AMSL

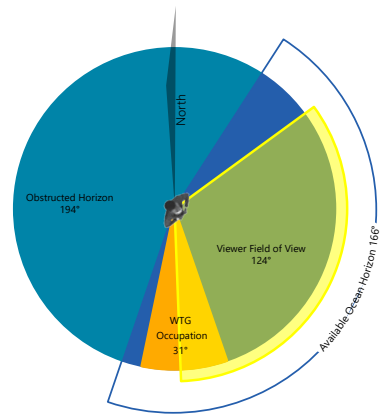
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)

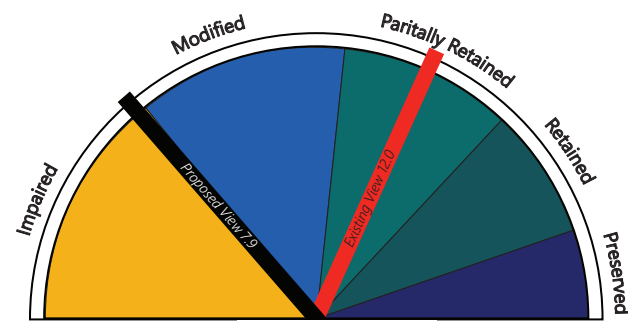


Field of View



Visual Impact Rating

Impact Rating Summary



-4.2. Significant

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	The horizon line against the ocean provides a focus, but no strong single focal point is present.
Order	Layers created by the sandy beach, rolling surf, waves, ocean and horizon.
Visual Clutter	Potential for clutter from beach crowds, umbrellas, chairs, boats, etc.
Movement	Human activity on the beach, boats on the water, and the movement of waves and wildlife.
Duration & Frequency of View	Moderate to long duration and high frequency view experienced by residents and beach-goers.
Atmospheric Conditions	The sky appears as clear as could be. Moisture in the air could impact visibility.
Lighting Direction	Backlit
Scenic or Recreational Value	There are residences lining the oceanfront with direct beach access. The ocean gives the viewers a sense of a pristine, untouched seascape. This is a popular beach for residents and vacationers.

Compatibility and Contrast Rating Average

Beach at Long Beach Island Arts Foundation			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.6	2.4	2.4
Landform	2.0	1.8	1.5
Vegetation	0.5	0.5	0.8
Land Use	2.4	2.1	2.1
User Activity	2.4	2.1	2.4

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 12.0
 Rating Panel Score Range: 9.8 - 14.8

This view is from the beach near the Long Beach Island Foundation (LBIF) for the Arts and Sciences facility in Long Beach Township, New Jersey. Built in 1948, the Main Gallery was the first structure completed on the LBIF site. The Gallery is approximately 3,500 square feet and hosts free exhibitions year-round from internationally known artists working in a wide range of media to community-based shows highlighting the work of the local community and its artists. The LBIF offers classes, workshops, exhibitions, and educational programs to the community, and is also a popular wedding venue. Beach access for wedding ceremonies is located across the street from the LBIF property.

The selected viewpoint is located on the beach near the LBIF property. Although outside the field of view in the selected photograph, the area immediately inland from the beach is developed and representative of the Residential Beachfront Character Area. The existing view to the south from this location looks down a long sandy beach. Beyond the lines of breaking waves, the dark blue-gray ocean extends to the horizon where it meets the bluish white sky. The smooth sand on the beach includes multiple sets of footprints and seagulls, with a single person visible along the shoreline as it angles out of the view. A small group of beach goers and adjacent build structures are visible to the right, again outside the frame of the selected photo. These observations, along with the tracks in the sand, suggest that the beach is well used. However, the view toward the ocean appears largely natural and unspoiled.

Rating panel members indicated that while the visual qualities of the wide-open beach are common along the eastern seaboard, this view has an especially tranquil quality that is minimally interrupted by built amenities and visual clutter. The numerous sets of footprints in the sand provide texture and shadow in the foreground view, which breaks up the smooth, light-colored plane of sand. The movement of the frothy waves occupies the viewer's attention until the rich, blue-green color of the ocean leads the viewer's eye to the clear, powder blue color of the sky. The balance of the warm tones of the sand and the clear blues of the sky and water enhances the expansive feel of the view and draws the viewer's eye to the strong horizon line. Rating panel scores for the existing conditions photographs ranged from 9.8 to 14.8 (average score = 12.0). The score for this KOP indicates that this view is partially retained.

Proposed Conditions

Scenic Quality: Modified
 Rating Panel Score Average: 7.9
 Rating Panel Score Range: 5.8 - 10.2
 Impact Magnitude: 4.2 (Significant)

Viewshed analysis suggests that Project visibility from this general area will be largely limited to the open beach, with potential visibility decreasing rapidly as one proceeds west into the developed residential areas that line the beach. Views from the adjacent roads and neighborhoods are completely screened.

With the proposed Project in place, the view is dominated by a large, highly organized, and visible array of WTGs that extend across a large portion of the ocean view to the southeast-south from this location. Of the 170-degrees of relatively unobstructed ocean horizon, the Project occupies approximately 31-degrees or 18.2 percent of the view (see Field of View Image, left). Project visibility is partly mitigated by the relative proximity of the WTGs (24.87 miles), yet also enhanced by back-lighting from the late-day sun that makes the WTGs appear dark against the sky. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 5.8 to 10.2 (average score = 7.9). These scores indicate an average reduction of 4.2 points in comparison to the existing view, indicating the view becomes modified and significant impacts could occur under the clear conditions presented. Individual rating panel members indicated reductions that ranged from 0.3 to 9.0. Panel members noted that while the WTGs are not tall on the horizon, their expansive layout and dense appearance on the horizon dominates and clutters the view. From this position, the WTGs are generally well organized and symmetrical in their layout. However, the center of the array results in a view down the row, causing the WTGs to stack and creating a darker, denser form on the horizon. The movement of the stacked rotor blades will also attract viewer attention and make the WTGs the focus of this view. The sense of a pristine ocean horizon is no longer a component of the view with the Project in place under these exceptional viewing conditions. With the Project in place, the scenic quality of this view is low to moderate. It should be noted that the visibility and visual dominance of the WTGs is likely to be reduced under more hazy or foggy sky conditions, or lighting conditions when the WTGs are front lit and lighter in color. An example of more typical viewing conditions is provided from the KOP at BHB01.

The panel members assigned the Project visibility an average VTL of 5 from this KOP. The rating panel indicated that the WTGs are not compatible and would result in partially retained scale contrast with the ocean (water resources). The rating panel scores also indicated that the WTGs would present partially retained scale contrast, some degree of compatibility, and co-dominance with land use and viewer activity.

LBT03 Beach at Long Beach Island Foundation for the Arts and Sciences

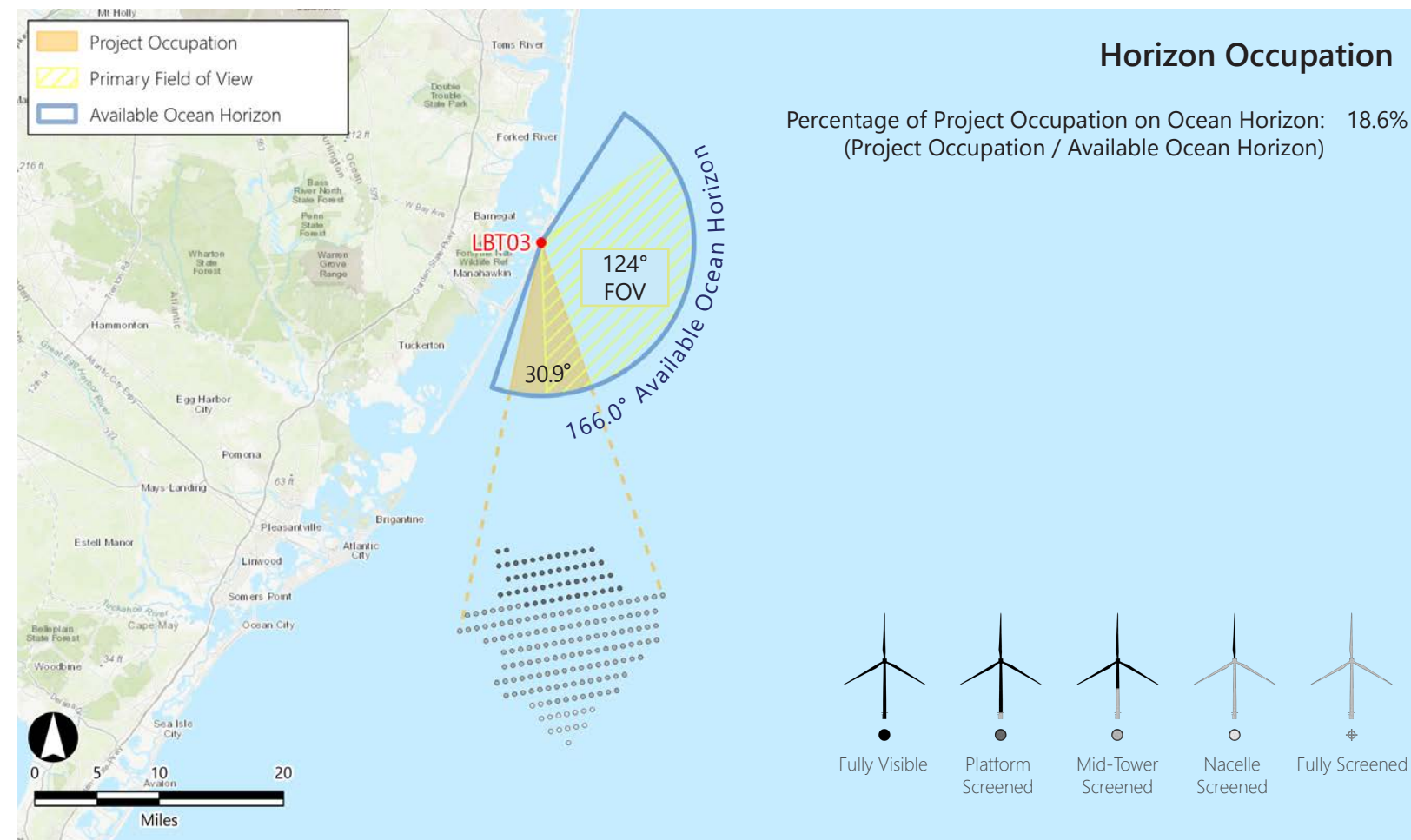
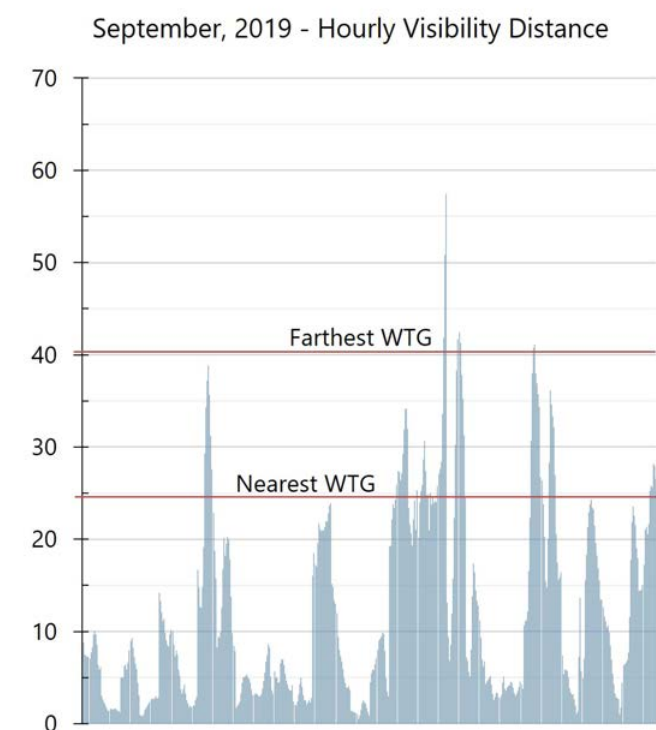
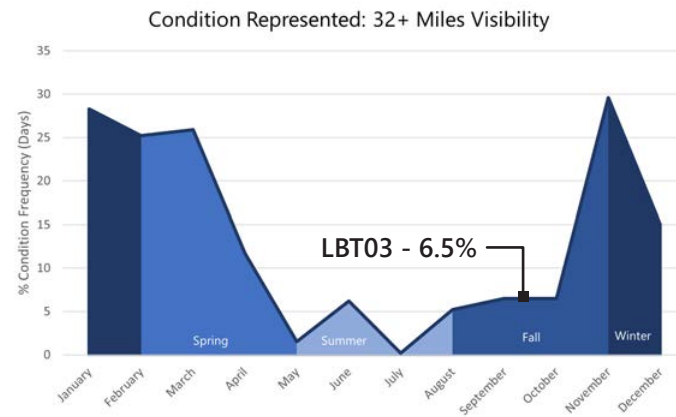
Long Beach Township, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 24.87 miles
 Camera Height: 16.64 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



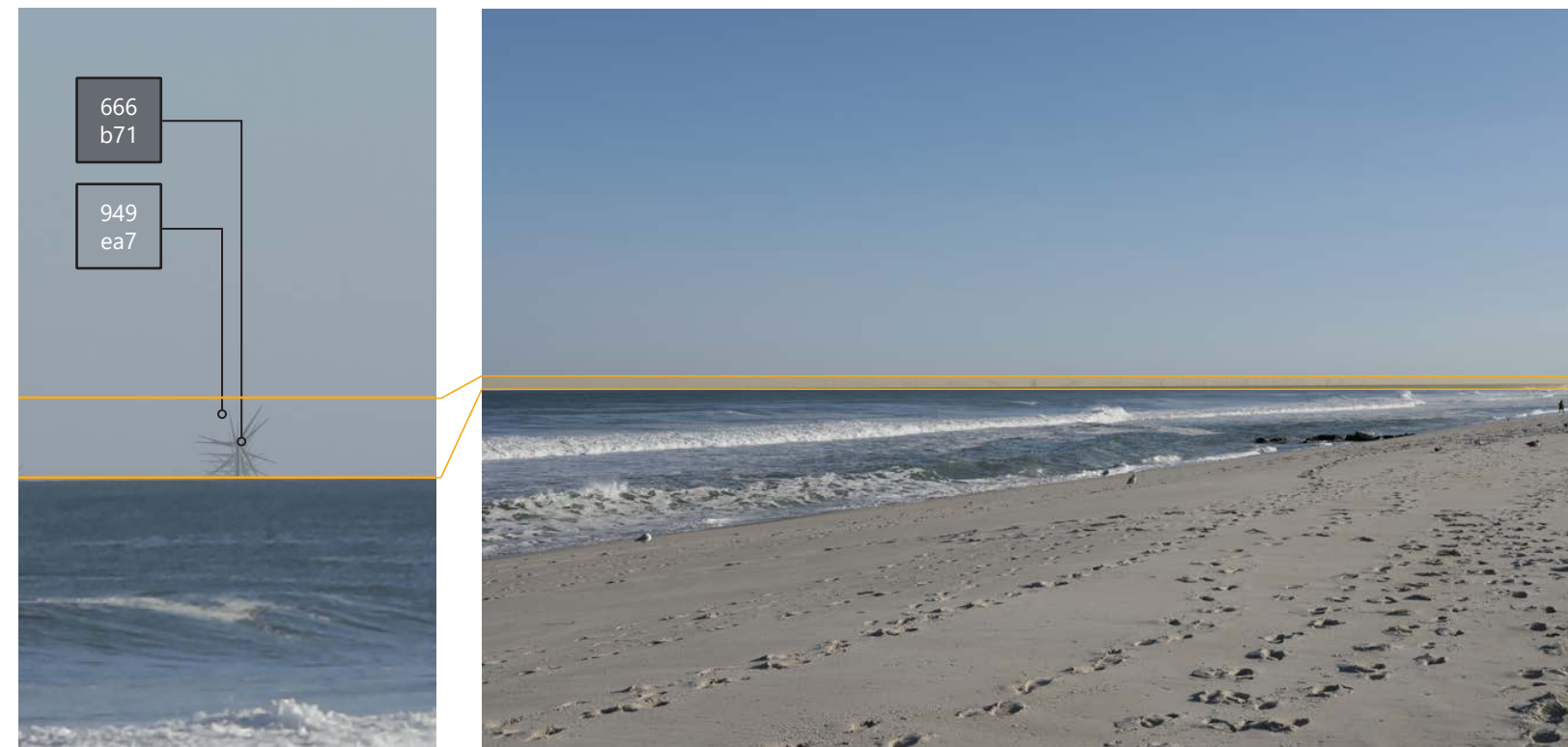
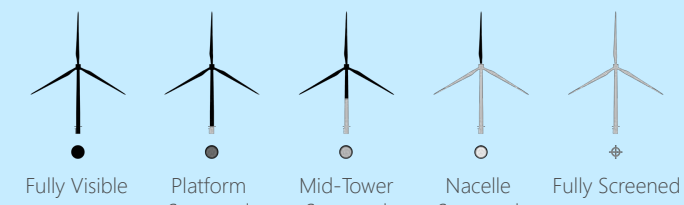
WTG Color Contrast

Color Contrast Rating: 1.97
 Turbine: [Dark Grey]
 Background: [Light Grey]

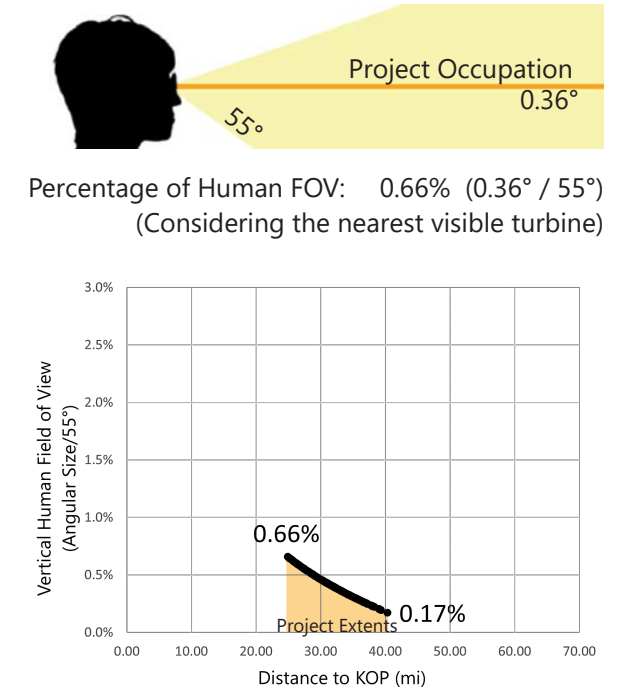
Lighting Condition: Side lit
 Season: Fall
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP BLB02 illustrates the project from 27.32 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during midday conditions.



Vertical Occupation



Existing Conditions



Atlantic Shores Offshore Wind Project
Outer Continental Shelf - New Jersey

Key Observation Point: LBT03 - Beach at Long Beach Island Foundation for the Arts and Sciences
Attachment E: Photosimulations, Page 27 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: LBT03 - Beach at Long Beach Island Foundation for the Arts and Sciences
Attachment E: Photosimulations, Page 28 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



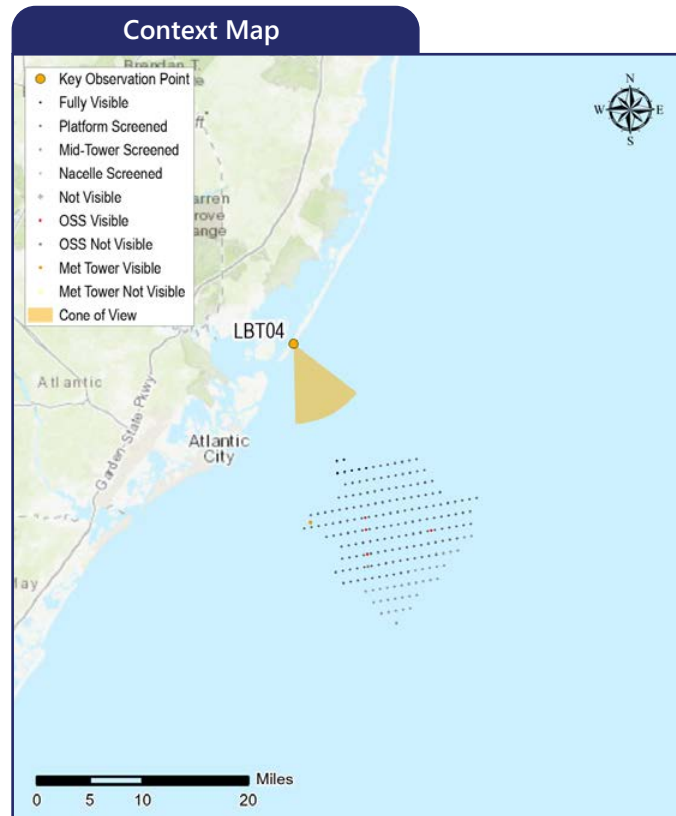
This scale is designed to insure the photosimulation images are printed at the intended size.

LBT04 Edwin B. Forsythe NWR, Holgate

Long Beach Township, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from Long Beach Island, panning clockwise from east (left) to southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.53091°N, 74.26447°W
 Character Area: Undeveloped Beach, Seascape (SCA)
 User Group: Residents/Tourists
 Direction of View: South-southeast
 Distance to Nearest Visible Turbine: 11.84 miles
 Visually Sensitive Resource: Edwin B. Forsythe NWR

Environmental Information

Date Taken: 03/03/2022
 Time: 7:00 AM
 Temperature: 47°F
 Humidity: 71%
 Visibility: 10 miles
 Wind Direction: West-northwest
 Wind Speed: 10 mph
 Conditions Observed: Cloudy

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 7.03 feet AMSL

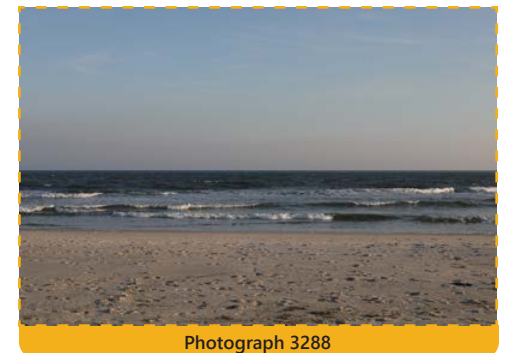
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)



Photograph 4165



Photograph 3288

LBT04 Edwin B. Forsythe NWR, Holgate

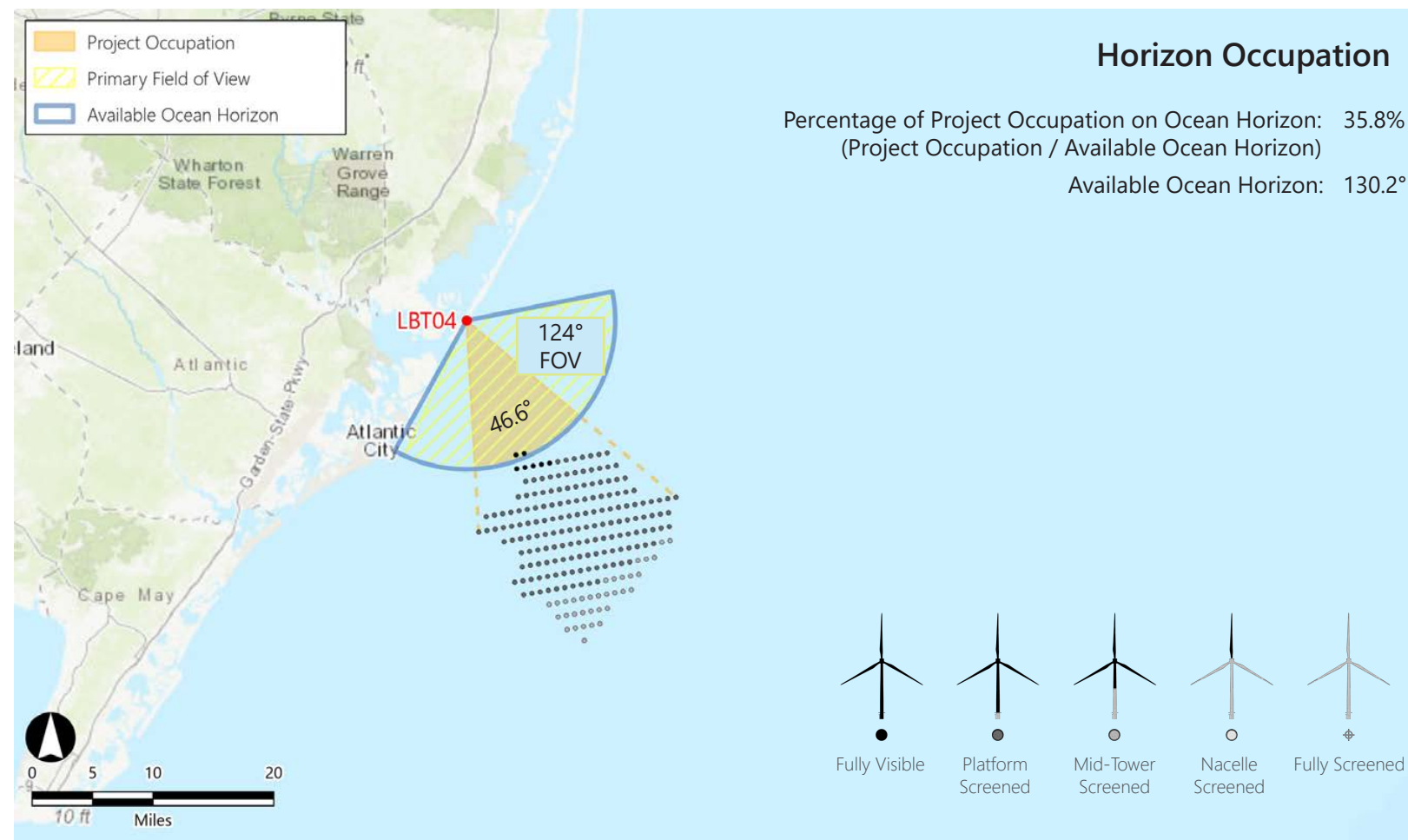
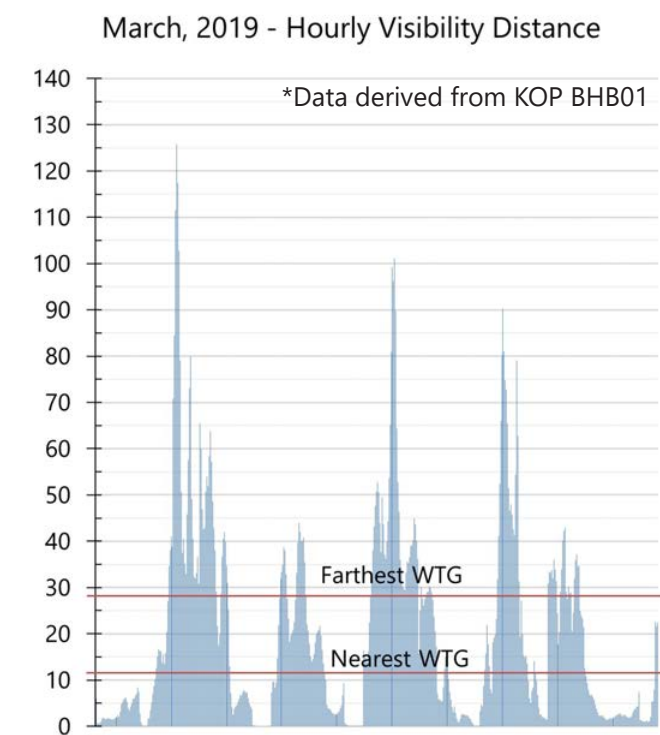
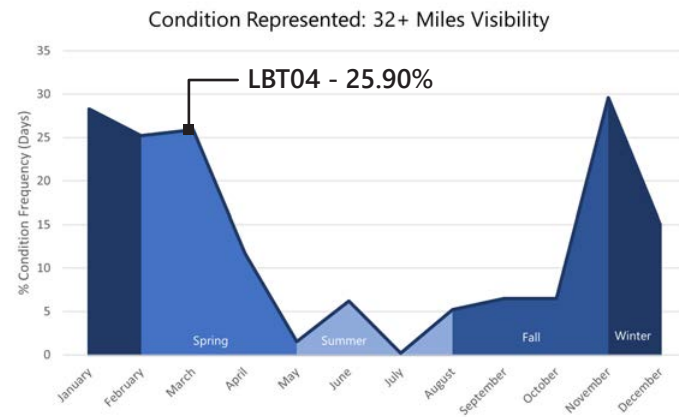
Long Beach Township, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 11.84 miles
 Camera Height: 7.03 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

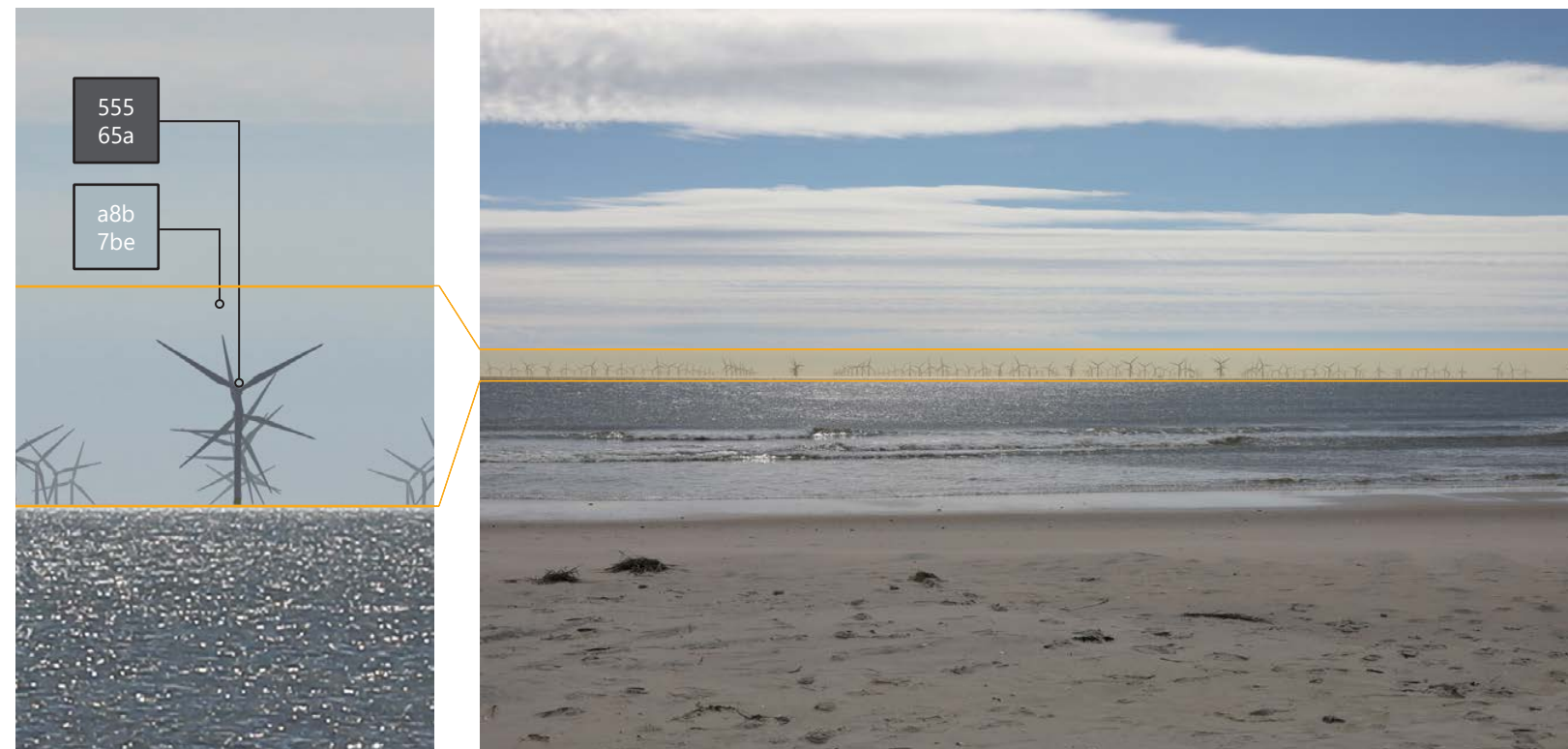
Color Contrast Rating: 3.55

Turbine (dark grey) / Background (light grey)

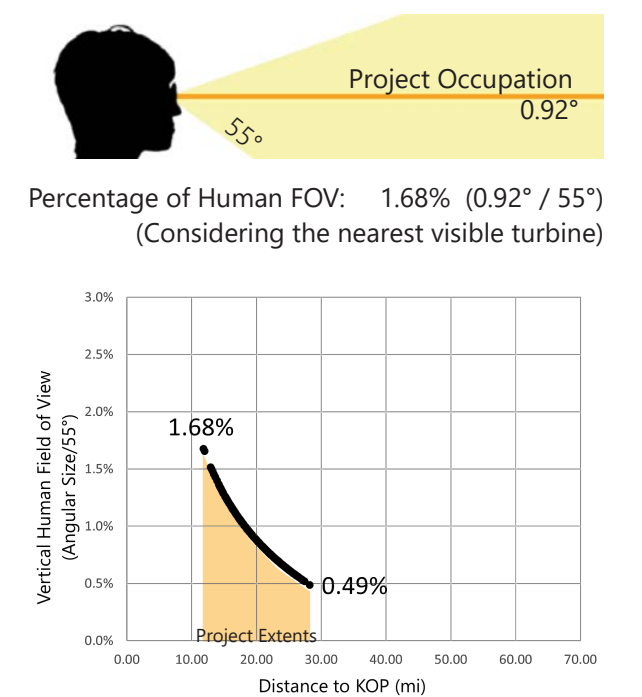
Lighting Condition: Back lit
 Season: Spring
 Sky Condition: Cloudy
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP AC02 Illustrates the project from 11.42 miles in the front lit condition. This provides an indication of how the turbines may appear from this KOP during midday conditions.



Vertical Occupation



Existing Conditions (Sunrise)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation (Sunrise)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Noon)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation (Noon)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions (Sunset)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation (Sunset)



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



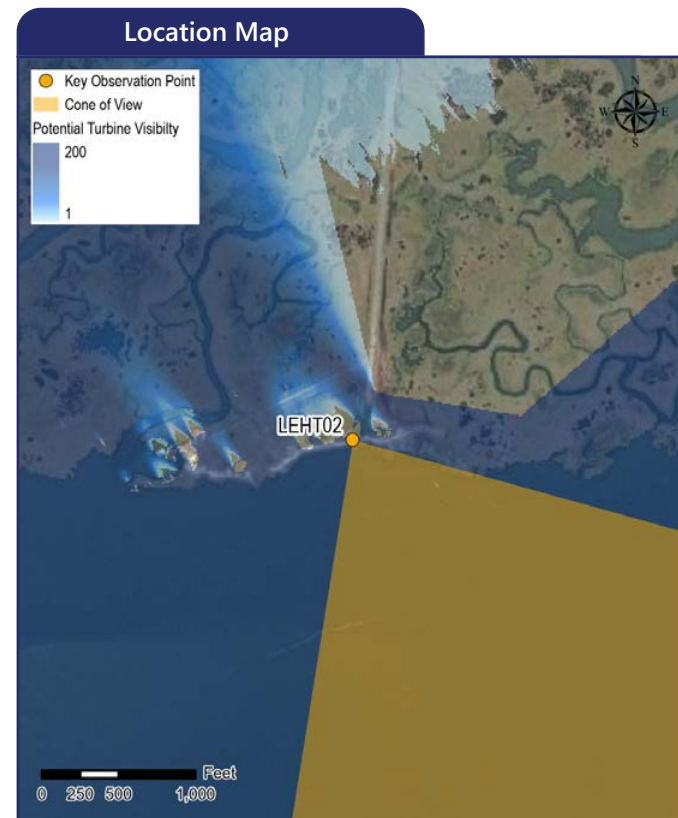
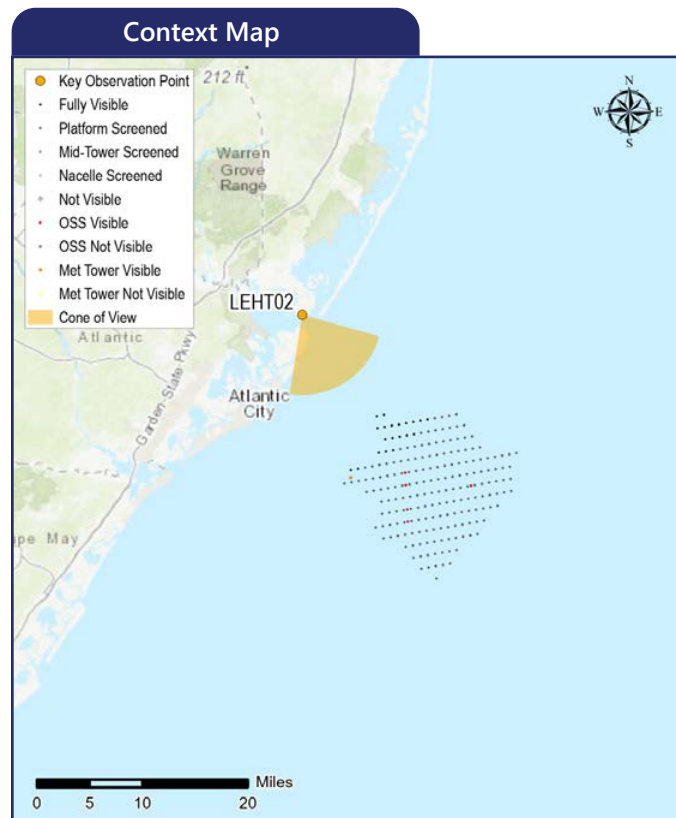
This scale is designed to insure the photosimulation images are printed at the intended size.

LEHT02 Great Bay Boulevard WMA/Rutgers Field Station

Little Egg Harbor Township, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Great Bay Boulevard Wildlife Management Area (WMA)/Rutgers Field Station, panning clockwise from east-southeast (left) to southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.50913°N, 74.32038°W
 Character Area: Dredged Lagoon, Salt Marsh, Landscape (LCA)
 User Group: Residents/Tourists, Fishermen
 Direction of View: Southeast
 Distance to Nearest Visible Turbine: 11.91 miles
 Visually Sensitive Resource: Great Bay Boulevard Wildlife Management Area, Little Egg Harbor US Life Saving Station #23

Environmental Information

Date Taken: 09/22/2020
 Time: 8:32 AM
 Temperature: 59°F
 Humidity: 49%
 Visibility: 10 miles
 Wind Direction: North-northwest
 Wind Speed: 12 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 10.00 feet AMSL

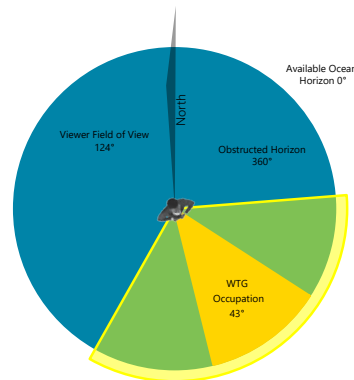
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)

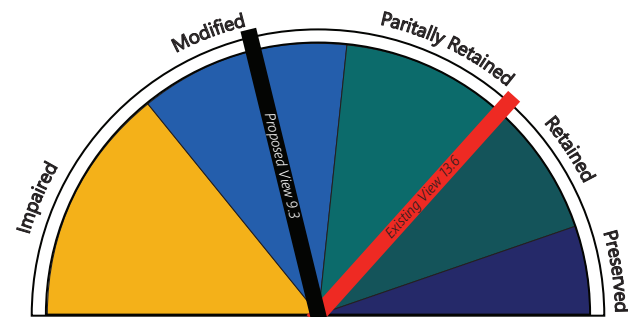


Field of View



Visual Impact Rating

Impact Rating Summary



-4.3. Significant

Visual Threshold Level (VTL)

6 An object/phenomenon with strong visual contrasts that is so large that it occupies most of the visual field, and views of it cannot be avoided except by turning one's head more than 45 degrees from a direct view of the object. The object/phenomenon is the major focus of visual attention, and its large apparent size is a major factor in its view dominance. In addition to size, contrasts in form, line, color, and texture, bright light sources and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject detracts noticeably from views of other landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Salt Marsh grasses on the left side of the view stretch out and point to a span of landform on the horizon.
Order	This view has a natural layering of shoreline in the foreground, water in the mid-ground, punctuated by the horizon line and open sky above.
Visual Clutter	None observed by the rating panel.
Movement	Boats on water, wildlife, waves likely to be the main source of movement.
Duration & Frequency of View	Long-Term and Occasional (potentially repeated)
Atmospheric Conditions	Moisture in the air could impact visibility.
Lighting Direction	Backlit & Side-Lit
Scenic or Recreational Value	Great Bay WMA, Little Egg Harbor Life Saving Station #23

Compatibility and Contrast Rating Average

Great Bay Boulevard WMA/Rutgers Field Station			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.9	3.0	2.9
Landform	2.3	2.3	2.5
Vegetation	1.8	1.9	1.9
Land Use	2.0	2.0	1.8
User Activity	2.5	2.3	2.5

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Retained
 Rating Panel Score Average: 13.6
 Rating Panel Score Range: 11.7 - 16.0

This view is from the Rutgers University Marine Field Station (RUMFS) at the Great Bay Boulevard Wildlife Management Area (WMA) in Little Egg Harbor Township, New Jersey. The RUMFS complex was built in 1937 as a lifeboat station operated by the U.S. Coast Guard. Rutgers University established the Marine Field Station at this location in 1972. The WMA is a 5,346-acre state owned property located on the 4-mile-long peninsula that separates Great Bay and Little Egg Harbor at the mouth of the Mullica River where it meets the Little Egg Inlet to the Atlantic Ocean. It is a popular area for birding in all seasons and is also used by hunters and kayakers. The Boulevard is a narrow two-lane road that traverses this spit of land, offering vistas over the salt marsh on both sides of the road. Narrow, sandy beaches at the end of the peninsula provide additional opportunities for birding, beach combing and nature study.

The view to the southeast from this location looks off across a large bay that is fringed by stands of marsh grass at the shoreline that interweaves the water and land features and adds interest to the view. Low vegetated dunes and narrow bands of sand on the opposite side of the bay define the majority of the horizon line. The high-rise buildings of Atlantic City are also visible across the bay in the distance, but outside the selected field of view. The angle of the sun darkens the view, with the foreground grass appearing black and the water of the bay blue gray with dark ripples. The sky transitions from rosy pink on the left to rich blue on the right and is uninterrupted by overhead obstructions. Other than the distant buildings of Atlantic City, the only visible man-made features are some small buoys in the bay.

Rating panel members indicated that the existing view is dominated by the open water of the bay. Although this KOP would likely be used for bird watching within the WMA, the horizon line holds the viewer's attention. The distant landforms frame the edges of the view along the horizon where the water meets the sky. The lack of developed features and the broad expanse of open water and sky gives this view a serene, unspoiled character. Rating panel scores for the existing conditions photographs ranged from 11.7 to 16.0 (average score = 13.6). This score for this KOP indicates that view from this KOP is partially retained.

Proposed Conditions

Scenic Quality: Modified
 Rating Panel Score Average: 9.3
 Rating Panel Score Range: 6.7 - 12.0
 Impact Magnitude: 4.3 (Significant)

Viewshed analysis suggests that Project visibility could be widely available from the bay and adjacent open marsh. However, nearby areas with even modest woody vegetation will generally be well screened.

With the proposed Project in place, the view is dominated by a large and highly visible array of WTGs that extend across a large portion of the view to the southeast from this location. At this location only 48 degrees of relatively unobstructed ocean horizon is available with 312 degrees of the visible horizon obstructed by distant barrier islands or shrub/scrub vegetation of the WMA. The Project occupies approximately 43 degrees of the view (see Field of View Image, left). WTG visibility is enhanced by the relative proximity of the WTGs (11.9 miles) and their back-lighting by the early morning sun, which makes the WTGs appear dark against the sky. Rating panel members had a variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 6.7 to 12.0 (average score = 9.3). These scores indicate an average reduction of 4.3 points in comparison to the existing view suggesting the view becomes modified and significant visual impacts would occur as a result of the Projects. Individual rating panel members indicated reductions that ranged from 1.4 to 7.0 and stated that the presence of the WTGs will change the experience for visitors to the WMA. Although viewer attention may still be focused on viewing wildlife in the foreground, the WTGs introduce new man-made forms into this formerly wild setting. Due to their relative proximity to the viewer, the WTGs appear large and become focal points of view. The movement of the rotor blades will also attract viewer attention. Although the visibility and visual dominance of the WTGs is likely to be reduced under more hazy sky conditions, and later in the day when lighting conditions reduce back-lighting and contrast with the sky. One member noted that the presence of the WTGs on the horizon serves to visually connect the distant landforms on the horizon and enclose the view. WTGs on the left and right sides of the array have less color contrast with the sky, while those in the center appear stacked on top of each other, which increases their visual mass.

Panel members assigned the Project visibility an average VTL of 6 from this KOP. Considering the scale, compatibility, and spatial dominance factors that influenced this VTL score, panel ratings indicated that the WTGs present severe scale contrast with water resources and viewer activity. They also indicated that the WTGs are not compatible with the water resources and the viewer activity. Additionally, the WTGs were considered dominant over the water resources, viewer activity, and landform present in the view.

LEHT02 Great Bay Boulevard WMA - Rutgers Field Station

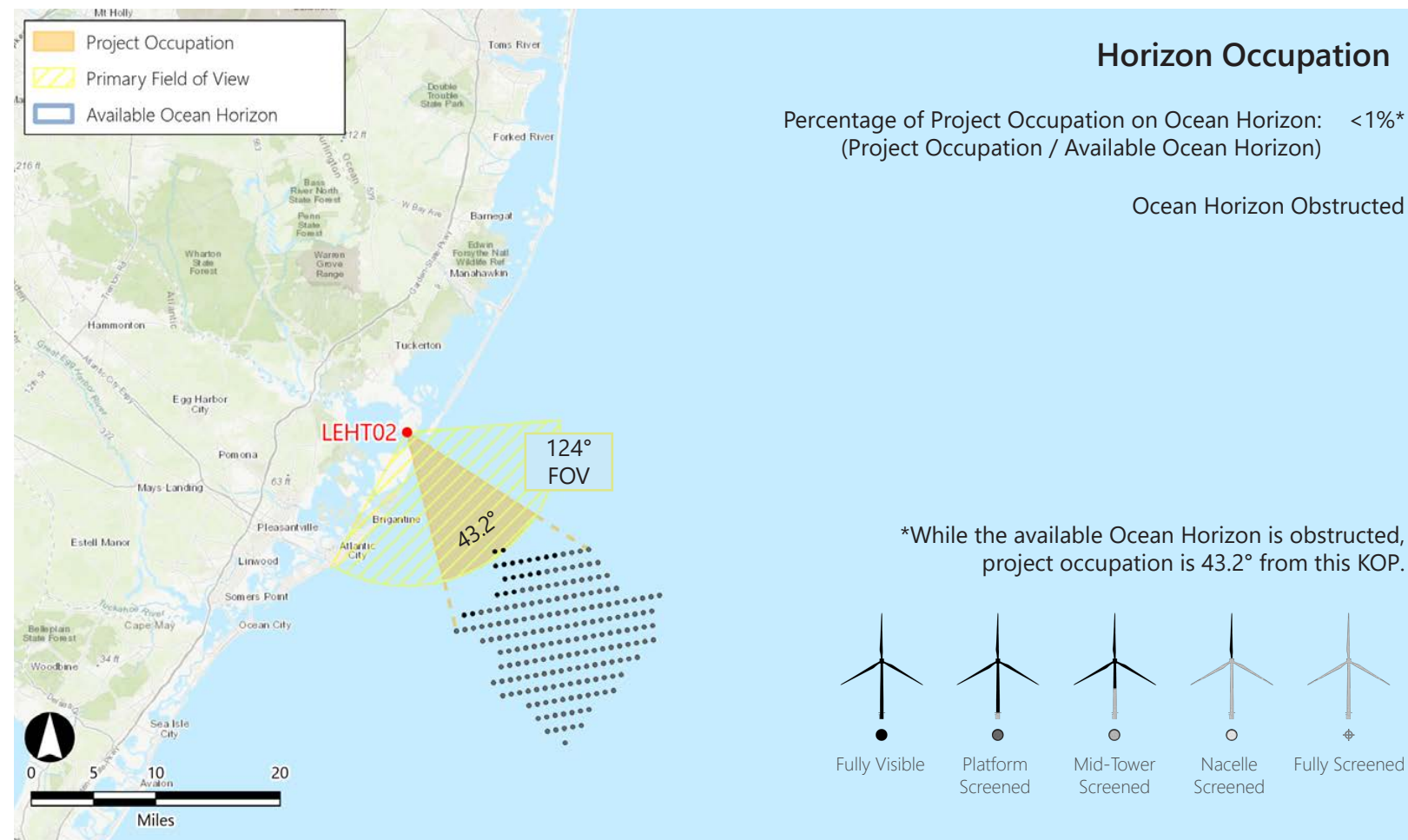
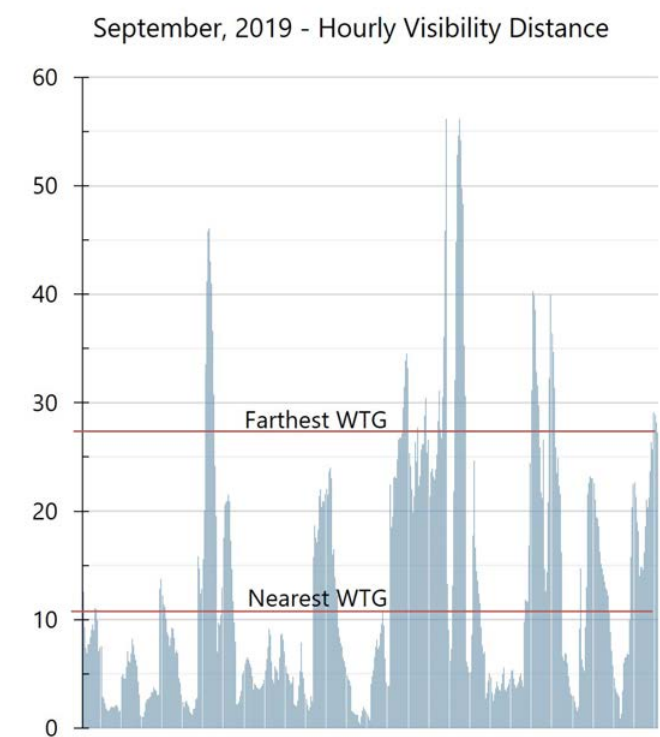
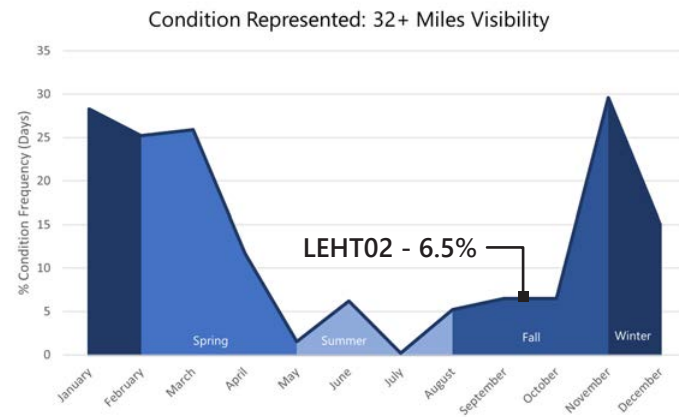
Little Egg Harbor Township, Ocean County, New Jersey

KOP Information

Primary Field of View: Southeast
 Distance to Closest WTG: 11.91 miles
 Camera Height: 10.00 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

Color Contrast Rating: 3.18
 Turbine
 Background

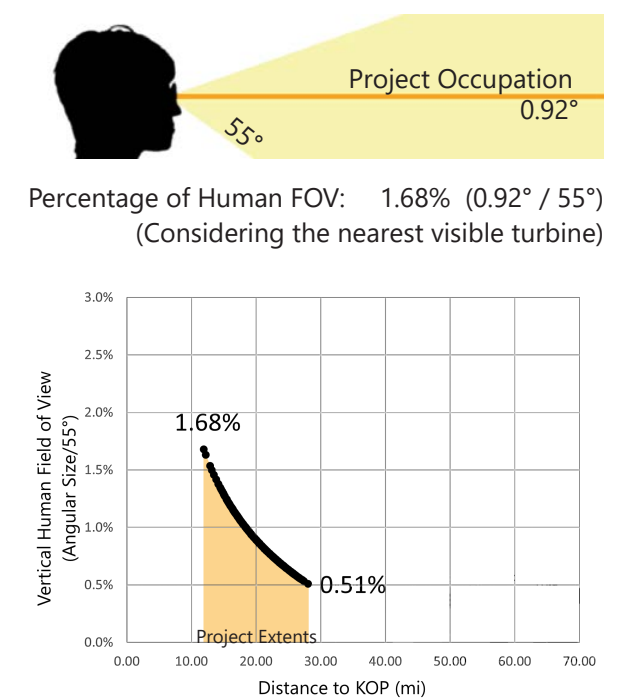
Lighting Condition: Back lit
 Season: Fall
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP BC02 Illustrates the project from 9.03 miles in the side lit condition. This provides an indication of how the turbines may appear from this KOP during midday conditions.



Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: LEHT02 - Great Bay Boulevard WMA/Rutgers Field Station

Attachment E: Photosimulations; Page 86 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: LEHT02 - Great Bay Boulevard WMA/Rutgers Field Station

Attachment E: Photosimulations: Page 88 of 159

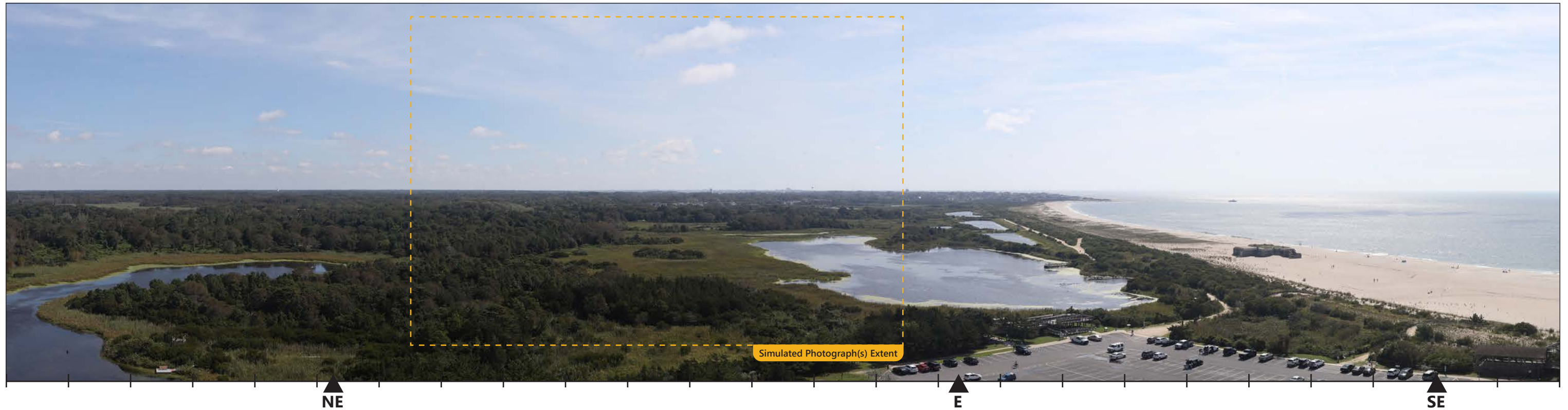
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



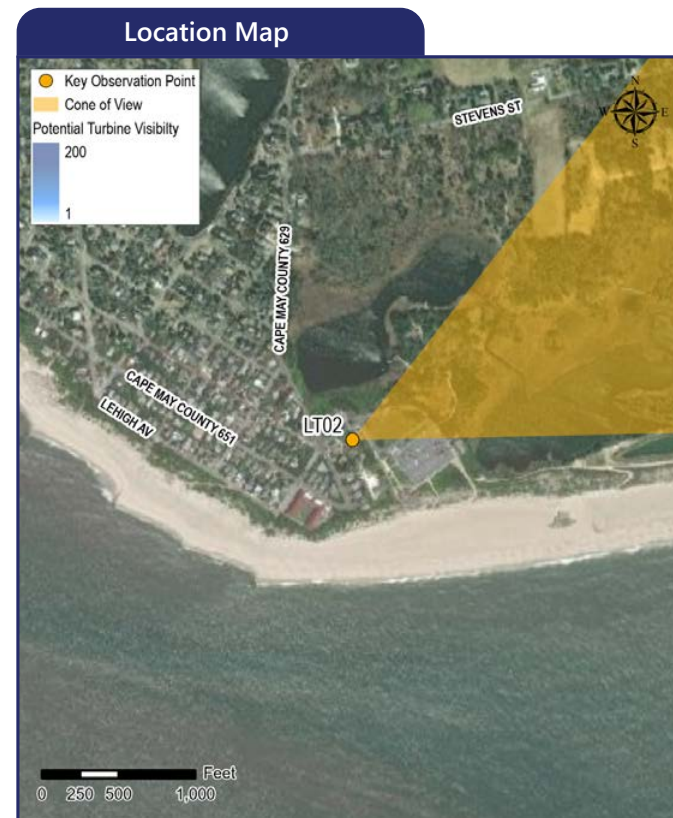
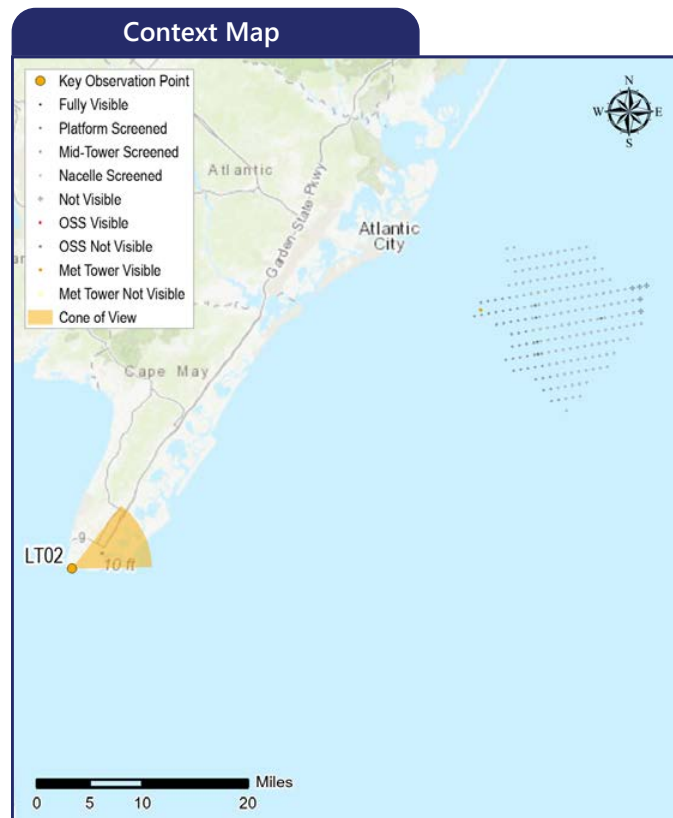
This scale is designed to insure the photosimulation images are printed at the intended size.

LT02 Cape May Point State Park

Lower Township, Cape May County, New Jersey



The image above is a +/- 124° panorama photograph from the Cape May Lighthouse, Cape May Point State Park, panning clockwise from north-northeast (left) to southeast (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 38.93300°N, 74.96038°W
 Character Area: Recreation, Seascape (SCA)
 User Group: Residents/Tourists
 Direction of View: East-northeast
 Distance to Nearest Visible Turbine: 45.03 miles
 Visually Sensitive Resource: Cape May Point State Park, Cape May Point State Park - Fishing Access, Cape May Point Borough Beach, Cape May Lighthouse, Bayshore Heritage Scenic Byway

Environmental Information

Date Taken: 08/20/2020
 Time: 10:40 AM
 Temperature: 79°F
 Humidity: 60%
 Visibility: 10 miles
 Wind Direction: Calm
 Wind Speed: 0 mph
 Conditions Observed: Mostly Cloudy

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 150.10 feet AMSL

Notes

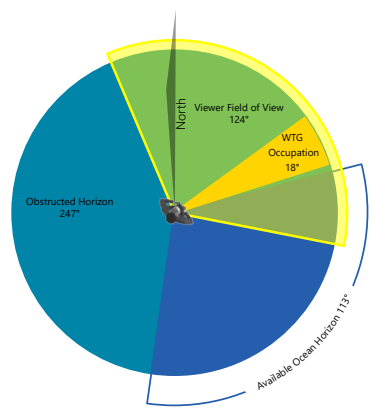
Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)

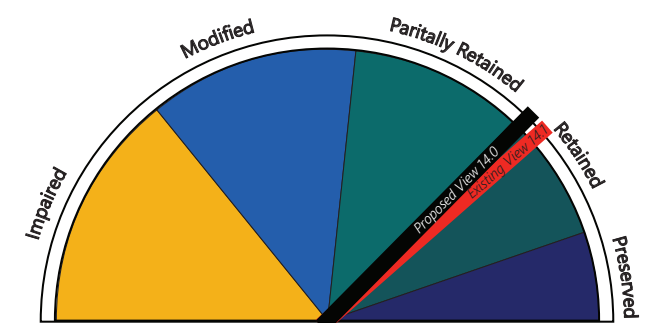


Map considers screening by curvature of the earth, viewer height, and WTG height only. Considering landscape features 145 WTGs will be visible.

Field of View Visual Impact Rating



Impact Rating Summary



-0.1. Negligible

Existing Conditions

Scenic Quality: Retained
Rating Panel Score Average: 14.1
Rating Panel Score Range: 12.7 - 16.0

This view is from the Cape May Lighthouse overlooking Cape May Point State Park. Although the Cape May Lighthouse is a major attraction for many visitors to the park, Cape May Point State Park includes 244 acres of ocean shoreline, dunes, freshwater coastal marsh and ponds, forested islands, and varied uplands. Located on the southern tip of New Jersey, Cape May Point State Park is a key site on the NJ Coastal Heritage Trail and a well-known location for viewing the fall bird migration. Several blazed trails lead visitors to various habitats in the park where wildlife can be viewed from observation platforms. The park also includes an environmental center that houses a classroom for interpretive programs and a museum on the area's natural and historic features. Along with birding, popular visitor activities include swimming, beach combing, fishing, environmental education, nature interpretation, and photography.

The selected viewpoint is located within the Cape May Lighthouse at the southwest corner of the Park's property, where it abuts developed private land. This adjacent land, which is behind the viewer, is representative of the Residential Beachfront Character Area. The elevated view to the east-northeast from this location is a broad vista that includes extensive woodlands, ponds, marshes, ocean shoreline, and a large, paved parking lot. Several of these features are outside the field of view illustrated in the selected photograph. That field of view is dominated by wooded and marsh vegetation and an open water pond that extends from the foreground into the middle ground. The dark green forest vegetation extends into the background where it is interspersed with buildings and other man-made structures that rise above the treetops. The uniform forest cover and level topography limit the visual interest presented by this view and create a strong horizontal line where the dark land meets the hazy blue sky. The only vertical elements that extend above the horizon line and into the sky are some distant water towers and antennas. The broad expanse of green vegetation gives the view a natural appearance, but clear evidence of development in the background tempers its undisturbed character.

Rating panel members indicated that the elevated existing view from the Cape May Lighthouse is both visually interesting and dynamic relative to how it engages the inland tidal pond, grassland, and bordering dense shrub and tree vegetation. The view will be experienced by lighthouse visitors over a short period of time during their elevated platform visit. The view includes man-made structures interspersed throughout the flat, vegetated background that contrast with the undeveloped foreground vista, drawing the viewer's attention outward toward the horizon, particularly where the water towers, antennae, and structures break the horizon line. Rating panel scores for the existing conditions photographs ranged from 12.7 to 16.0 (average score = 14.1). The score for this KOP indicates that this view is retained.

Proposed Conditions

Scenic Quality: Retained
Rating Panel Score Average: 14.0
Rating Panel Score Range: 12.3 - 16.0
Impact Magnitude: 0.1 (Negligible)

Viewshed analysis suggests that Ground level views from this location are blocked by intervening vegetation or structures and the curvature of the earth. However, as demonstrated in the photosimulation from this KOP, elevated views from within buildings will be available in some areas that are indicated as being screened in the viewshed analysis.

With the proposed Project in place, the east-northeast view is not dominated by the introduction of the WTGs as the WTG rotor tips are almost indiscernible along the horizon and blend into the man-made structures that are scattered within the background view from this location. In this view the 279-degrees of relatively unobstructed ocean horizon is primarily behind and to the right of the viewer, and the Project situated entirely over obstructed horizon occupies approximately 19-degrees or 23.5 percent of the 81 degrees of obstructed horizon (see Field of View Image, Left). Project visibility is further mitigated by the distant proximity of the WTGs (45.03-miles) and their side lighting by the near late-morning sun that shadows the WTGs against the sky. Rating panel members had a consistent no-effect reaction to the impact resulting from the Project WTGs, with the VIA scores ranging from 12.3 to 16.0 (average score = 14.0). These scores indicate an average reduction of 0.1 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 0.0 to 0.3. As such negligible visual impacts are expected to occur at this KOP under the clear conditions presented. Panel members noted that the presence of the WTGs would be minimally noticeable to most viewers since the attention is focused on the rich tapestry of pattern and color in the foreground and the middle ground of the existing, natural environment. The movement of the rotor blades could possibly attract the viewer's attention on the horizon; however, the blade tips are difficult to distinguish from the other built structures that currently exist in the view. In addition, the visibility of the WTGs is likely to be further reduced under darker or hazier sky conditions. With the Project in place, the view remains retained.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present no scale contrast, are compatible with the existing seascape features and users. The rating panel also suggested that the WTGs are subordinate when considering seascape features and users. Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 2 from this KOP.

Visual Threshold Level (VTL)

2 An object/phenomenon that is very small and/or faint, but when the observer is scanning the horizon or looking more closely at an area, can be detected without extended viewing. It could sometimes be noticed by casual observers; however, most people would not notice it without some active looking (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Grassy marsh opening, water body, water tank, and horizon.; The view is generally to the horizon line but is anchored by a building in the center of the view.
Order	Scrub edge, march grass meadow, pond, scrub, man-made structures, utilities, background landform, and horizon; There is a layering of natural salt marsh in the foreground, built up land in the middle ground and open sky above the horizon line.
Visual Clutter	In the background view various utility elements such as cell towers, water supply and the city skyline break the horizon.; There are some built elements that permeate the green spaces.
Movement	Vehicles and people likely to be the main source of movement.
Duration & Frequency of View	Short Term/Fleeting Occasional
Atmospheric Conditions	Increased moisture in the air could impact visibility.
Lighting Direction	Side-Lit
Scenic or Recreational Value	Cape May State Park, Fishing Access and Beach, Cape May Lighthouse, Bayshore Heritage Scenic Byway.; This view is used mostly by locals and tourists for the purpose of vistas.

Compatibility and Contrast Rating Average

Cape May Point State Park			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	1.0	1.0	1.0
Landform	1.0	1.0	1.0
Vegetation	1.0	1.0	1.0
Land Use	1.0	1.0	1.0
User Activity	1.0	1.0	1.0

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

LT02 Cape May Point State Park

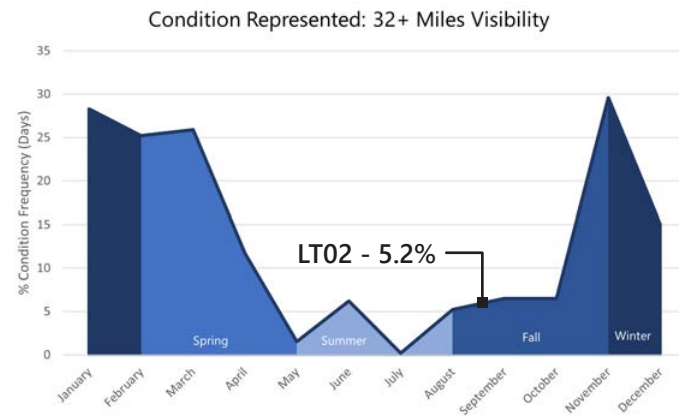
Lower Township, Cape May County, New Jersey

KOP Information

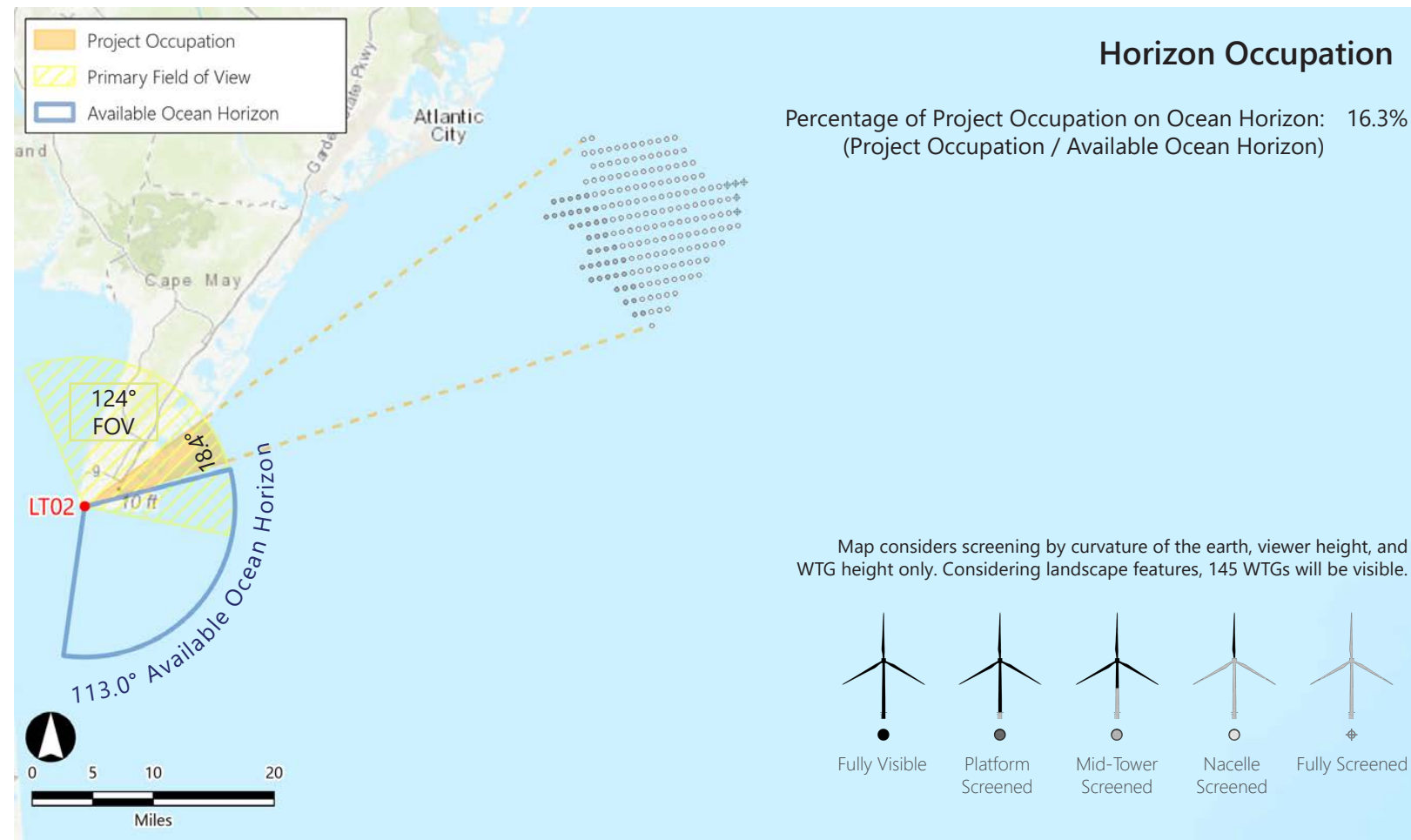
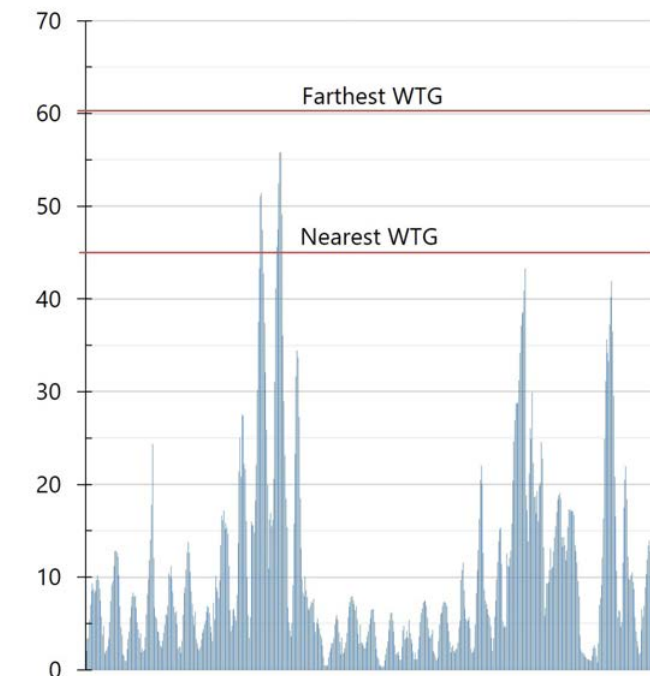
Primary Field of View: Northeast
 Distance to Closest WTG: 45.03 miles
 Camera Height: 150.10 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



August, 2019 - Hourly Visibility Distance



WTG Color Contrast

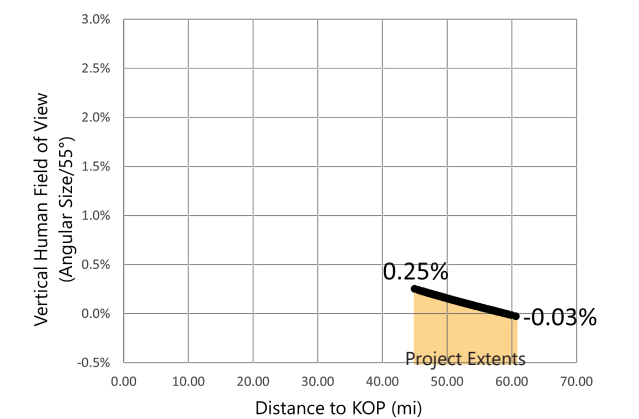
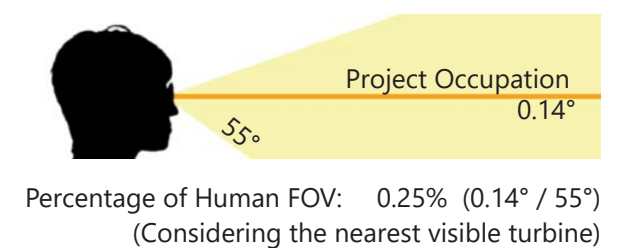
Color Contrast Rating: 1.23
 Turbine: [Grey Box]
 Background: [Lighter Grey Box]

Lighting Condition: Side lit
 Season: Summer
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

There are no other KOPs within the distance threshold represented by this KOP.

Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



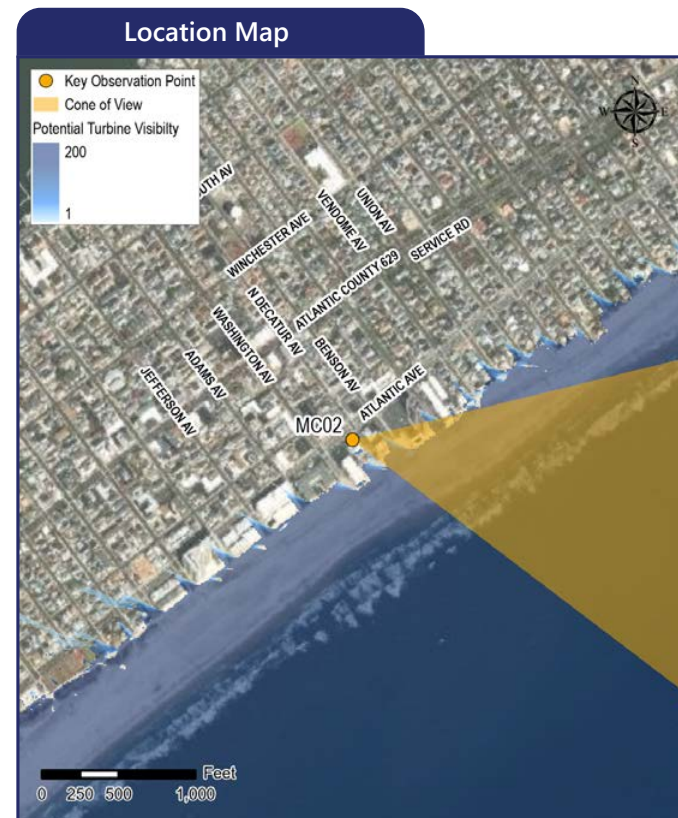
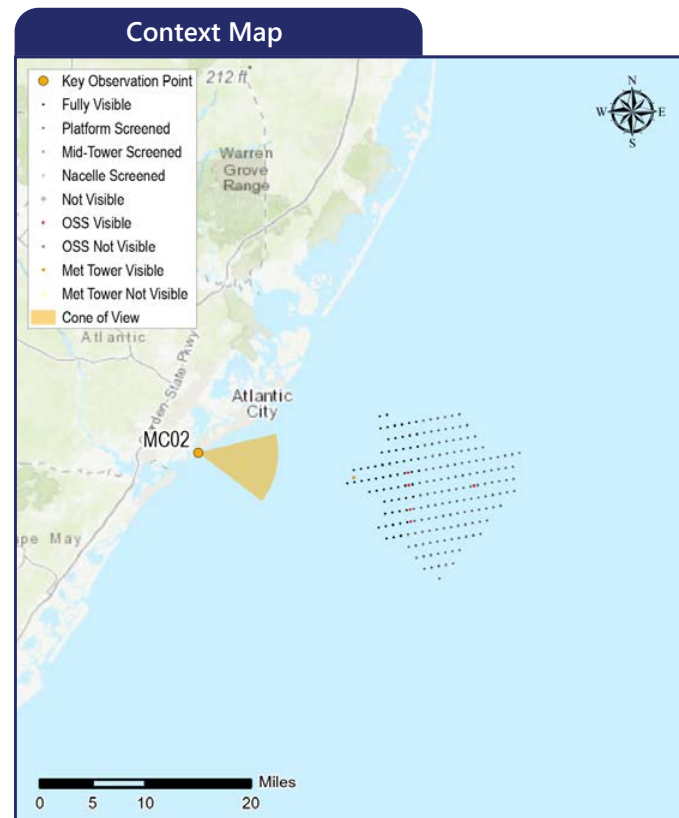
This scale is designed to insure the photosimulation images are printed at the intended size.

MC02 Lucy the Margate Elephant National Historic Landmark

Margate City, Atlantic County, New Jersey



The image above is a +/- 124° panorama photograph from the lookout on top of Lucy the Margate Elephant, panning clockwise from northeast-east (left) to south (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.32088°N, 74.51170°W
 Character Area: Commercial Beachfront, Seascape (SCA)
 User Group: Residents/Tourists
 Direction of View: East
 Distance to Nearest Visible Turbine: 14.43 miles
 Visually Sensitive Resource: Atlantic Coast Public Beach, Lucy The Margate Elephant, Margate City Public Beach

Environmental Information

Date Taken: 07/29/2020
 Time: 3:30 PM
 Temperature: 92°F
 Humidity: 35%
 Visibility: 10 miles
 Wind Direction: Southwest
 Wind Speed: 10 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 52.5 feet AMSL

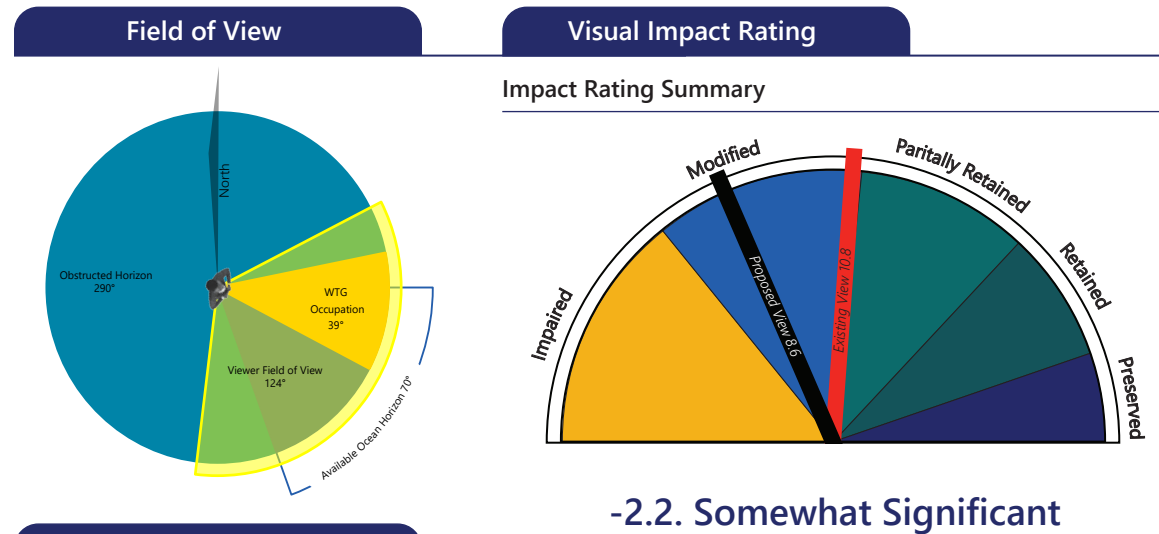
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)



Map considers screening by curvature of the earth, viewer height, and WTG height only. Considering landscape features 181 WTGs will be visible.



Existing Conditions	
Scenic Quality:	Partially Retained
Rating Panel Score Average:	10.8
Rating Panel Score Range:	9.3 - 11.7

Proposed Conditions	
Scenic Quality:	Modified
Rating Panel Score Average:	8.6
Rating Panel Score Range:	6.0 - 9.7
Impact Magnitude:	2.2 (Somewhat Significant)

This KOP is located from the observation deck of Lucy the Elephant, a six-story elephant-shaped example of novelty architecture, constructed of wood and tin sheeting in 1881 in Margate City, New Jersey, approximately 5 miles south of Atlantic City. Originally named Elephant Bazaar, Lucy was built to promote real estate sales and attract tourists. Today, Lucy the Margate Elephant is the oldest surviving roadside tourist attraction in America and was designated as a National Historic Landmark in 1976. She remains a tourist attraction, with 135,000 visitors to the site in 2016.

Viewshed analysis suggests that Project visibility from this general area will be largely limited to the open beach and more elevated sites within the adjacent developed neighborhood. Ground level views of the Project will be completely blocked by the first inland row of built structures as one moves into the City.

The existing view to the east from this location features an eclectic mix of buildings and other man-made structures in the immediate foreground, backed by a fenced and planted dune restoration area. The elevated perspective is observed from within the observation deck, the basket carried on Lucy's back. Beyond the restoration area, a strip of white sandy beach extends across the middle ground of the view. The beach is well populated by sunbathers and other beach-goers. Beyond the band of breaking surf at the shoreline, the dark blue ocean extends to a well-defined horizon line where it meets the light blue sky. Due to the elevated location of this viewpoint, the sky is unbroken by man-made features (e.g., overhead utility poles and lines), except for the high-rise apartment building on the left side of the view. Despite the broad expanse of open water and sky, the abundance of nearby built structures and people give the view a highly developed character.

With the proposed Project in place, the view is dominated by a large and highly visible array of WTGs that extend across a large portion of the ocean view to the east-southeast from this location. Of the 123 degrees of relatively unobstructed ocean horizon, the Project occupies approximately 39 degrees or 31.7 percent of the view (see Field of View Image, left). Project visibility is enhanced by the relative proximity of the WTGs (14.43-miles) but partially mitigated by the afternoon sun front-lighting, which makes the WTGs appear lighter against the sky. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 6.0 to 9.7 (average score = 8.6). These scores indicate an average reduction of 2.2 points in comparison to the existing view suggesting that the view becomes modified and somewhat significant visual impacts may result from the Projects during clear viewing conditions. Individual rating panel members indicated reductions that ranging from 1.3 to 3.3. Panel members noted that the presence of the WTGs adds to an already visually cluttered and aesthetically compromised view that is further affected by the perceived randomness of the WTG placement and the stacking WTGs that present as a singular, dense, white silhouette on the horizon. The overlapping blades of the WTGs create a fence-like visual barrier along the horizon and their movement will attract viewer attention and make the WTGs a focus of this view. However, the visibility and visual dominance of the WTGs is likely to be reduced under more hazy or foggy sky conditions.

Rating panel members indicated that the view from the historic Lucy the Margate Elephant is a highly developed and cluttered view that lacks a specific focal point. The vista to the deep blue ocean is interrupted by numerous utility and service amenities, as well as man-made structures of varying style, material, and scale. The viewer experiences this vista for a short period of time while in the howdah observation deck mounted on Lucy's back. Despite the historic significance of the site, the surrounding environment detracts from, rather than contributes to, the visitor's viewing experience. Rating panel scores for the existing conditions photographs ranged from 9.3 to 11.7 (average score = 10.8) suggesting this view is partially retained.

Panel members assigned the Project visibility an average VTL of 5 from this KOP. The greatest influence on the VTL score is associate with the lack of compatibility, severe scale contrast, and spatial dominance when considering the ocean (water resources). The WTGs also resulted in moderate scale contrast and co-dominance with land use, landform, and user activity.

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary	
Design Elements	Description
Focal Point	The open horizon framed by development draws viewer attention, but does not hold attention as a specific focal point.
Order	The built environment is cluttered but contained as one body of shoreline balanced by open water and open sky.
Visual Clutter	There is considerable clutter in the foreground that competes with the open water view.
Movement	People on the beach and waves likely to be the main source of movement.
Duration & Frequency of View	Short Term/Fleeting & Long-term Occasional
Atmospheric Conditions	The sky is almost completely clear with only a few wispy clouds on the right side.
Lighting Direction	Frontlit
Scenic or Recreational Value	Atlantic Coast Public Beach, Lucy the Margate Elephant, Margate City Public Beach.

Compatibility and Contrast Rating Average			
Lucy the Margate Elephant NHL			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.6	2.6	2.6
Landform	2.1	2.1	1.9
Vegetation	1.3	1.3	1.8
Land Use	1.5	1.5	1.8
User Activity	2.1	2.1	2.1

1 – Compatible
2 – Somewhat Compatible
3 – Not Compatible

1 – Minimal
2 – Moderate
3 – Severe

1 – Subordinate
2 – Co-Dominant
3 – Dominant

MC02 Lucy the Margate Elephant National Historic Landmark

Margate City, Atlantic County, New Jersey

KOP Information

Primary Field of View: East

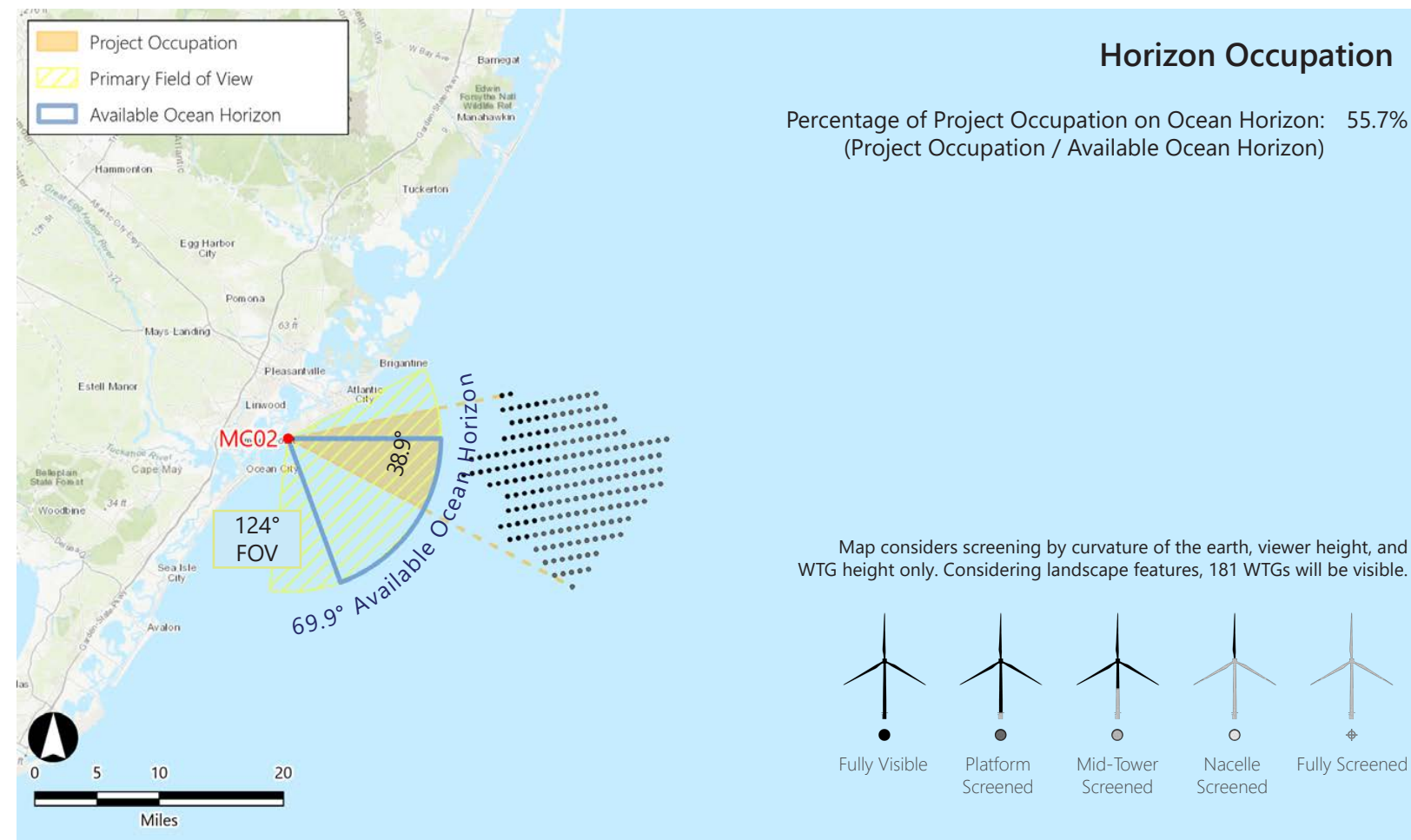
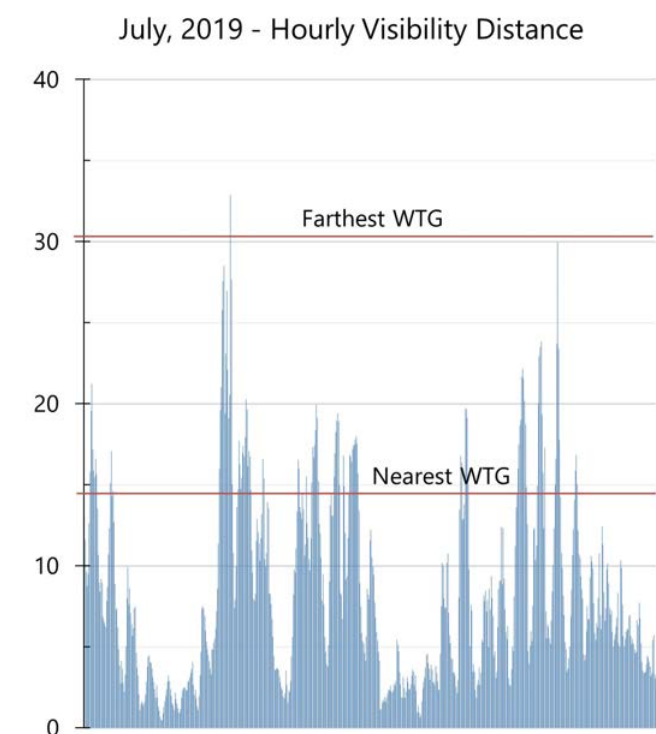
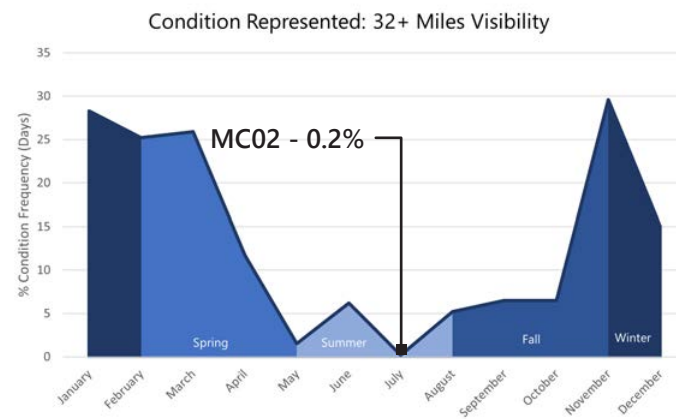
Distance to Closest WTG: 14.43 miles

Camera Height: 52.50 ft

User Groups: Residents, Tourists

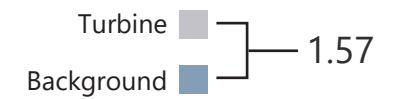
Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

Color Contrast Rating:



Lighting Condition: Front lit

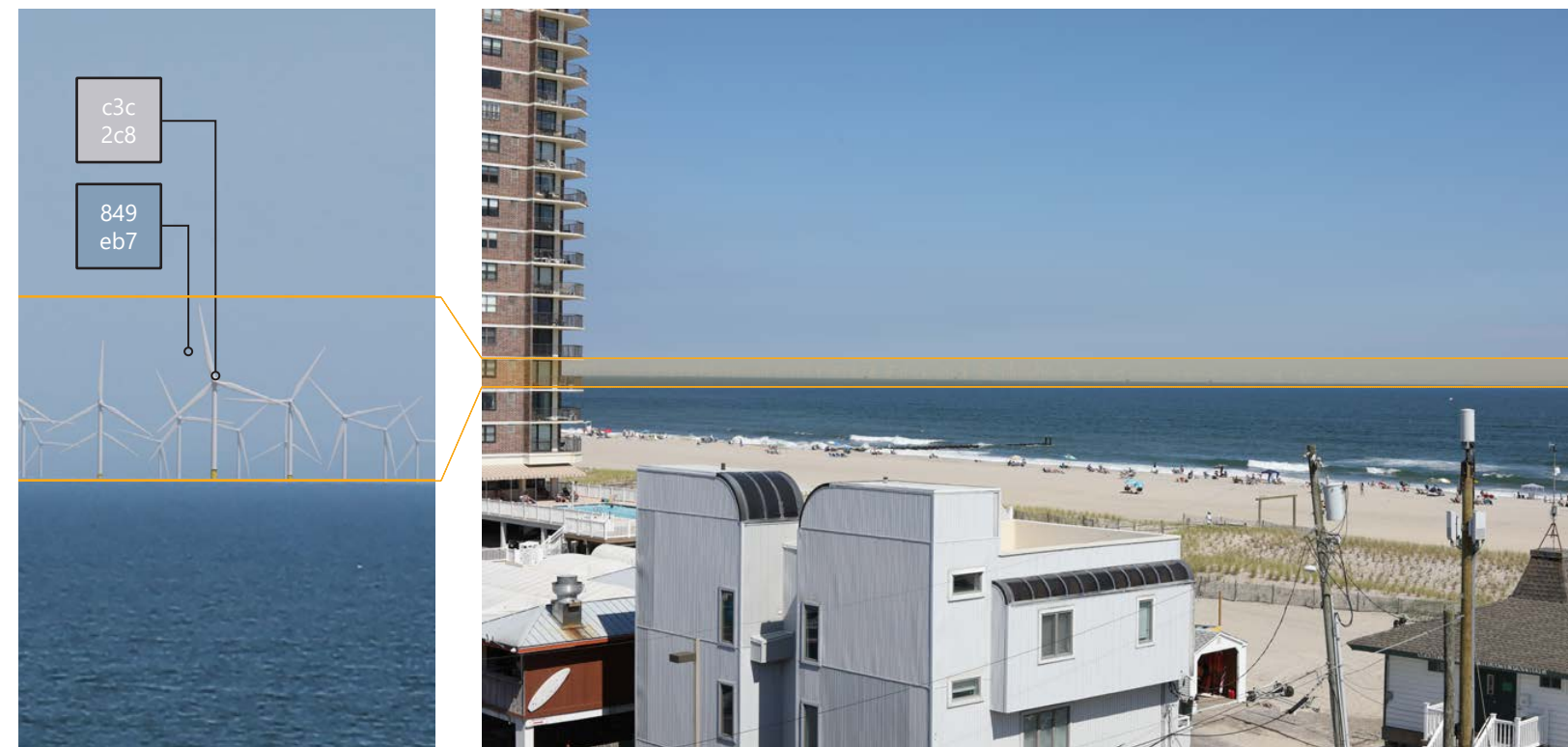
Season: Summer

Sky Condition: Fair

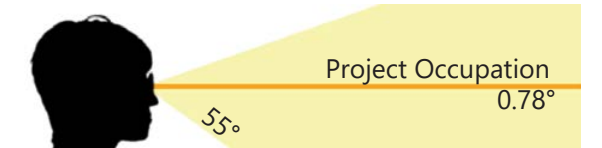
Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

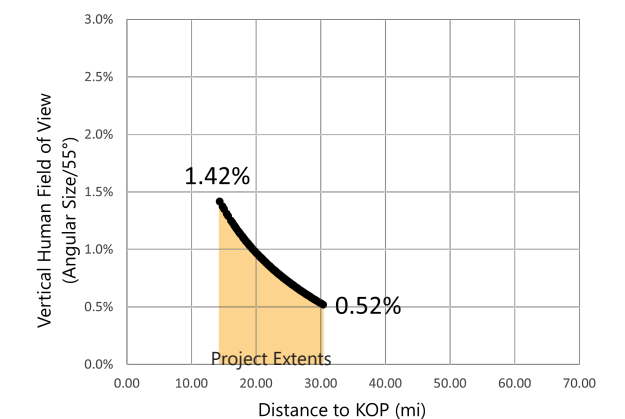
KOP OC04 illustrates the project from 17.18 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.



Vertical Occupation



Percentage of Human FOV: 1.42% (0.78° / 55°)
(Considering the nearest visible turbine)





Existing Conditions

Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: MC02 - Lucy the Margate Elephant National Historic Landmark
Attachment E: Photosimulations, Page 132 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.



Photosimulation

Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: MC02 - Lucy the Margate Elephant National Historic Landmark

Attachment E: Photosimulations: Page 133 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



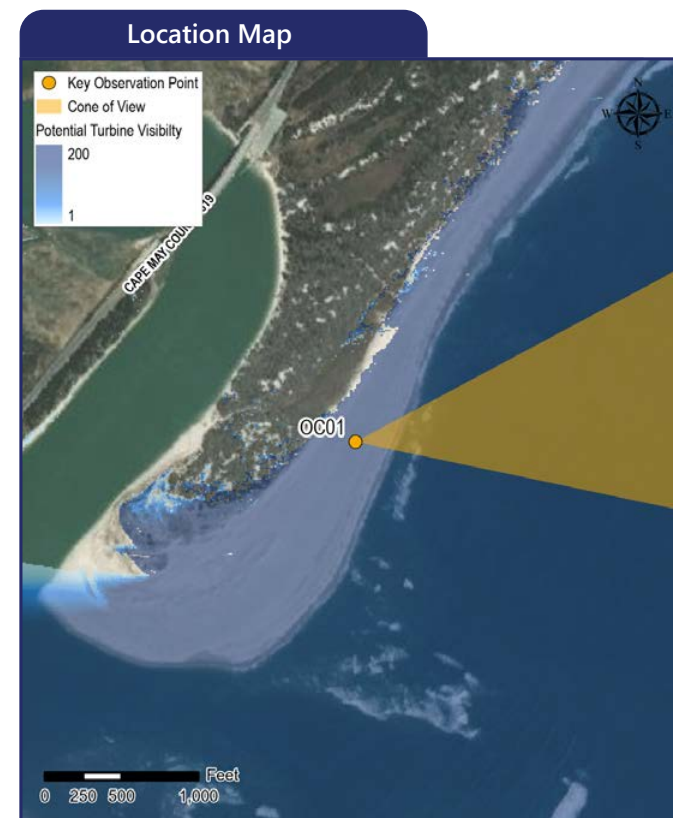
This scale is designed to insure the photosimulation images are printed at the intended size.

OC01 Corson's Inlet State Park

Ocean City, Cape May County, New Jersey



The image above is a +/- 124° panorama photograph from Corson's Inlet State Park, panning clockwise from north (left) to southeast (right). The yellow rectangle represents the extent of the simulated photograph(s).



Simulation Information

Coordinates: 39.21132°N, 74.64435°W
 Character Area: Undeveloped Beach, Seascape (SCA)
 User Group: Residents/Tourists, Fishermen
 Direction of View: East-northeast
 Distance to Nearest Visible Turbine: 21.72 miles
 Visually Sensitive Resource: Corson's Inlet State Park

Environmental Information

Date Taken: 08/20/2020
 Time: 6:01 PM
 Temperature: 76°F
 Humidity: 62%
 Visibility: 10 miles
 Wind Direction: South
 Wind Speed: 7 mph
 Conditions Observed: Partly Cloudy

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 7.91 feet AMSL

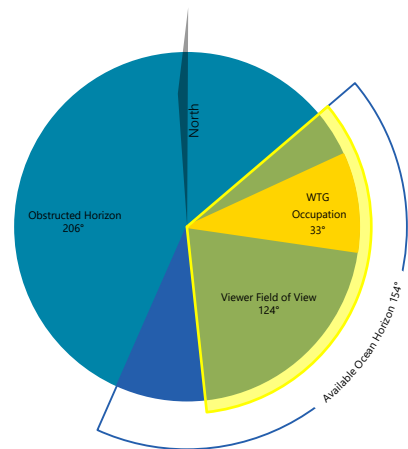
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)

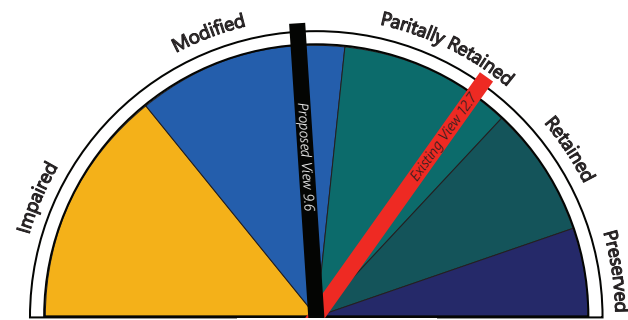


Field of View



Visual Impact Rating

Impact Rating Summary



-3.1. Significant

Visual Threshold Level (VTL)

4 An object/phenomenon that is obvious and with sufficient size or contrast to compete with other landscape/seascape elements, but with insufficient visual contrast to strongly attract visual attention and insufficient size to occupy most of an observer's visual field.

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Lump of dark sea grass is a focal point, but the contrast between sand, ocean and sky also draws attention.
Order	The natural order of the sand, sea, sky and variety in neutral tones and blue hues, re-centers the viewer after being distracted by the lump of dark sea grass.
Visual Clutter	The centrally located lump of dark sea grass is a point of distraction from the view.
Movement	Human activity on the beach, boats on the water, and the movement of waves and wildlife.
Duration & Frequency of View	Short Term/Fleeting & Long-term Occasional
Atmospheric Conditions	Clouds are visible, but do not contribute to much decrease in visibility, overcast/hazy conditions would likely cause decrease.
Lighting Direction	Frontlit
Scenic or Recreational Value	This State Park provides location for variety of beach enjoyment, bird watching, and fishing.; Corson's Inlet State Park.

Compatibility and Contrast Rating Average

Corson's Inlet State Park			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.1	1.9	1.9
Landform	1.8	1.5	1.5
Vegetation	0.3	0.3	0.3
Land Use	2.0	1.8	1.8
User Activity	2.3	1.8	2.0
	1 – Compatible 2 – Somewhat Compatible 3 – Not Compatible	1 – Minimal 2 – Moderate 3 – Severe	1 – Subordinate 2 – Co-Dominant 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
Rating Panel Score Average: 12.7
Rating Panel Score Range: 11.2 - 14.2

This view is from the Corson's Inlet State Park, in Ocean City. According to the New Jersey State Park Service, Corson's Inlet State Park was established in 1969 to help protect and preserve one of the last undeveloped tracts of land in Ocean City and the State of New Jersey. The park offers rich marine estuaries, diverse ecosystems, and is used by the public for bird watching, walking, jogging, sunbathing, and surf fishing. The view to the east-northeast from this location includes an undeveloped sandy beach at low tide. An expanse of relatively level exposed sand extends from the wrack line in the immediate foreground to a line of surf in the middle ground. Beyond the surf line, the slate blue ocean extends without interruption to the horizon line where it meets the light blue sky. However, on the left side of the view, small beachfront homes can be seen extending along the vast shoreline as far as the eye can see. Beyond the homes, the tall building and dense urban development of Atlantic City can be detected in the background. Although the immediate foreground appears pristine and undeveloped, the heavily modified and developed shoreline is readily apparent to viewers. Rating panel members indicated that, "the undeveloped expanse also indicates a preservation land use. However, just beyond the framed view the context image indicates heavy development on the distant horizon indicating this preserved landscape is distinct". Rating panel scores for the existing conditions photographs ranged from 11.2 to 14.2 (average score = 12.7). The score for this KOP indicates that this KOP is partially retained.

Proposed Conditions

Scenic Quality: Modified
Rating Panel Score Average: 9.6
Rating Panel Score Range: 5.8 - 11.7
Impact Magnitude: 3.1 (Significant)

Viewshed analysis suggests that Project visibility from this general area will be available along the beach, but partially blocked in the dunes behind it. Views again become available as one heads into the open salt marsh to the west (inland) of the dunes.

With the proposed Project in place, the WTGs appear very faint against the blue sky in their front-lit condition. Of the 154 degrees of relatively unobstructed ocean horizon, the Project occupies approximately 32.7 degrees or 21 percent of the available ocean horizon (see Field of View Image, left). Project visibility is subdued by the relative distance of the WTGs (21.7 miles) and lighting conditions that make the WTGs appear relatively faint against the light blue sky. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 5.8 to 11.7 (average score = 9.6). These scores indicate an average reduction of 3.1 points and significant visual impacts. Individual rating panel members scores ranged from 0.7 to 8.3. Panel members indicated that the WTG's do not immediately attract viewer attention. One panel member commented that, "front-lit turbines within this location sit lightly on the deep blue horizon. The white color of the turbines provides a low contrast with the pale blue sky and assists in softening the visual effects. Despite this softened affect, the open and expansive ocean view is still diminished by the presence of the expanse of turbines." The movement of the rotor blades will also attract viewer attention and make the WTGs the focus of this view. Although the visibility and visual dominance of the WTGs is likely to be reduced under more hazy sky conditions. With the Project in place, the view becomes modified, and the visual impacts were considered to be significant.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present moderate scale contrast with the ocean (water resources), land use, landform, and user activity. The panel scores also indicate that the WTGs are not compatible with water resources, landform, land use, and user activity. The WTGs would become the co-dominant feature in the seascape when compared to the existing water resources, landform, land use, and user activity. Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 4 from this KOP.

OC01 Corson's Inlet State Park

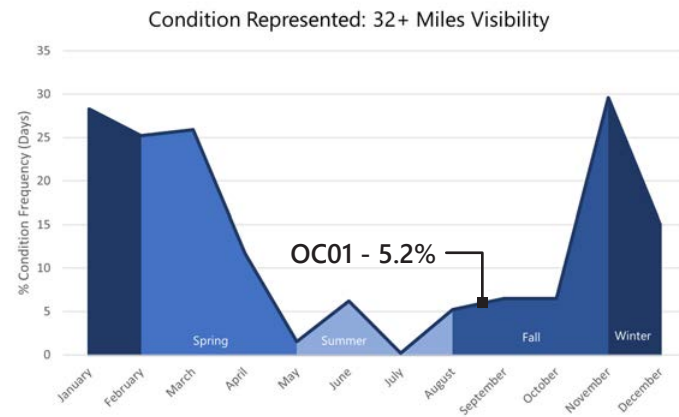
Ocean City, Cape May County, New Jersey

KOP Information

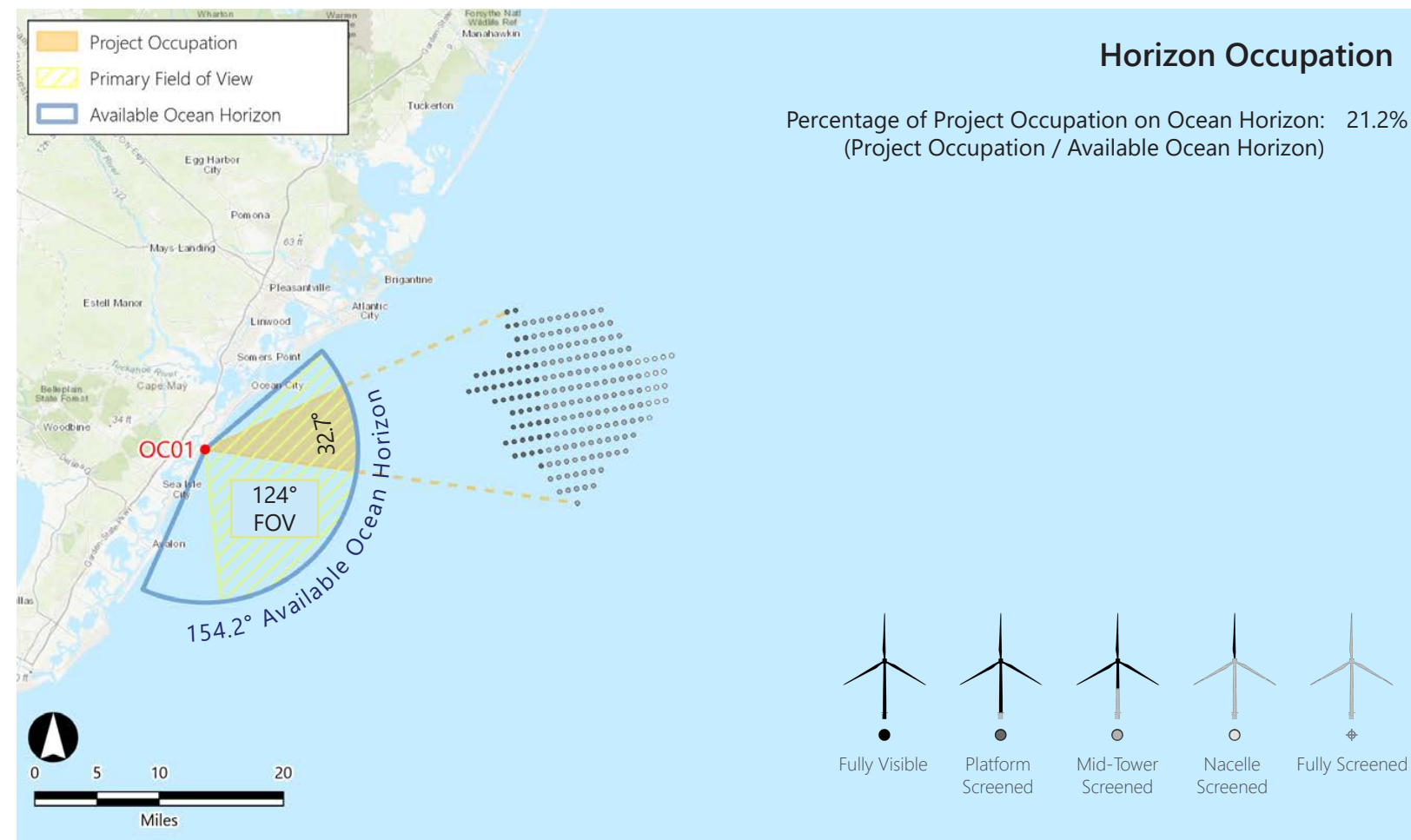
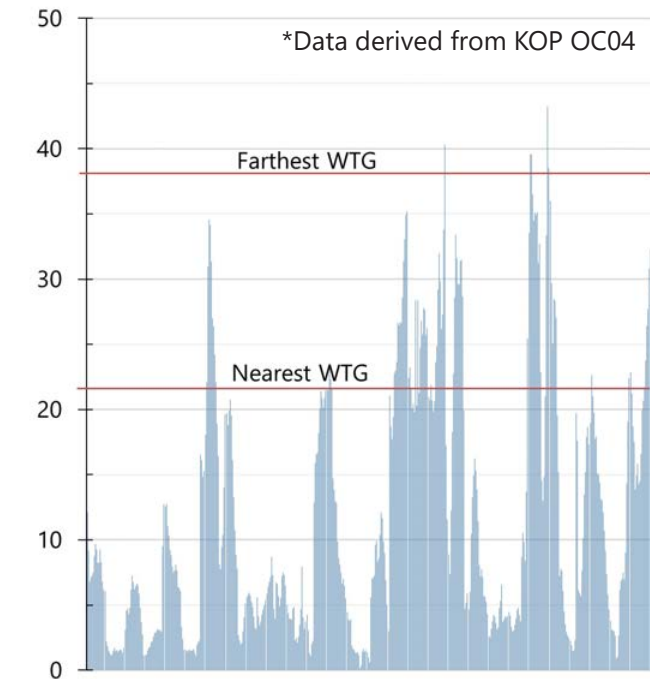
Primary Field of View: East
 Distance to Closest WTG: 21.72 miles
 Camera Height: 7.91 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



September, 2019 - Hourly Visibility Distance



WTG Color Contrast

Color Contrast Rating: 1.44
 Turbine: [Dark Blue Box]
 Background: [Light Blue Box]

Lighting Condition: Front lit
 Season: Summer
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

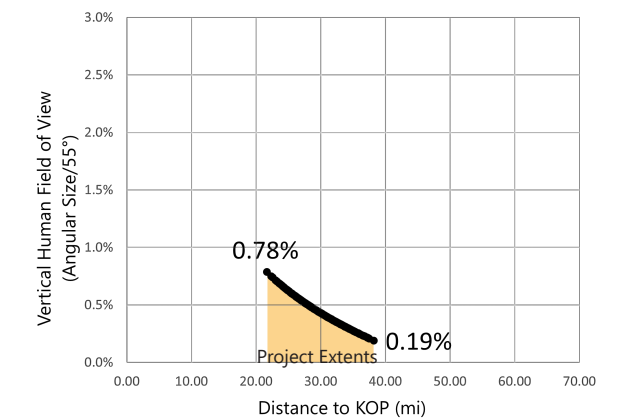
SIMILAR VIEWING PARAMETERS:

KOP BRT01 illustrates the project from 18.47 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during midday conditions.



Vertical Occupation

Percentage of Human FOV: 0.78% (0.43° / 55°)
 (Considering the nearest visible turbine)



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: OC01 - Corson's Inlet State Park

Attachment E: Photosimulations: Page 149 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

OC04 Gillian's Wonderland Pier

Ocean City, Cape May County, New Jersey



The image above is a +/- 124° panorama photograph from the beach near Gillian's Wonderland Pier, panning clockwise from north-northeast (left) to southeast (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).

Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.



Simulation Information

Coordinates: 39.27510°N, 74.56878°W
 Character Area: Commercial Beachfront, Seascape (SCA)
 User Group: Residents/Tourists, Fishermen
 Direction of View: East
 Distance to Nearest Visible Turbine: 17.18 miles
 Visually Sensitive Resource: Ocean City Beachfront

Environmental Information

Date Taken: 08/25/2022
 Time: 12:47 PM
 Temperature: 91°F
 Humidity: 29%
 Visibility: 10 miles
 Wind Direction: Variable
 Wind Speed: 3 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 5.1 feet AMSL

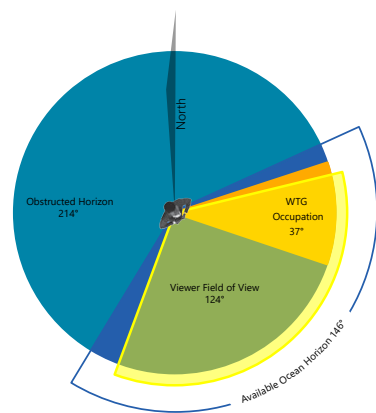
Meteorological Visibility Model (2019)

Visibility Conditions Represented in Photosimulation: 34 Miles
 Frequency of Visibility Condition in September, 2020: 5.4%
 Alternative Condition/Frequency #1: 18 miles/(31.5%)
 Alternative Condition/Frequency #2: 20 miles/(28.5%)

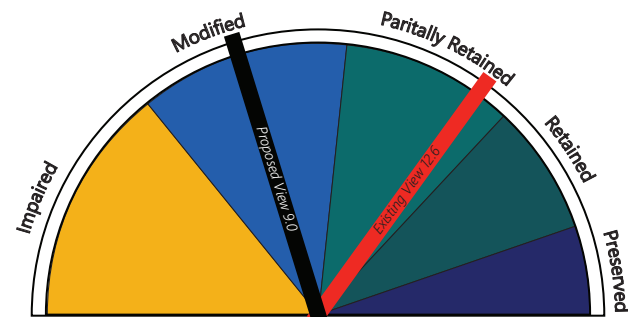
Simulated Photograph(s)



Field of View Visual Impact Rating



Impact Rating Summary



-3.6. Significant

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Horizon line, however, the real focal point is the Pier to the left that is out of view.
Order	Horizontal landscape with a strong perspective point to the left that the rolling surf fans out from.
Visual Clutter	The general lines converge as a one point perspective on the horizon.
Movement	Waves, wildlife, and people on the beach likely to be the majority of movement.
Duration & Frequency of View	Long-Term Repeated and Occasional
Atmospheric Conditions	Thin and hazy cloud cover throughout most of the sky. Waves present foreground haze in the form of sea spray.
Lighting Direction	Backlit & Side-Lit
Scenic or Recreational Value	This site has a boardwalk and beach access as well as an amusement park and Ocean City Music Pier; Open beach with large powerful waves presents a sense of interest and wonder.

Compatibility and Contrast Rating Average

Gillian's Wonderland Amusement			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.4	2.1	2.1
Landform	2.1	1.8	1.8
Vegetation	0.0	0.0	0.0
Land Use	1.8	2.0	1.8
User Activity	1.9	2.0	1.8

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 12.6
 Rating Panel Score Range: 10.3 - 14.8

This view is from the beach near Gillian's Wonderland Amusement in Ocean City, New Jersey. Gillian's is a historic amusement park founded in 1929 by David Gillian, who first came to Ocean City in 1914. It is located on the ocean boardwalk and is famous for its 144-foot (44 m) Giant Wheel, one of the largest Ferris wheels on the east coast. Gillian's Wonderland Amusement is currently home to 28 rides and attractions over multiple decks both indoor and outdoor.

The existing view to the east from the selected location looks up the beach along the surf line. The beach slopes gently toward the line of breaking waves that angle from the foreground to the background (right to left) across the view. A scattering of people on the beach and the large breaking waves gives the view a dynamic feel. Little of the ocean is visible beyond the surf, but the thin line of dark water behind the waves presents strong contrast with the hazy white sky at the horizon. The sky transitions to blue overhead and, looking into the sun, people on the beach appear strongly backlit. In the selected photo, the beach appears well used but largely natural. However, outside the field of view to the left, the Ferris wheel and buildings along the boardwalk are prominent man-made features along the edge of the beach. These structures and vehicle tracks in the sand alter the overall character of the beach to a much more developed/disturbed commercial waterfront.

Rating panel members indicated that this commercially developed beach edge, which borders the ocean boardwalk and Gillian's Amusement Park, would provide ample gathering space across the wide expanse of sand and be a highly visited location for summer tourism. The open sand and roaring surf are visually dynamic and offer extended, unobstructed views to the horizon that are compressed horizontally due to the lack of intercepting vertical elements in the view. The monochromatic colors, silhouetted visitors and low, rolling surf create a simple, aesthetically pleasing landscape despite the intense commercial development that is just out of the view. Rating panel scores for the existing conditions photographs ranged from 10.2 to 14.8 (average score = 12.6). This score suggests that this view is partially retained.

Proposed Conditions

Scenic Quality: Modified
 Rating Panel Score Average: 9.0
 Rating Panel Score Range: 6.2 - 11.5
 Impact Magnitude: 3.6 (Significant)

Viewshed analysis suggests that Project visibility from this general area will be largely limited to the open beach and boardwalk, in addition to a few small pockets of open land that extend inland. Ground level views of the Project will be completely blocked by the first inland row of built structures as one moves into the City.

With the proposed Project in place, the visible array of WTG rotor blade tips sit partially above the horizon and extend across a large portion of the ocean view to the east-southeast from this location. Of the 163 degrees of relatively unobstructed ocean horizon, the Project occupies approximately 37 degrees or 22.7 percent of the view (see Field of View Image, left). Project visibility is enhanced by the relative proximity of the WTGs (17.18-miles) and their back-lighting by the rising sun, which makes the WTGs appear dark against the sky. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 6.2 to 11.5 (average score = 9.0). These scores indicate an average reduction of 3.6 points in comparison to the existing view, suggesting the view becomes modified and significant visual impacts are expected during high visibility viewing conditions. Individual rating panel members indicated reductions that ranged from 0.7 to 7.0. Panel members indicated that while most of the WTGs are concealed below the horizon line, the density of the WTG arrangement and the bisected appearance of the blade tips above the surf/horizon line visually dominate the crashing waves and alter the simple landscape with an industrial intervention. The WTGs reduce the expansiveness of the view by creating a semi-transparent edge across the horizon that mimics the intense horizontal forms found within the view. The movement of the rotor blades will also attract viewer attention and make the WTGs the focus of this view. However, the visibility and visual dominance of the WTGs is likely to be reduced under more hazy or foggy sky conditions. The 2019 meteorological data suggests that the availability of views as presented in the photosimulation would only occur over approximately 4.6% of the month of September. Two other conditions are also presented herein and these photosimulations illustrate the appearance of the WTGs when visibility is limited to within a distance of 18 and 20 miles. These conditions occurred during 31% and 27% of the month of September, respectively. The photosimulations illustrate that all but the closest WTGs are completely obscured from view and even the visible portions of the Project are difficult to perceive on the horizon. While visible, it is not anticipated that the WTGs will result in any significant effects on viewer enjoyment of this resource.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present a moderate scale contrast when considering the ocean (water resources), landform, land use and user activity. The WTGs were also considered co-dominant and somewhat compatible considering the ocean, landform, land use and user activity. Panel members assigned the Project visibility an average VTL of 5 from this KOP.

OC04 Gillian's Wonderland Pier

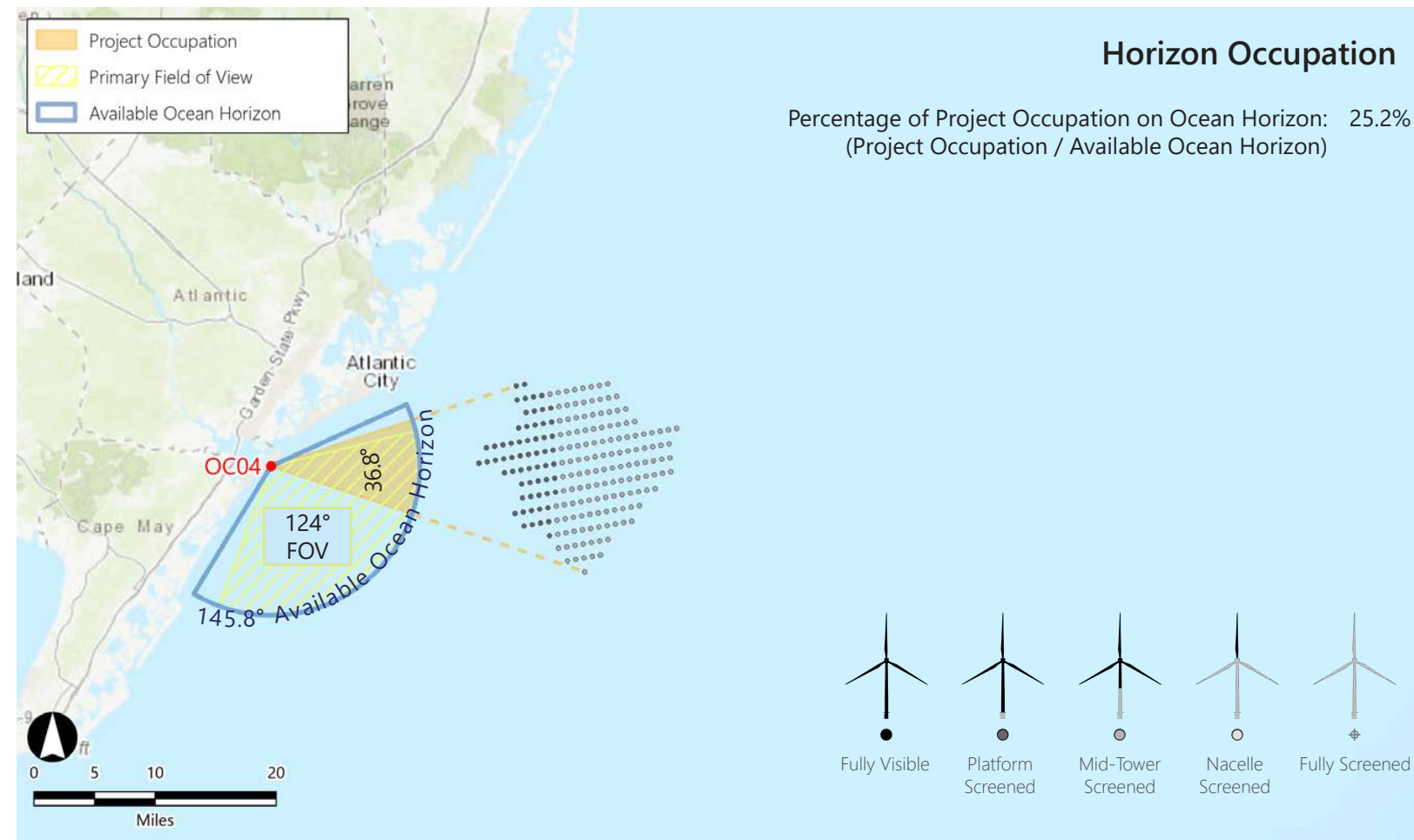
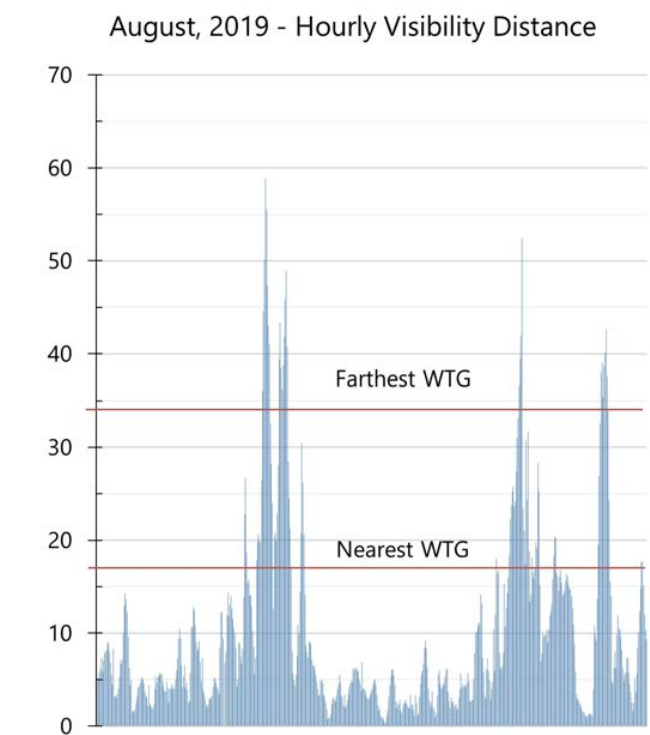
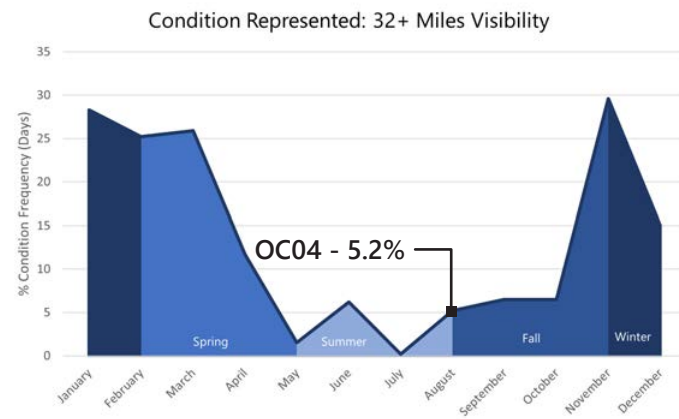
Ocean City, Cape May County, New Jersey

KOP Information

Primary Field of View: Southeast
 Distance to Closest WTG: 17.18 miles
 Camera Height: 5.1 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

Color Contrast Rating:

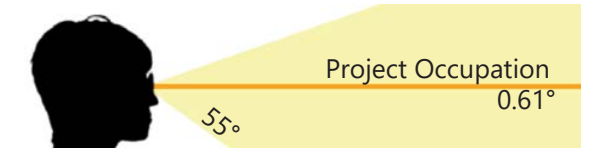


Lighting Condition: Back lit
 Season: Fall
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

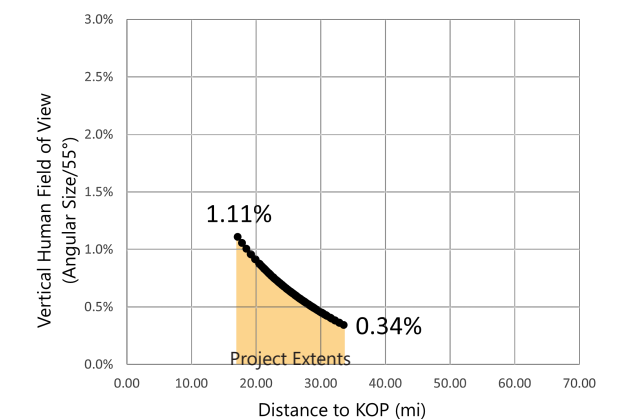
SIMILAR VIEWING PARAMETERS:

KOP SBB01 Illustrates the project from 19.35 miles in the front lit condition. This provides an indication of how the turbines may appear from this KOP during evening conditions.

Vertical Occupation



Percentage of Human FOV: 1.11% (0.61° / 55°)
 (Considering the nearest visible turbine)



Existing Conditions



Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: OC04 - Gillian's Wonderland Pier

Attachment E: Photosimulations: Page 138 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 18-mile Visibility



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 20-mile Visibility



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: OC04 - Gillian's Wonderland Pier

Attachment E: Photosimulations: Page 142 of 159

Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 18-mile Visibility



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation - 20-Mile Visibility



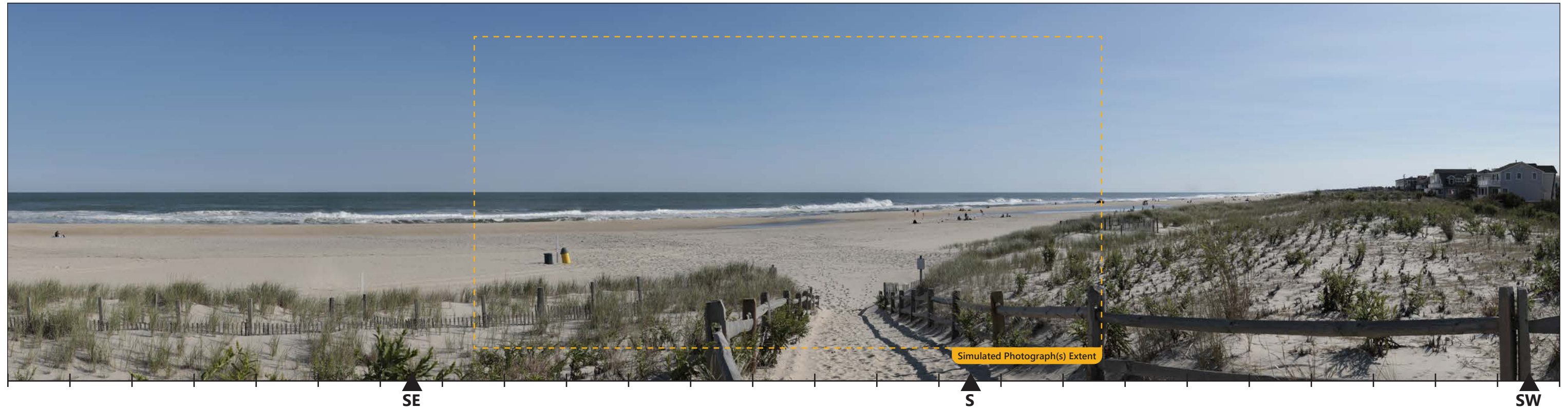
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



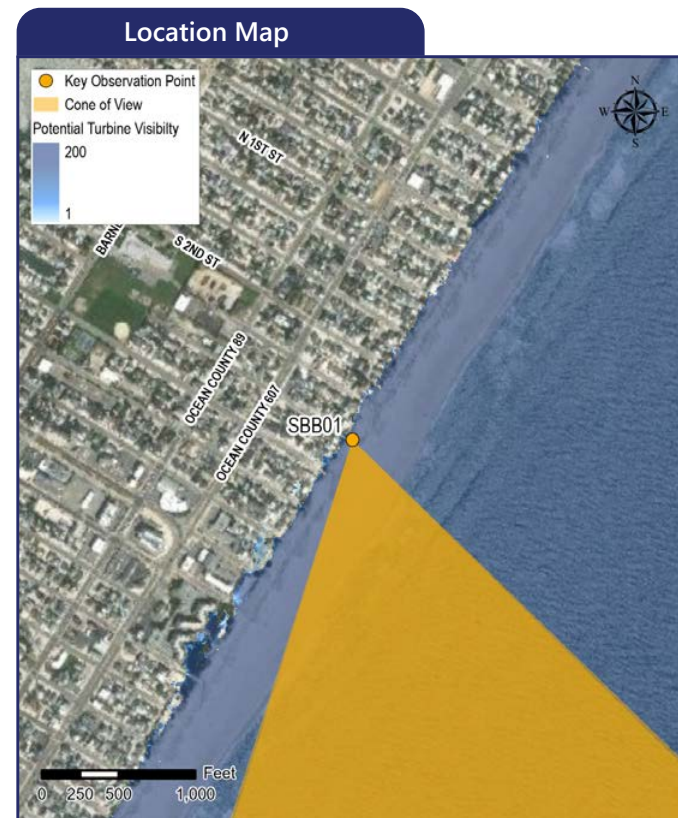
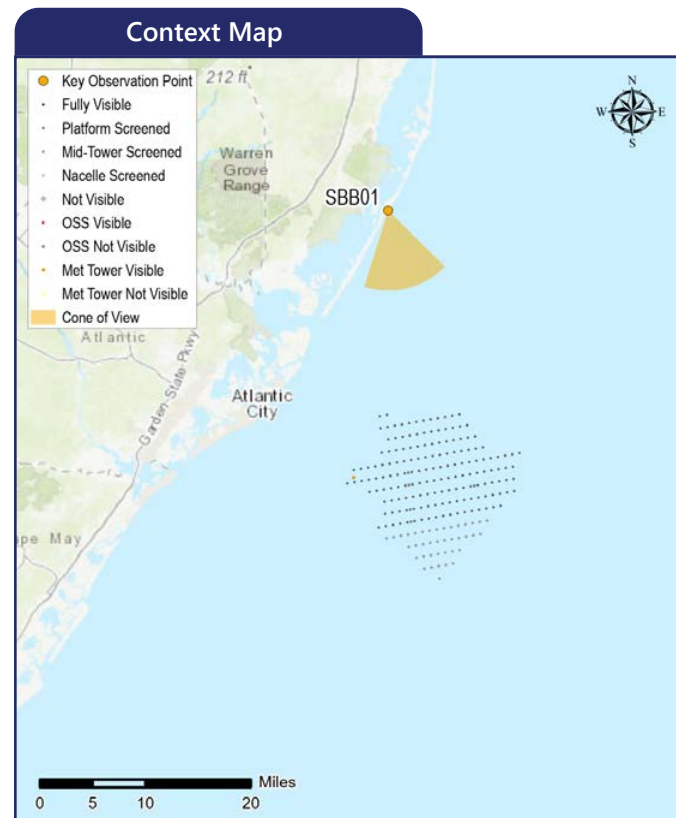
This scale is designed to insure the photosimulation images are printed at the intended size.

SBB01 Ship Bottom Borough Municipal Beach

Ship Bottom Borough, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from the Ship Bottom Borough Municipal Beach, panning clockwise from east-southeast (left) to southwest (right). The yellow rectangle represents the extent of the simulated photograph(s).



Simulation Information

Coordinates: 39.65152°N, 74.17169°W
 Character Area: Residential Beachfront, Seascapes (SCA)
 User Group: Residents/Tourists, Fishermen
 Direction of View: South-southeast
 Distance to Nearest Visible Turbine: 19.35 miles
 Visually Sensitive Resource: Ship Bottom Borough Municipal Beach

Environmental Information

Date Taken: 09/22/2020
 Time: 3:45 PM
 Temperature: 72°F
 Humidity: 33%
 Visibility: 10 miles
 Wind Direction: West-northwest
 Wind Speed: 12 mph
 Conditions Observed: Fair

Photograph Information

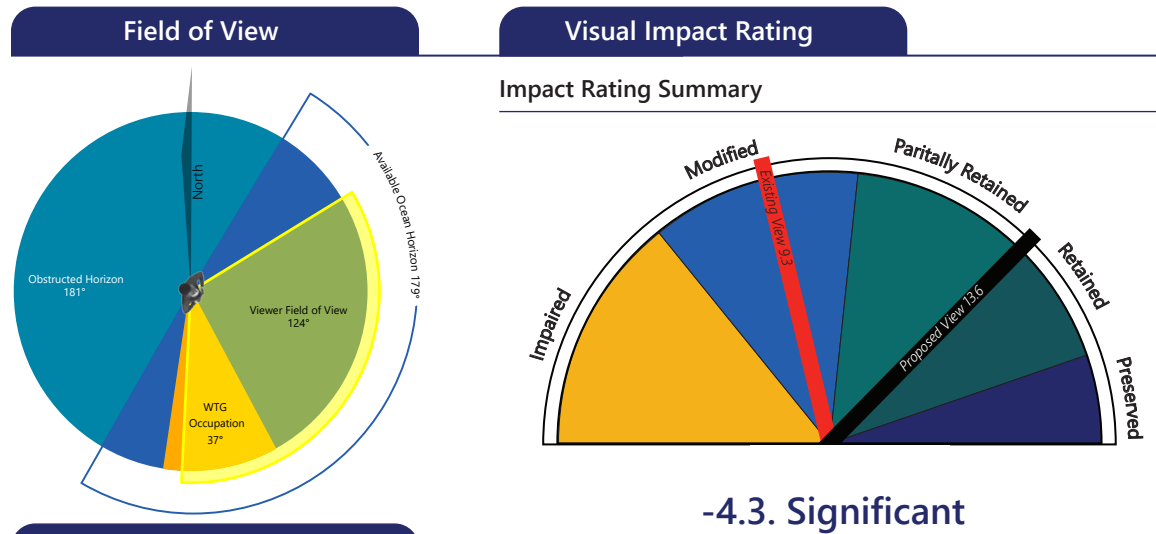
Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 24.04 feet AMSL

Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)





Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Dark silhouettes seated on the beach at a direct line from the access point draw viewer attention.
Order	Wide open ocean, sandy beach, to grass covered sand dunes; Split-rail, dune grass, dune fence, sand, surf, ocean, sky.
Visual Clutter	There are multiple elements in this view: dune fencing, split-rail fence, signage.
Movement	Human activity on the beach, boats on the water, and the movement of waves and wildlife.
Duration & Frequency of View	Moderate to long duration and high frequency view experienced by residents and beach-goers.
Atmospheric Conditions	The sky is clear of clouds, fading from white/pale blue at the; hazy or overcast conditions could likely decrease visibility.
Lighting Direction	Side-Lit
Scenic or Recreational Value	The dense dun scape and open shoreline allow for beach goes enjoying a variety of activities including sunbathing, swimming and fishing ; Ship Bottom Borough Municipal Beach.

Compatibility and Contrast Rating Average

Ship Bottom Borough Municipal Beach			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.6	2.1	2.1
Landform	2.3	2.0	1.8
Vegetation	2.3	2.0	1.8
Land Use	2.0	2.0	2.0
User Activity	2.4	2.1	2.5
	1 – Compatible 2 – Somewhat Compatible 3 – Not Compatible	1 – Minimal 2 – Moderate 3 – Severe	1 – Subordinate 2 – Co-Dominant 3 – Dominant

Existing Conditions

Scenic Quality: Retained
Rating Panel Score Average: 13.6
Rating Panel Score Range: 11.7 - 16.3

This view is from Ship Bottom Borough Municipal Beach in Borough of Ship Bottom, New Jersey. The beach is a popular swimming and sunbathing destination on Long Beach Island. In-season access requires a beach badge, and lifeguard and beach patrol services are provided. A continuous line of seasonal and year-round residences line the beach on its landward side. The existing view to the south southeast from this location looks down the beach, with the ocean on the left and sparsely vegetated (planted) low dunes and shoreline homes on the right. Within the frame of view of the selected photographs, a sand access path enclosed within a split rail fence leads down to the open beach in the immediate foreground. Outside the path, additional foreground features include some additional sand fencing, signage, and dune vegetation. The beach itself is relatively level and includes some standing pools of water and a scattering of people. A line of breaking surf and foam at the shoreline gives way to the open blue-green waters of the ocean, which extends uninterrupted to the horizon where it meets a clear blue sky. People on the beach, tracks in the sand, and man-made features all indicate that the beach well used. However, it appears well maintained and uncrowded, and has a pleasant recreational character.

Rating panel members indicated that this location provides plenty of access for beachgoers and found this view to be aesthetically pleasing with high visual quality which is influenced by the elevated vantage point. Rating panel scores for the existing conditions photographs ranged from 11.7 to 16.0 (average score = 12.6) indicating that this view is retained.

Proposed Conditions

Scenic Quality: Modified
Rating Panel Score Average: 9.3
Rating Panel Score Range: 7.3 - 12.0
Impact Magnitude: 4.3 (Significant)

Viewshed analysis suggests that Project visibility from this area will be available along the beach, but would become quickly blocked by the tall sand dunes and only small, discrete areas of visibility occur in the residential areas beyond the dunes. This degree of visibility is restricted to the beach front and the dune tops.

With the proposed Project in place, the WTGs are clearly visible as dark features against an otherwise featureless blue sky and horizon line. Although portions of the WTGs are screened by curvature of the earth at a distance of 19.4 miles, they are still large enough to attract viewer attention under clear conditions. Rating panel members had a variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 7.3 to 12 (average score = 9.3). These scores indicate an average reduction of 4.3 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 0.7 to 9.0. At the low end of this range, panel members indicated that the “viewing distance, light color, and slender profile mitigates some of the potential visual impacts, however, the eye is drawn to where the turbines are stacked on each other and the dark color against the sky intensifies.” The panel member indicating a greater degree of visual change noted, the proposed turbine field creates a distant focus along the horizon. The quantity and placement of the turbines creates an industrial feel to the view. The turbines substantially alter the character of the landscape.” With the Project in place, rating panel scores indicate that this view becomes modified and significant visual impacts result from the Projects when viewed during clear conditions, as presented in the photosimulation.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present moderate scale contrast with landform, vegetation, land use, water resources and user activity. The WTGs would be spatially dominant considering user activity and codominant with landform, vegetation, water resources and land use. The rating panel also indicated that the WTGs are not compatible with water resources, but somewhat compatible with landform, vegetation, land use, and user activity. Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 5 from this KOP.

SBB01 Ship Bottom Borough Municipal Beach

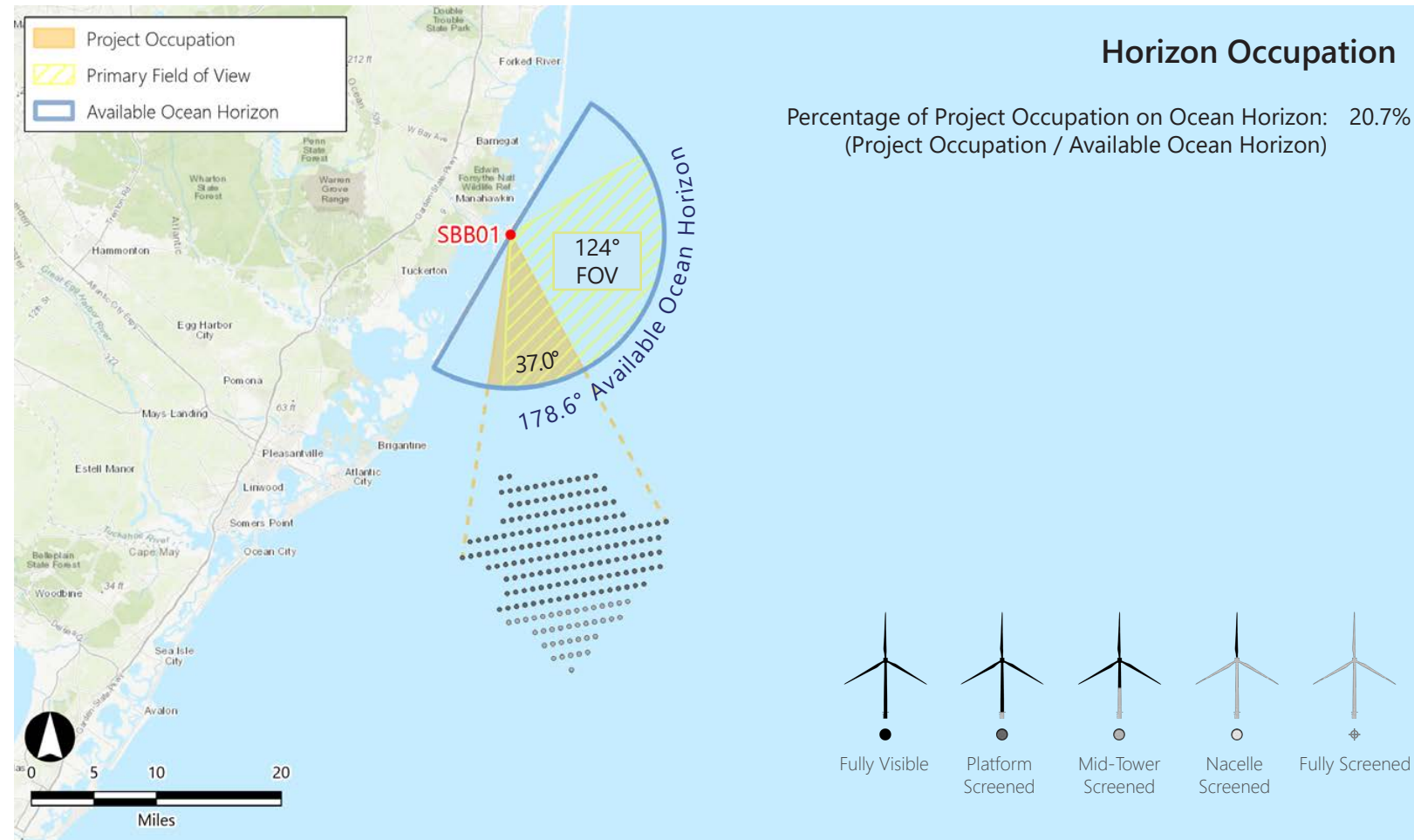
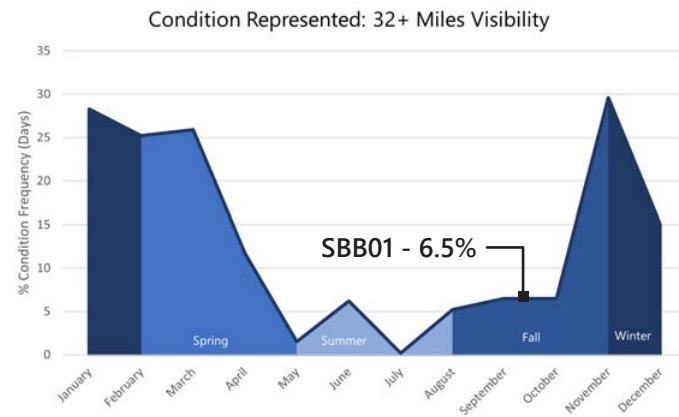
Ship Bottom Borough, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 19.35 miles
 Camera Height: 24.04 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

Color Contrast Rating: 2.2
 Turbine (Dark Grey) / Background (Light Blue)

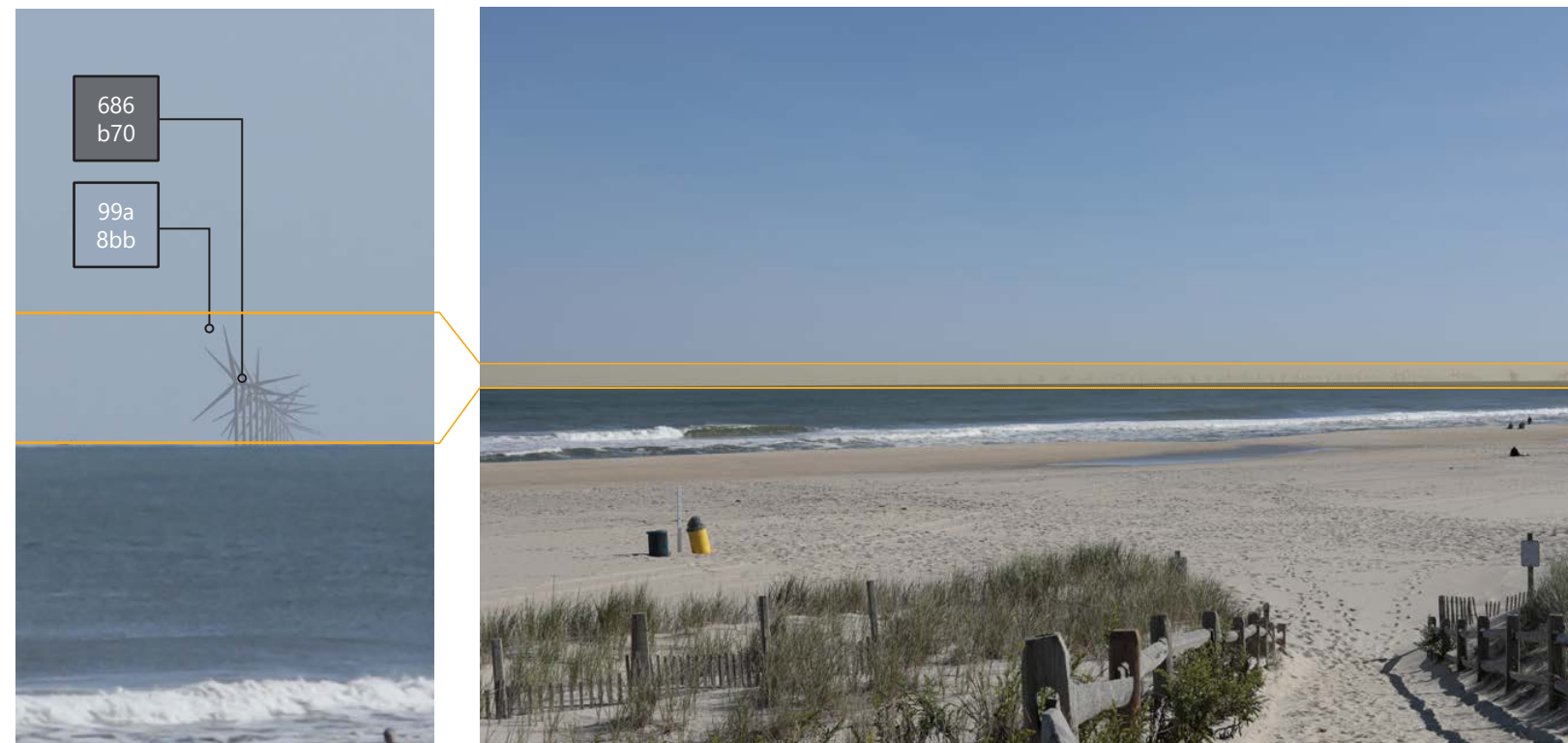
Lighting Condition: Front lit
 Season: Fall
 Sky Condition: Clear
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP OC04 illustrates the project from 17.18 miles in the back lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.

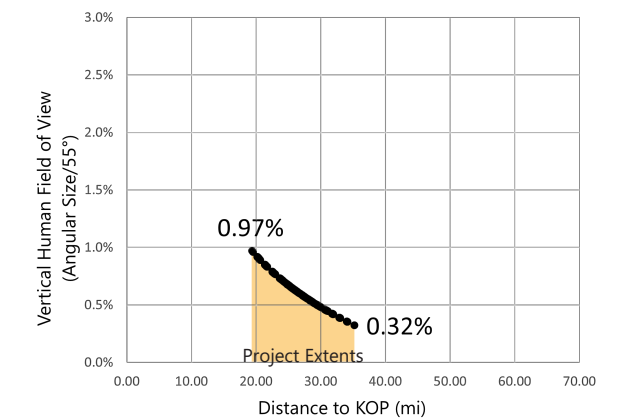
Visibility Data Not Available

See KOP LBT03 for similar conditions



Vertical Occupation

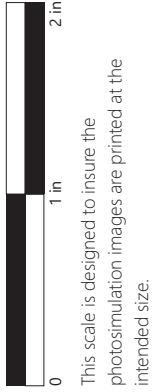
Percentage of Human FOV: 0.97% (0.53° / 55°)
 (Considering the nearest visible turbine)



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



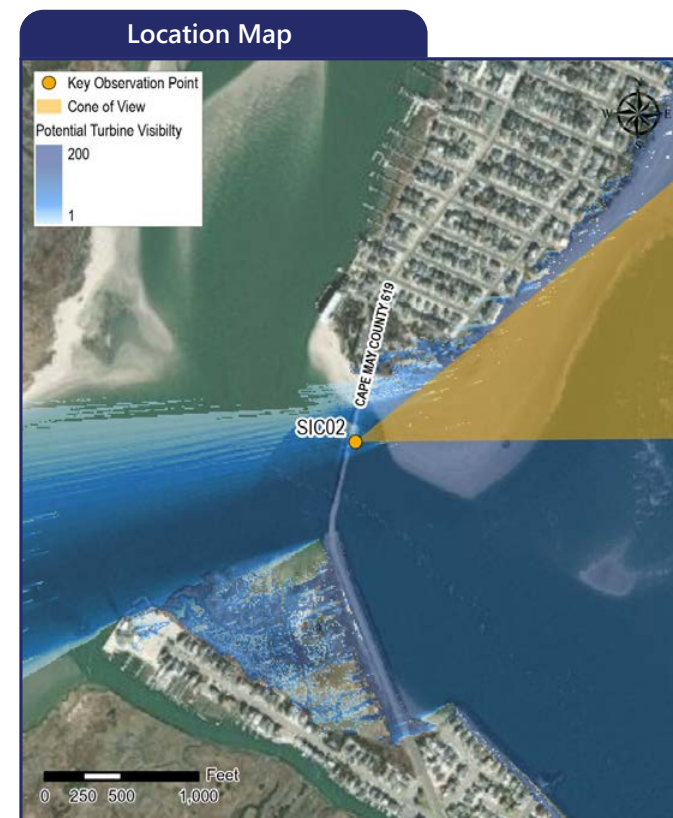
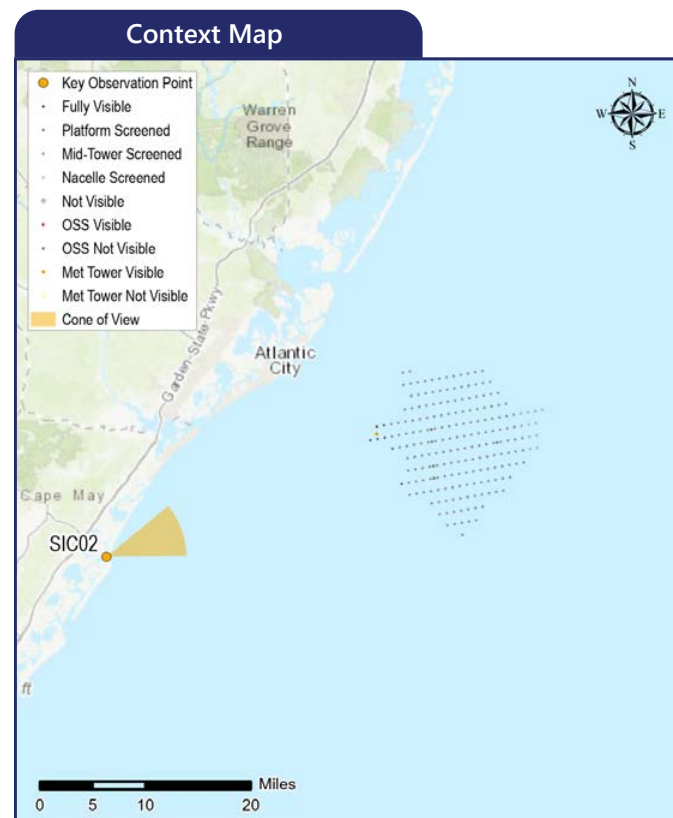
This scale is designed to insure the photosimulation images are printed at the intended size.

SIC02 Townsend's Inlet Bridge

Sea Isle City, Cape Map County, New Jersey



The image above is a +/- 124° panorama photograph from Townsend's Inlet Bridge, panning clockwise from north-northeast (left) to south-southeast (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.11919°N, 74.71579°W
 Character Area: Open Water/Ocean, Undeveloped Bay, Seascape (SCA)
 User Group: Residents/Tourists
 Direction of View: Northeast
 Distance to Nearest Visible Turbine: 27.35 miles
 Visually Sensitive Resource: Sea Isle City Beach Dune Upland, Townsend Inlet Bridge (SI&A #3100003)

Environmental Information

Date Taken: 08/25/2022
 Time: 4:58 PM
 Temperature: 84°F
 Humidity: 53%
 Visibility: 10 miles
 Wind Direction: South-southeast
 Wind Speed: 10 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 40.18 feet AMSL

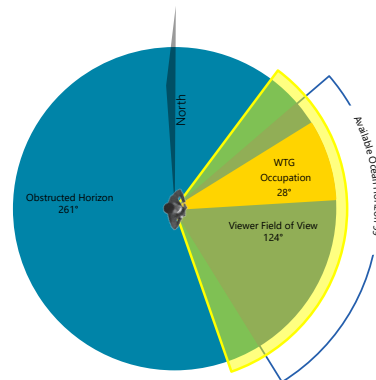
Notes

Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

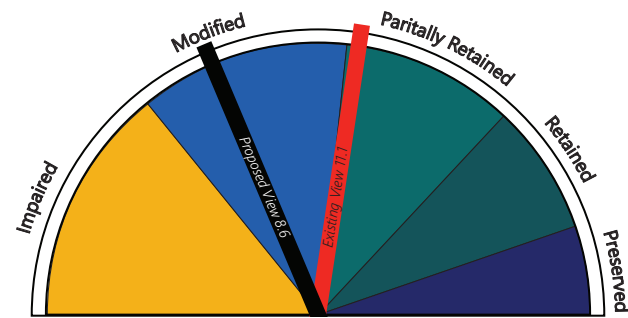
Simulated Photograph(s)



Field of View Visual Impact Rating



Impact Rating Summary



-2.5. Significant

Visual Threshold Level (VTL)

5 An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold that attention. In addition to strong contrasts in form, line, color, and texture, bright light sources such as lighting and reflections and moving objects associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject interferes noticeably with views of nearby landscape/seascape elements (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Edge of surf and sand, pink-tinged horizon line.
Order	Inlet sand, ocean, horizon; sweeping landscape with the landform bending to the water before the view becoming strongly horizontal with the ocean a wedge between the sand and sky.
Visual Clutter	No visual clutter observed.
Movement	Boats and waves likely to be the source of movement. However, the traffic behind the viewer is likely to be most noticeable.
Duration & Frequency of View	Short Term/Fleeting Occasional
Atmospheric Conditions	The perfectly clear sky has a peachy glow this early in the morning.
Lighting Direction	Backlit & Side-Lit
Scenic or Recreational Value	While the resource photographed from is not recreational, the view portrays an accessible beach front and dunes landscape; Sea Isle City Beach Dune, Townsend Inlet Bridge

Compatibility and Contrast Rating Average

Townsend Inlet Bridge			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	2.4	2.1	2.4
Landform	2.3	1.8	1.8
Vegetation	1.8	1.3	2.0
Land Use	1.5	1.8	1.5
User Activity	1.5	1.5	1.5

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 11.1
 Rating Panel Score Range: 9.3 - 13.0

This view is from the Townsend's Inlet Bridge, a drawbridge over Townsend's Inlet with a vertical clearance of about 23 feet above the water. On September 17, 2018, the Townsend's Inlet Bridge closed for an \$8.6 million project to replace the bridge with a new span. The new bridge reopened on July 25, 2019. The bridge is a transportation link between Sea Isle City and Avalon, New Jersey, and is part of Ocean Drive, a series of local roads and bridges in southern New Jersey, connecting Atlantic City to Cape May along barrier islands on the Atlantic Ocean. Townsend's Inlet is an entry way to the Intercoastal Waterway from the ocean. The Inlet serves both commercial marine traffic as well as pleasure craft. It is also a favorite spot for local fishermen with jetties and back bay available.

The existing view to the northeast from the elevated surface of the bridge is a broad vista that includes a wide expanse of sandy beach and the open water of Townsend's Inlet. Grassy dunes and shoreline residential development line the beach on the left side, and a point of land with structures on it is visible on the opposite side of the water on the right. However, within the frame of the selected photo, the focus is the smooth surface of the beach at low tide. The beach includes two people and some shore birds, but otherwise appears deserted. The exposed sand wraps around a point of land and disappears out of sight to the left. This early morning view is looking into the sun. Wet sand and small waves at the shoreline give way to dark open water that extends to the horizon, where it meets the bright morning sky. The sky transitions from a light orange at the horizon to white and light blue overhead. Except for the nearby residential structures (outside the selected field of view), the beach appears natural and undisturbed.

Rating panel members indicated that, although viewed from a transportation way, the existing view is available to both pedestrians, fishermen, and vehicular passengers by way of the sidewalks on each side of the roadway. The view is simple in its composition with an open vista to the dune vegetation, rolling surf, and ocean without a significant focal point to direct and focus the view. The view will be experienced by passersby for a varying amount of time depending upon their mode of transportation. The warm tones of the sand and rosy-pink hue in the sky compliments the pale blue color of the ocean and draws the viewer's attention to the brightness of the horizon. Rating panel scores for the existing conditions photographs ranged from 9.3 to 13.0 (average score = 11.1). The rating panel score for this KOP indicates that this view is partially retained.

Proposed Conditions

Scenic Quality: Modified
 Rating Panel Score Average: 8.6
 Rating Panel Score Range: 6.0 - 11.0
 Impact Magnitude: 2.5 (Significant)

Viewshed analysis suggests that views of the full Project could be available from the bridge and the open water of Townsend Inlet. Views are also possible from the nearby beach and areas of undeveloped land inland from the shoreline. However, those views are quickly blocked as one moves from open water and undeveloped shoreline into adjacent developed areas.

With the proposed Project in place, the view is dominated by an expansive and highly visible array of WTGs that spread across a large portion of the ocean view to the northeast-southeast from this location. Of the 94 degrees of relatively unobstructed ocean horizon, the Project occupies approximately 28 degrees or 29.8 percent of the view (see Field of View Image, left). Project visibility is slightly mitigated by the relative proximity of the WTGs (27.35-miles); however, their slender profiles are backlit by the rising sun, which makes the WTGs appear dark against the sky. Rating panel members had a somewhat variable range of reactions to the impact resulting from the Project WTGs, with the VIA scores ranging from 6.0 to 11.0 (average score = 8.6). These scores indicate an average reduction of 2.5 points suggesting significant visual impacts could occur under the clear conditions presented in this photosimulation. Individual rating panel members indicating reductions that ranged from 0.7 to 7.0. Panel members indicated that the presence of the WTGs provides an organizing focal element to the view; however, the strong vertical lines dominate and change the seascape due to the introduction of an industrialized element into the once unobstructed view to the horizon. This organized WTG placement and the line-up/stacking of visible WTGs creates darker and denser forms in a portion of the view until the WTGs splay outward to the northeast and their position becomes more irregular. The movement of the rotor blades will also attract viewer attention and will highlight the WTGs as the focus of this view. However, the visibility and visual dominance of the WTGs is likely to be reduced under more hazy or foggy sky conditions, or when the WTGs are front lit and whiter in color against the sky. With the Project in place, the rating panel scores indicate that this view has become modified.

The panel members assigned the Project visibility an average VTL of 5 from this KOP. The panel indicated that the WTGs are somewhat compatible with the ocean (water resources), landform, vegetation, land use, and user activity. Additionally, the Project would result in moderate scale contrast with the ocean, landform, land use, and viewer activity. They would also be a co-dominant feature considering the ocean, landform, vegetation, land use and user activity.

SIC02 Townsend's Inlet Bridge

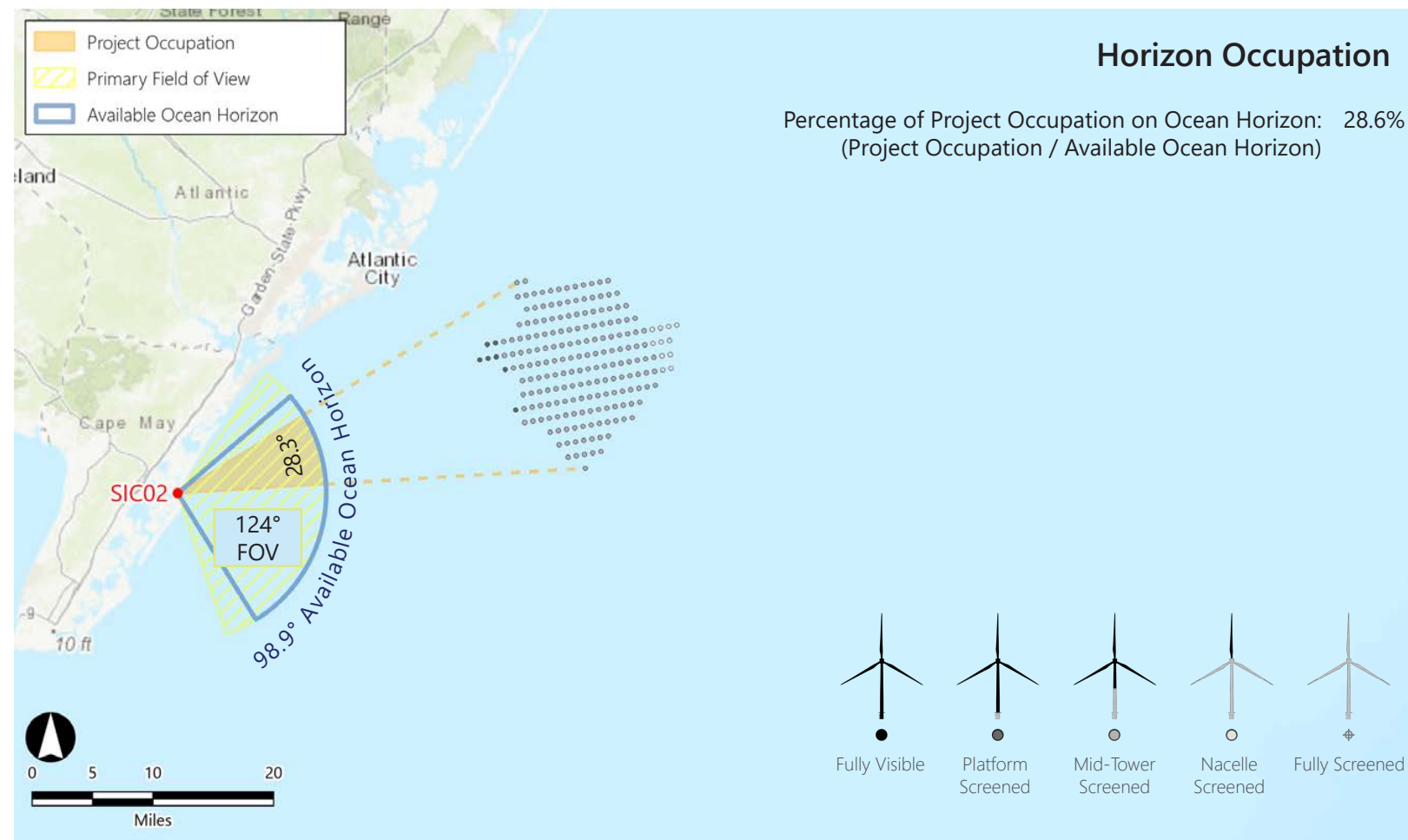
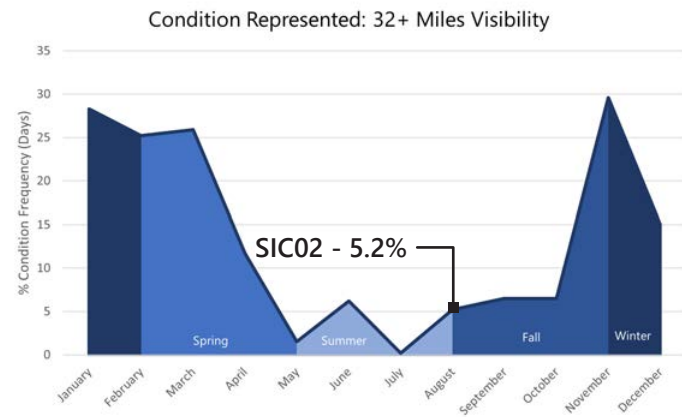
Sea Isle City, Cape May County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 27.35 miles
 Camera Height: 40.18 ft
 User Groups: Residents, Tourists

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



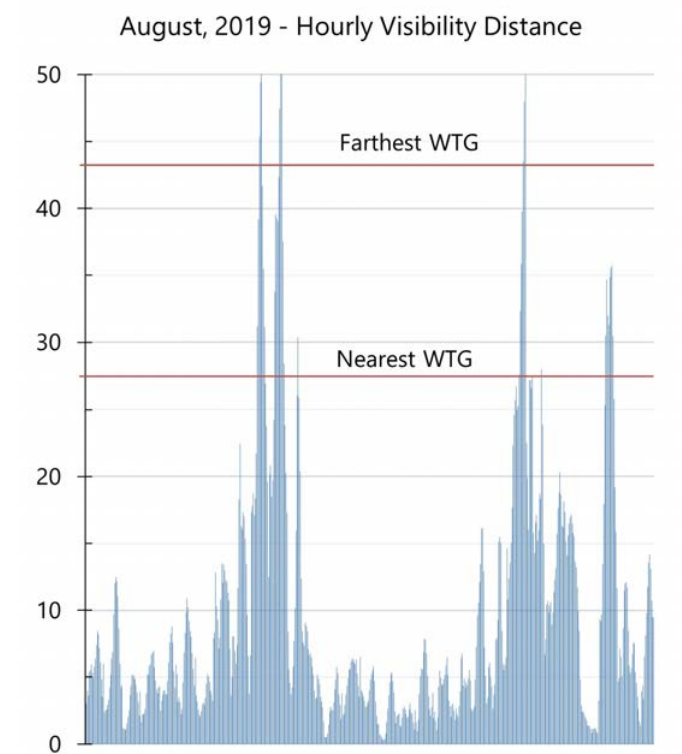
WTG Color Contrast

Color Contrast Rating: 1.71
 Turbine (Light Gray) / Background (Dark Gray)

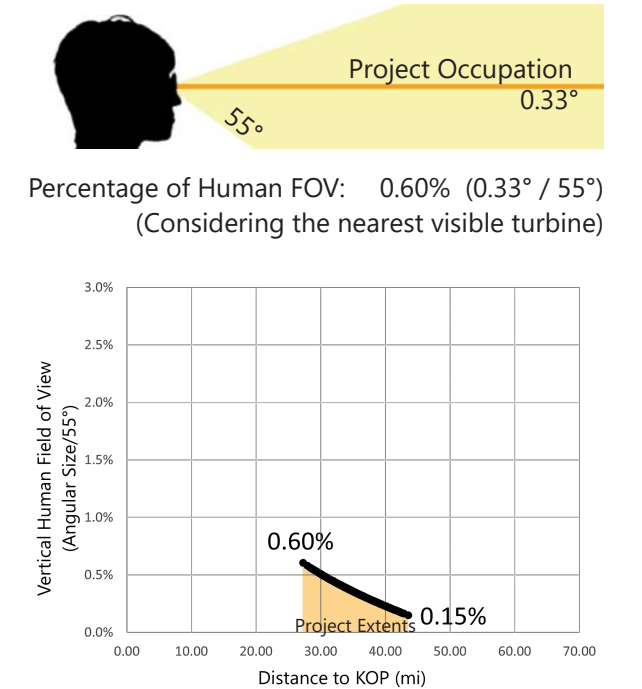
Lighting Condition: Back lit
 Season: Fall
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

SIMILAR VIEWING PARAMETERS:

KOP BT01 Illustrates the project from 30.25 miles in the side lit condition. This provides an indication of how the turbines may appear from this KOP during morning conditions.



Vertical Occupation



Existing Conditions



Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



This scale is designed to insure the photosimulation images are printed at the intended size.

Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey

Key Observation Point: SIC02 - Townsend's Inlet Bridge
Attachment E: Photosimulations: Page 154 of 159

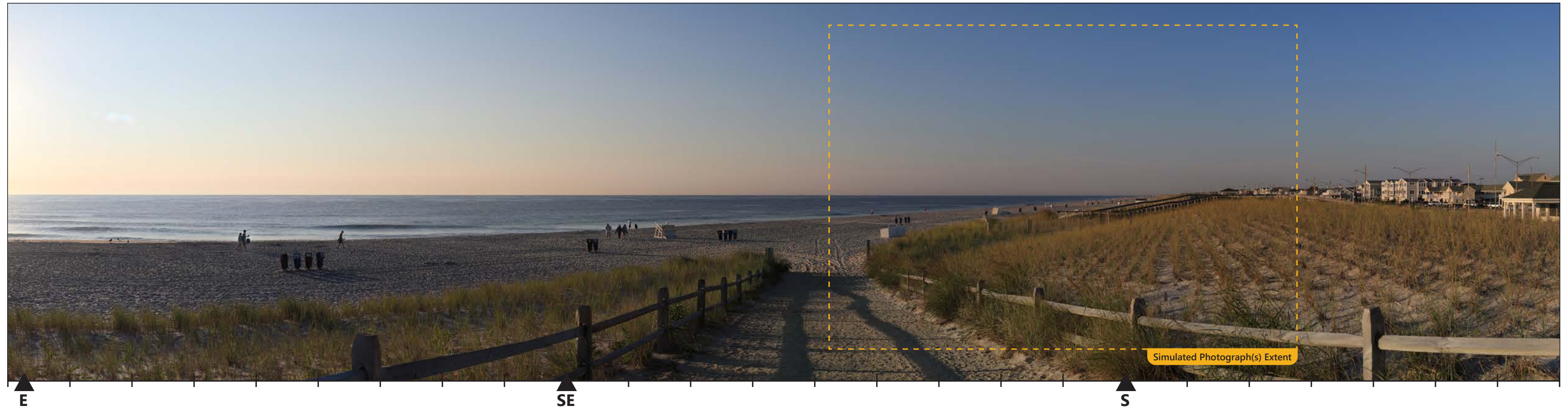
Printed at 100% the resulting photosimulation size is 15 inches wide by 10 inches high. At this size and focal length, the photosimulation should be viewed from a distance of 21 inches.



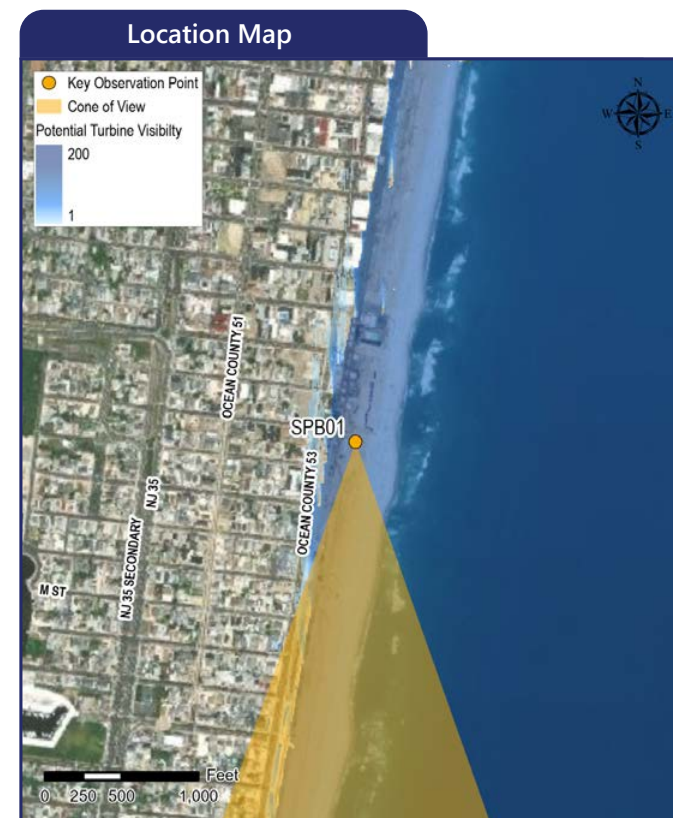
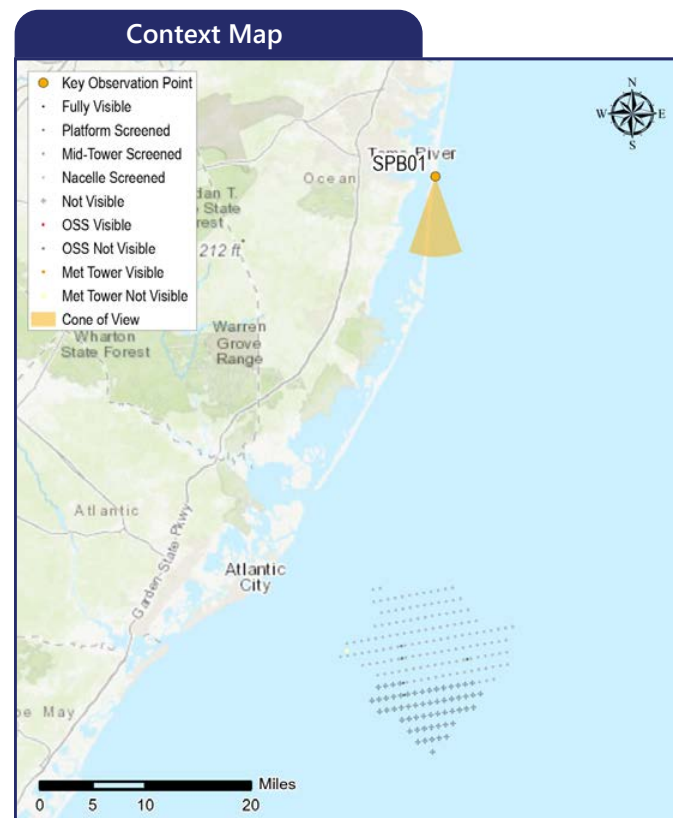
This scale is designed to insure the photosimulation images are printed at the intended size.

SPB01 Seaside Park Beach

Seaside Park Borough, Ocean County, New Jersey



The image above is a +/- 124° panorama photograph from Seaside Park Beach, panning clockwise from east (left) to south-southwest (right). The yellow rectangle within the photo represents the extent of the photosimulation photo(s).



Simulation Information

Coordinates: 39.93533°N, 74.07164°W
 Character Area: Commercial Beachfront, Seascape (SCA)
 User Group: Residents/Tourists, Fishermen
 Direction of View: South
 Distance to Nearest Visible Turbine: 38.96 miles
 Visually Sensitive Resource: Seaside Park Beach and Boardwalk, U.S. Life Saving Station No. 13

Environmental Information

Date Taken: 08/25/2022
 Time: 7:06 AM
 Temperature: 67°F
 Humidity: 84%
 Visibility: 10 miles
 Wind Direction: West-northwest
 Wind Speed: 3 mph
 Conditions Observed: Fair

Photograph Information

Camera: Canon EOS 5D Mark IV
 Resolution: 30.4 Megapixels
 Focal Length: 50mm
 Camera Height: 16.23 feet AMSL

Notes

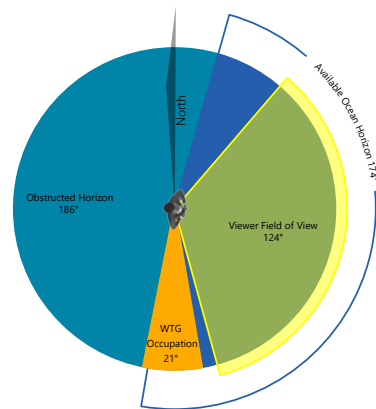
Printed at 100%, the photosimulations are 15 inches wide by 10 inches high. At this size, the photosimulation(s) should be viewed from a distance of 21 inches.

Simulated Photograph(s)



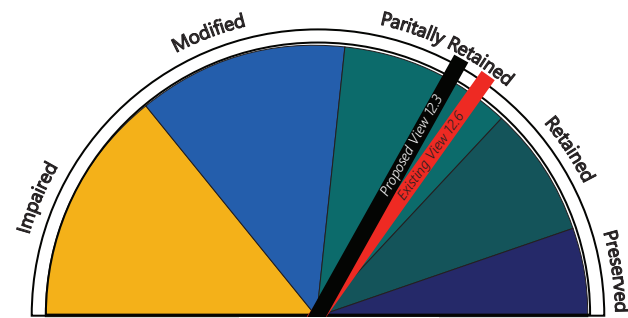
Map considers screening by curvature of the earth, viewer height, and WTG height only. Considering landscape features, 118 WTGs will be visible.

Field of View



Visual Impact Rating

Impact Rating Summary



-0.3. Negligible

Visual Threshold Level (VTL)

1 An object/phenomenon that is near the extreme limit of visibility. It could not be seen by a person who was unaware of it in advance and looking for it. Even under those circumstances, the object can be seen only after looking at it closely for an extended period (Sullivan et al., 2013).

Principles of Composition and Factors Affecting Visual Impact Summary

Design Elements	Description
Focal Point	Restored beach grass planting in the foreground and Ocean horizon in the background.
Order	Pathway, split-rail fence, beach grass, sand, surf, ocean and horizon.
Visual Clutter	Split-rail fencing, litter receptacles, miscellaneous walkway/ramp handrails, life guards stations, beach sheds, and long-arm light poles at the boardwalk.
Movement	Present. Waves, watersports, people on beach.
Duration & Frequency of View	Short Term/ Fleeting Repeated
Atmospheric Conditions	The evening sky is clear, transitioning from a pale blue in the lower right to a deeper matte blue along the top.; Increased moisture in the air could impact visibility.
Lighting Direction	Side-Lit
Scenic or Recreational Value	Seaside Park Beach and Boardwalk, US Life Saving Station. Draws significant summer crowds.

Compatibility and Contrast Rating Average

Seaside Park Beach			
Resource	Compatibility	Scale	Spatial Dominance
Water Resources	1.0	1.0	1.0
Landform	1.0	1.0	1.0
Vegetation	1.0	1.0	1.0
Land Use	1.0	1.0	1.0
User Activity	1.0	1.0	1.0

1 – Compatible
 2 – Somewhat Compatible
 3 – Not Compatible
 1 – Minimal
 2 – Moderate
 3 – Severe
 1 – Subordinate
 2 – Co-Dominant
 3 – Dominant

Existing Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 12.6
 Rating Panel Score Range: 11.3 - 14.0

This view is from Seaside Park Beach in the Borough of Seaside Park, located on the Barnegat Barrier Island in Ocean County, New Jersey. Seaside Park has almost two miles of shoreline on the Atlantic Ocean, the borough's main industry is summer tourism. The beach is a popular swimming and sunbathing destination, and in-season access requires a beach badge. Lifeguard and beach patrol services are provided, and a variety of shops, accommodations, and restaurants, plus a boardwalk offering rides and games, are available nearby.

The selected location for this KOP is on an access path from the boardwalk down to the beach. The existing view to the south from this location looks down the beach, with the ocean on the left and vegetated (planted) low dunes and shoreline homes on the right. Within the frame of view of the selected photographs, the edge of the sand is bordered by an access path lined by a split rail fence that angles from the center of the view to the left in the foreground. The remainder of the foreground is dominated by the planted dunes with well-defined rows of green beach grass. The dunes are traversed by several fenced access ways and backed by an expanse of open beach that continues from the middle ground into the background. The beach includes scattered groups of people and man-made features such as trash cans, lifeguard chairs, and a small building. The beach is framed by the blue ocean on the left and a row of buildings beyond the dunes on the right. The viewer's eye is drawn down the beach to a point in the distance where it appears to converge with the adjacent ocean and developed upland. The beach is clearly well used but appears well maintained and relatively uncrowded. It has a pleasant recreational character.

Rating panel members indicated that, although viewed from an oceanfront residential setting with built forms and man-made structures visible behind the open beach, the existing view is focused on the dune landscape and the expansive ocean landscape. The visitors to the Seaside Park Beach will experience the seascape at varying durations and frequencies depending upon their proposed use. The elevated view from the beach entry and the adjacent dune grass plantings initially hold the viewer's attention until the light-colored sand and mix of beach amenities and visitors (scattered on the sand) occupies the viewer's attention before moving on to the rich blue ocean and strong horizon line. Rating panel scores for the existing conditions photographs ranged from 11.3 to 14.0 (average score = 12.6). The score suggests that the view from this KOP is partially retained.

Proposed Conditions

Scenic Quality: Partially Retained
 Rating Panel Score Average: 12.3
 Rating Panel Score Range: 11.3 - 13.7
 Impact Magnitude: 0.3 (Negligible)

Viewshed analysis suggests that Project visibility from this area will be available along the beach but would become quickly blocked by the first row of buildings in the adjacent residential properties. Potential views of the Project will generally be screened from inland portions along the street by intervening structures.

With the proposed Project in place, the southern view is not dominated by the introduction of the WTGs, as the WTG rotor tips are nearly indiscernible along the horizon. 172 degrees of relatively unobstructed ocean horizon is available at this location, and 188 degrees of horizon is obstructed by landward views. While the Project occupies approximately 21 degrees (primarily over ocean horizon), a portion of the Project is viewed over obstructed horizon (e.g., landforms). Project visibility is further limited by distance (38.96-miles from the nearest Project WTG) and the side lighting provided by the setting sun. The rating panel members reaction to the impact resulting from the Project WTGs was consistent with their original rating of the existing conditions, with the VIA scores ranging from 11.3 to 13.7 (average score = 12.3). These scores indicate an average reduction of 0.3 points in comparison to the existing view, with individual rating panel members indicating reductions that ranged from 0.3 to 0.7. Panel members indicated that the presence of the WTGs would be minimally noticeable to most beach visitors since the viewer's attention is focused on the foreground dunes, middle ground beach, and rolling ocean surf. The movement of the rotor blades could attract viewer's attention; however, the tips are so obscure on the horizon that it is unlikely that the casual observer would notice them. In addition, the visibility of the WTGs is likely to be reduced under more hazy or foggy sky conditions. With the Project in place, the viewpoint remains partially retained and impacts would be negligible.

Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present no scale contrast, are compatible with the existing landscape, and are subordinate when compared to other features of the existing landscape (see Compatibility and Contrast Rating Average Table, left). Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 1 from this KOP.

SPB01 Seaside Park Beach

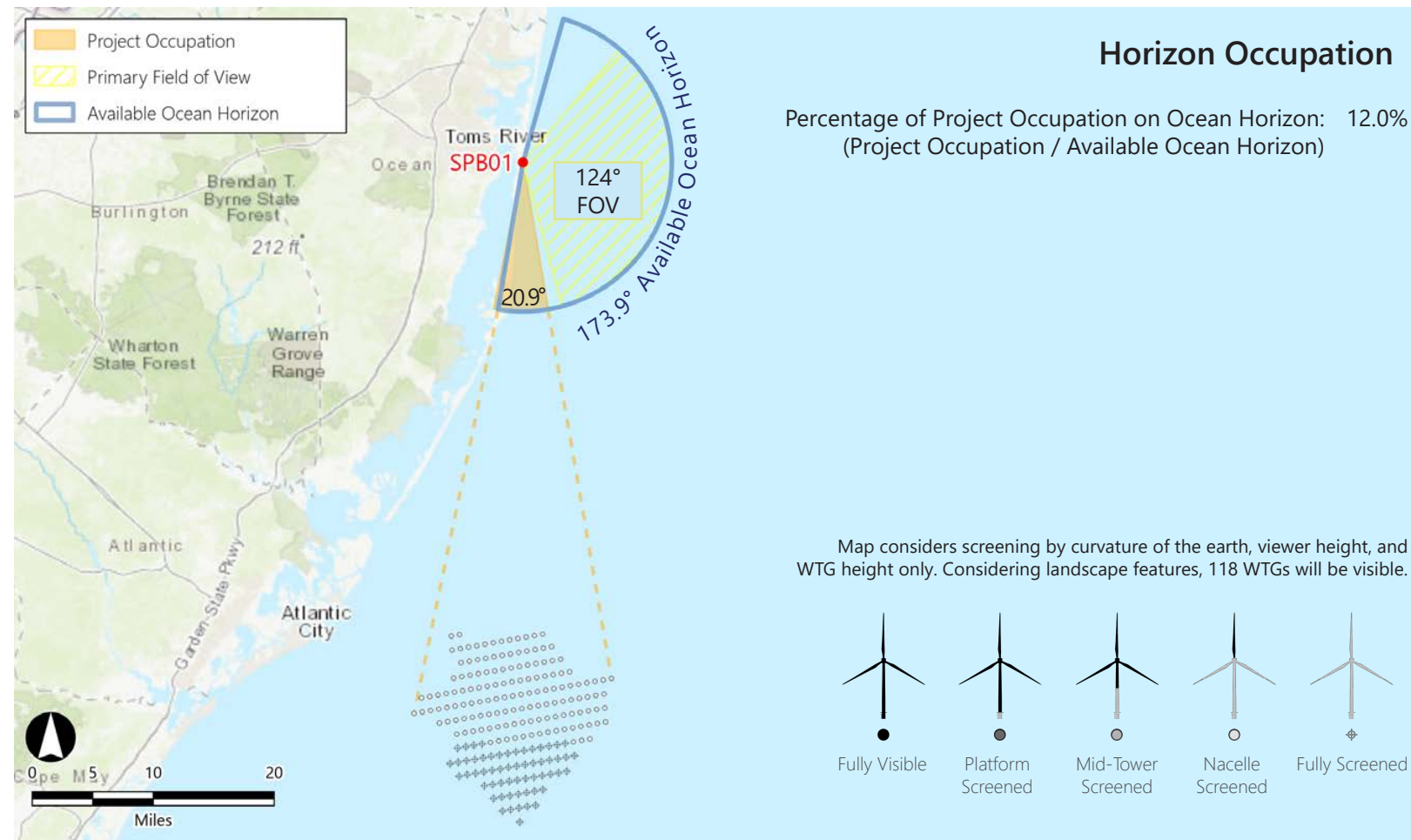
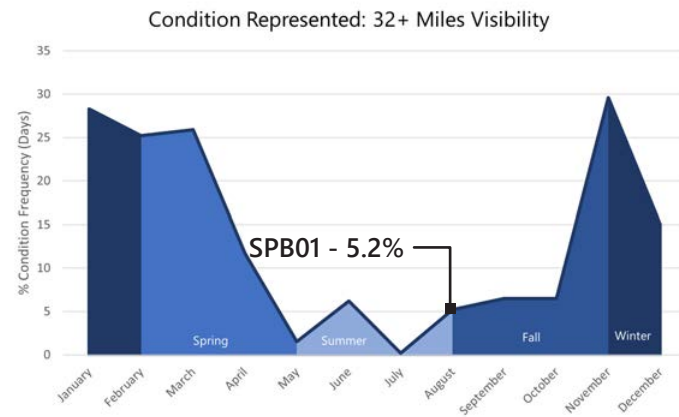
Seaside Park Borough, Ocean County, New Jersey

KOP Information

Primary Field of View: East
 Distance to Closest WTG: 38.96 miles
 Camera Height: 16.23 ft
 User Groups: Residents, Tourists, Fishermen

Atmospheric Perspective

The effect the atmosphere has on the appearance of an object as viewed from a distance.



WTG Color Contrast

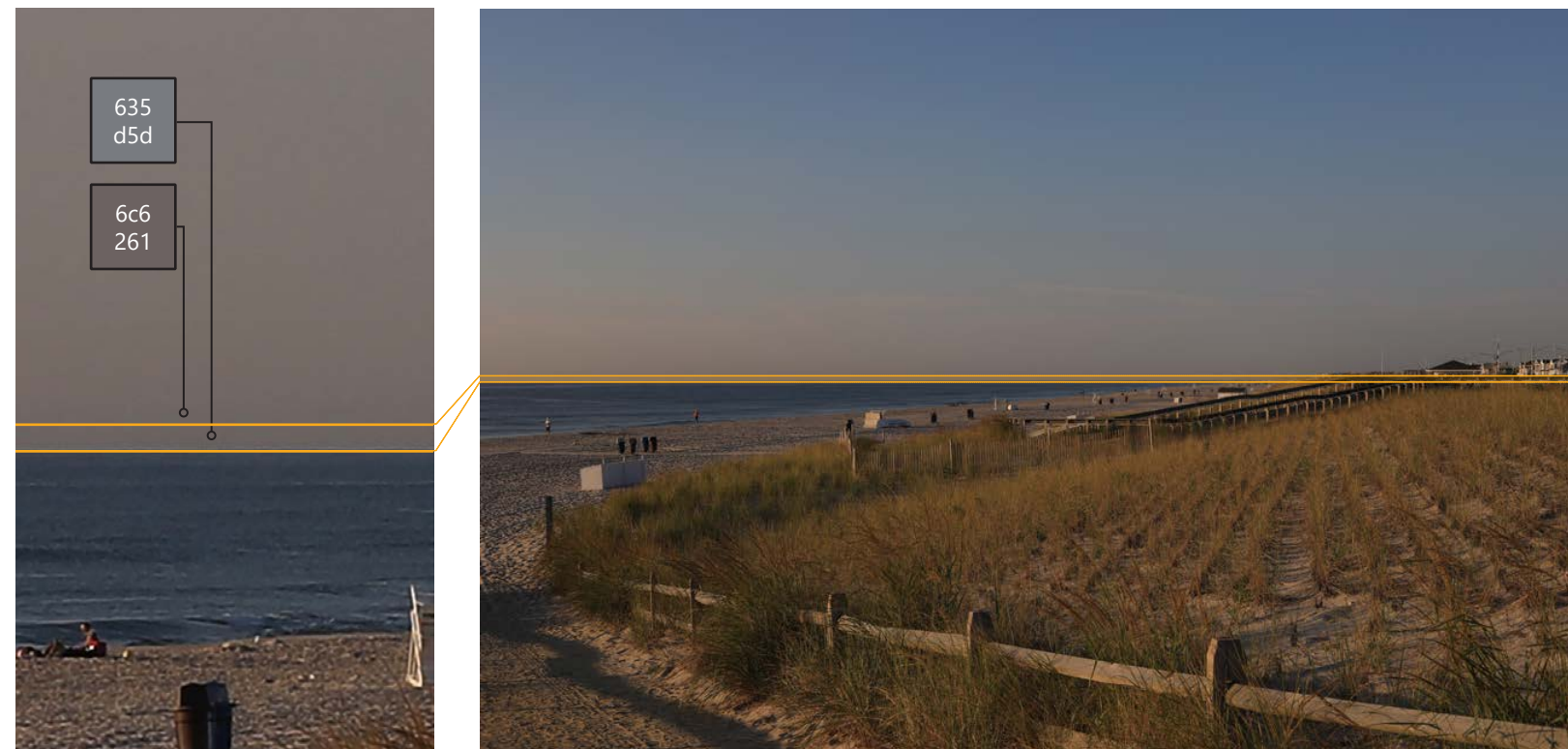
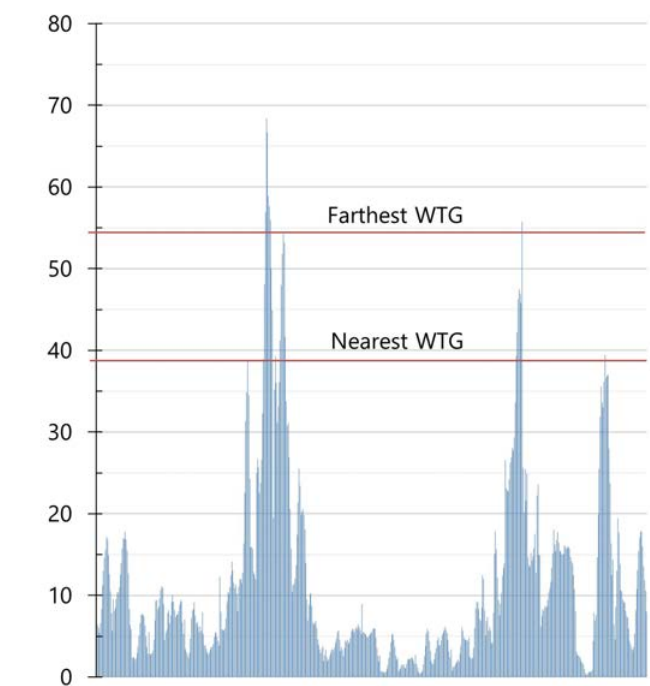
Color Contrast Rating: 1.09
 Turbine (Dark Grey) / Background (Light Grey)

Lighting Condition: Side lit
 Season: Fall
 Sky Condition: Fair
 Atmospheric Condition: > 10 Miles

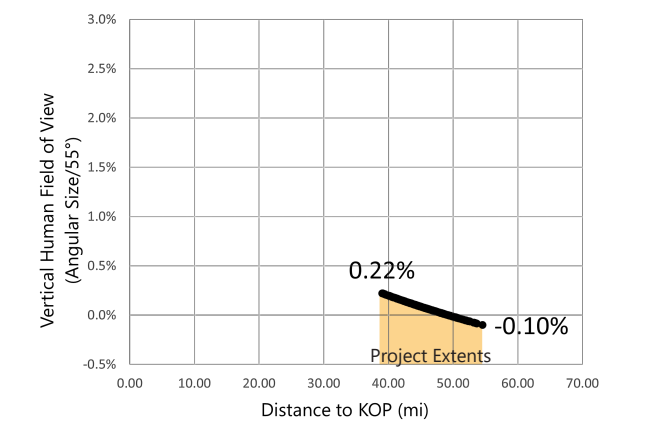
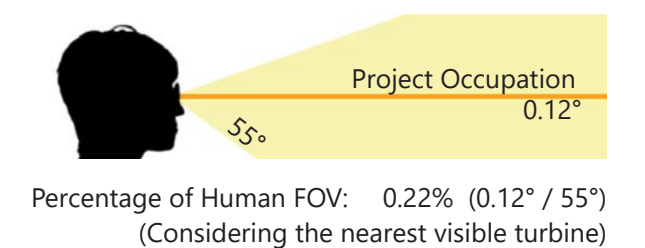
SIMILAR VIEWING PARAMETERS:

There are no other KOPs within the distance threshold represented by this KOP.

August, 2019 - Hourly Visibility Distance



Vertical Occupation



Existing Conditions



Atlantic Shores Offshore Wind Project
Outer Continental Shelf - New Jersey

Key Observation Point: SPB01 - Seaside Park Beach
Attachment E: Photosimulations, Page 4 of 159

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Photosimulation



Atlantic Shores Offshore Wind Project

Outer Continental Shelf - New Jersey
Key Observation Point: SPB01 - Seaside Park Beach
Attachment E: Photosimulations; Page 5 of 159

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